

System Risk – Where Does the Responsibility Lie?



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The central tenet of sustainable economics is that the capacity of environmental, social, and human capital should be wholly replenishable when the full benefits and costs of economic activities are accounted for. That includes internalisation of the unpriced components of both direct and indirect effects, or so-called externalities.

Incorporating these externalities into economic decisions should result in an efficient and sustainable allocation of resources. However, how should we think about the unpriced costs of activity over the long term? Internalisation of benefits and costs, which have not yet been borne, is complicated. It requires both a discounting mechanism to calculate a present value, even for activity in the distant future, and a decision on the appropriate process of internalisation.

In this article, I choose to focus on the latter issue, considering future costs and benefits through two prisms: an issue-specific assessment and a system-based assessment.¹ I then consider the merits of both the public and private sector process of internalisation based on these diverging approaches and finally suggest some recommendations for future developments.

Introducing System-Level Thinking

Any temporal assessment of direct and indirect costs and benefits of sustainable economic activity must begin with an understanding of the capacity and adaptability of existing resources. In sustainable research, this is often gleaned from resource-specific analysis framed by a finite or exhaustible resource assumption.

This can result in some revealing analysis. For example, the detailed analysis of biodiversity as an economic resource contained in *The Dasgupta Review*² and the striking claim that the economic system is already using 1.6 times the serving capacity of the biosphere.

Through this prism, costs can be identified and reduced by both lower usage and increasing resilience at a resource-specific level. For example, *The Dasgupta Review* argues that countries should de-emphasize GDP as an index of progress and instead should focus on a national wealth measure that includes an accounting for natural capital.

Yet, where Dasgupta succeeds in putting a price tag on natural capital, it is not a comprehensive way to capture the unpriced costs of economic activity on existing capacity over time. Furthermore, any attempt to assign prices as comprehensively as *The Dasgupta*

Review across all resources, both finite and renewable, would lead to great complexity and may prove extremely unwieldy.

This has led some scholars to conclude that a better way to quantify the costs of economic activity on potential capacity is to stop breaking down sustainability challenges into individual analytical problems and instead consider them holistically. They argue in favour of deploying an ecosystem approach which analyses important interactions of multiple resources or factors, which may be relevant from a number of fundamentally different operational and philosophical perspectives.³

This holistic or system approach has garnered increasing interest in light of the failure to address numerous sustainability-related challenges, for example climate change, marine pollution, or species loss. Some researchers take the case for sustainable economic analysis based on systems-thinking even further, arguing that “sustainability is a systems-based concept and, environmentally at least, only begins to make any sense at the level of ecosystems and is probably difficult to really conceptualize at anything below planetary and species levels.”⁴

System-Level Thinking in Action

When seeking to improve sustainability management, is there a case for alternative, and potentially enhanced, assessment criteria of both direct and indirect effects based on dynamic interactions within and across interconnected systems? If so, what are the prospects of relieving existing bottlenecks and better allocating resources for the long term?

We should begin by recognising that system-level analysis is already widely used both in theory and practice. One such example is the Financial System Report that the Bank of Japan (BOJ) first released in 2005 and continues to publish biannually. The report assesses the resilience of Japan’s financial system as a whole. The key assumption is that the highly interconnected nature of financial markets means analysis of a single issuer or asset class may offer an incomplete picture of the health of the financial system. The BOJ also provides a useful definition of future costs embedded in the system, noting that “systemic risk is when the insolvency of an individual financial institution spreads to other financial institutions, other markets, or the entire financial system”.⁵

The benefit of looking at financial markets through a systemic lens was aptly demonstrated during the Great Financial Crisis, when the influence of previously overlooked network effects became of great

consequence. The response from policymakers also followed a system-level approach. For example, the Federal Reserve's measures to expand its role as the lender of last resort, introduce new liquidity facilities, and expand open market operations were all designed to limit contagion and prevent a system-level collapse.

While the evidence suggests that central banks were prepared for a systemic threat to financial markets, what may have come as a surprise to some was just how interconnected financial markets were at the time to other economic, social, and political outcomes – much of which was far beyond the analytical purview of central banks.

The linkages between monetary policy and social and political issues led to much wider, and perhaps unintended, consequences from unconventional Federal Reserve policy, with some researchers arguing QE exacerbated wealth and consumption inequality while contributing to a politicalization of the Federal Reserve.⁶

And herein lies the challenge with a system-based approach. At what point do you limit the scope of your analysis? In the public sector, the answer is relatively straightforward. Central banks are given jurisdiction over monetary matters, while other aspects of economic, social, or indeed political or geo-political policy are entrusted to other ministries within the government. For system-level analysis to succeed on issues that span across these fields, it is necessary for government functions to partner together more effectively.

We have seen evidence of such action with publication of ambitious decarbonisation strategies that encompass all areas of government, such as the Net Zero Strategy in the United Kingdom in 2021 and the Green Transformation (GX) Basic Policy in Japan in 2023. Mechanisms to enhance coordination have also been developed. For example, as part of the climate transition bonds issued by the Japanese government earlier this year, a new liaison system between relevant ministries and agencies was established to select appropriate projects.

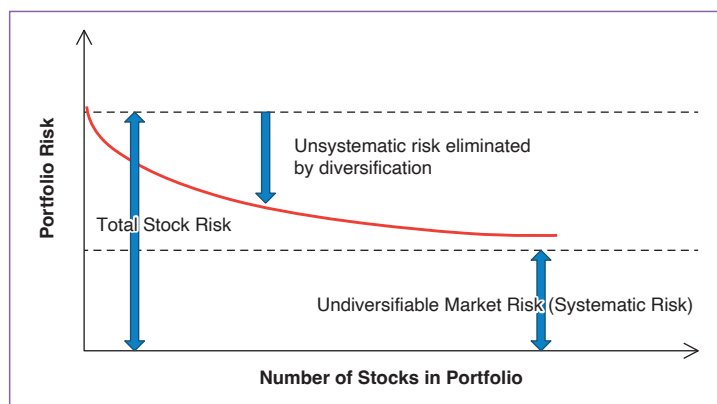
However, the challenge for the private sector of adopting a system-level approach to resource allocation is potentially both more pressing and more disruptive. Given their highly integrated nature, financial markets are a useful place to consider how the private sector approaches the issue of system-level stability.

System-Level Thinking in the Private Sector

In financial markets, it has long been accepted that standard

CHART

The limits of diversification



Source: adapted from Statman, M. (2004), *The diversification puzzle*. *Financial Analysts Journal*, 60(4), 44–53

approaches to assessing costs and benefits of economic activity are subject to a wide range of market failures. In particular, there is a recognition that information failures limit the ability of market participants to accurately price sustainability-related challenges. I touched on some of these issues in an earlier *Japan SPOTLIGHT* article in January 2023.

If system-level analysis offers an alternative way to account for these costs and benefits, then it may also be beneficial for investors looking to allocate capital in a sustainable way. Indeed, there has been a growing acceptance from investors that system-level thinking can improve their understanding of, and mitigate the risks associated with mispriced, or unpriced, costs and benefits.

Furthermore, as our understanding of system-level challenges has risen, there have been increasing questions over whether attempts to insulate investor portfolios from negative shocks through diversification can provide sufficient protection to portfolios from system-level risks whether financial (e.g., global financial crisis), environmental (e.g., climate change), or social (e.g., income inequality or political stability). As the *Chart* highlights, a highly diversified portfolio still has substantial system-level risks embedded in it. The case against passively accepting risks contained in market-level returns, or beta, has been articulated by James Hawley and Jon Lukomnik (2021).⁷

So why have investors not sought to integrate market or system-level analysis into investment decisions more comprehensively? The difficulty is partly a measurement problem. System issues are inherently more qualitative, and investors often find it challenging to

integrate them as they are not as easy to quantify.

As with the public sector, it is also partly a question of where the limits of system-level analysis should be drawn. Let's examine this latter issue in more detail. Under the shareholder-primacy model, where fiduciary duty promulgated profit-maximising behavior as investors' sole appetency, the scope of system-level analysis has been limited to issues with material financial consequences. That encompasses some system-level issues but not all.

However, a growing emphasis from asset owners on environmental, social and governance has resulted in an increasing appetite for non-financial objectives to be embedded in asset allocation analysis and decision-making. This broadens the opportunity set of system-level investing and also strengthens the case for analysis across complex interlocked financial, economic, nature-based and social systems.

Regulators have been quick to recognise the benefits of a system-level approach and have begun to require the financial sector to account for system-level risk. For example, the UK Stewardship Code currently requires signatories to "identify and respond to market-wide and systemic risks" to promote a well-functioning financial system. This Code will be revised in 2025 and close attention will be paid to any further emphasis to incentivize system-level investing.

System-Level Thinking in Practice

While in the public sector, a growing emphasis on sustainable economic objectives has led to an increasing coordination between previous disparate government functions, there is no readily available private sector partner for financial firms to team up with to analyse the impact of dynamic interactions within and across interconnected systems. For this reason, the more limited definition of systemic risk provided by central banks is insufficient for private sector participants in financial markets. Instead, efforts have been made to provide a broader definition of system risks that includes both systemic risks, as conventionally defined by central banks, and systematic risks which are defined more broadly by clients and regulators as "any risk which is non-diversifiable".⁸

At present, there is little theoretical agreement on the boundaries of this enlarged grouping. As a consequence, it is practitioners who are stepping in, aligning definitions with their interpretations of client and regulatory guidance. One such example comes from the International Corporate Governance Network (ICGN), an investor-led organization championing global standards to support value creation while contributing to sustainable economies, which provides the following examples of system-level risk:

- Macroeconomic risk, including market and credit risk and changes to political, legal, regulatory, and fiscal instruments
- Environmental risk, including climate change, water scarcity and pollution
- Social risk, including human rights, income inequality and populism
- Governance risk, including corruption, expropriation of control and corporate culture
- Technological risks, including artificial intelligence and cyber security.⁹

At first glance, it may appear eminently sensible to account for the above factors in asset allocation decisions. However, for wide-ranging definition such as those from the ICGN to be justified, the allocation of resources should maximize the net issuer-related benefits and systemic benefits without depleting resources over time. This decision requires an estimation of the benefits received from all possible ways of allocating resources after accounting for associated trade-offs.

For example, the benefits at portfolio level or system level must be offset by the costs that may be borne by an individual company, as well as the considerable costs associated with monitoring across these far-reaching dimensions.

Do the Numbers Add Up?

In the next section, I examine whether a system-based approach to analysing and internalising costs and benefits can yield better sustainability outcomes and consider what is necessary for the case for a system-level approach to be strengthened.

When seeking to estimate the benefits of system-level investing, the obvious first question is whether private sector actors have the capability to influence system-level outcomes? The fate of many of the themes identified by the ICGN above are unlikely to be dictated by the actions of individual investors. Instead, there is a need for mechanisms that encourage investors to develop new knowledge and tools to better understand and influence the outcomes associated with system-wide issues. This may include establishing new sustainability research teams, bringing in external expertise and developing appropriate internal risk and governance frameworks. For example, much effort has been made to understand net zero technologies, such as carbon capture, biofuels, or e-fuels, but how should investors integrate net negative technologies such as direct air or ocean capture, or direct cooling technologies such as solar

radiation management, into long-term asset allocation?

Equally importantly, investors should seek to partner with other leading organizations to increase their capacity to influence system-level outcomes. This can occur through collaborative engagement in investor initiatives such as the UN Principles for Responsible Investment or Climate Action 100+.

These initiatives are more effective if they are capable of aligning efforts from different regions and stakeholders. A collaborative engagement that is conducted across multiple jurisdictions may be more successful at preventing a race to the bottom, as international rivals refrain from exploiting near-term transition costs borne by a firm that has been pressured to shift behavior on a material issue at a local level. For example, the Asia Engagement Working Group of the Climate Action 100+ coordinates engagement with companies in the Asian market while understanding the institutional sensitivities and specific engagement nuances in local markets.

Another important way to increase the impact of system-level activities is to enhance capabilities for coordination across private and public sector stakeholders. By implementing a multi-engagement approach which extends beyond the usual issuer engagement to other influential entities such as government, civil society and business associations, investors can raise the impact of their activities on system-level outcomes.

The second part of the equation relates to minimising the costs needed to generate positive system-level outcomes. This includes costs incurred by firms at an individual level from changes investors have agitated for to generate benefits at the portfolio or wider economy level. In corporate law, directors are obligated to put the interest of shareholders in an individual firm first. Investors must respect this principle and engage in two-way dialogue with firms, fully exercising their rights and responsibilities, to ensure that each engagement with firms is value-creating in the long term, rather than abdicating responsibilities for problem firms in favor of making decisions only at the portfolio aggregate level.

Another important requirement to improve the cost-effectiveness of a system-level approach is the development of investment tools and datasets to address and monitor systemic environmental and social concerns and the establishment of new norms that can regulate system-level investing. In a recent report, the Investment Integration Project (TIIP) set out a range of investment techniques used by system-level investors. These included conventional methods, such as statements of investment beliefs, whole industry minimum thresholds and engagement, and system-level due diligence, as well as advanced techniques such as field building, information sharing on system interconnections and standards

setting.

A greater availability of effective tools may help lower the cost of system-level investing. However, in reality many of the options raised by the TIIP are currently inaccessible to most asset managers and owners. If this is to change, then more efforts and resources must be deployed to strengthen system-level capabilities. Inevitably this will require trade-offs between new system-level tools and existing capabilities.

The Importance of the Market Mechanism

If the private sector is to begin to integrate systemic thinking into its decision-making, it is important that its contribution to system-wide outcomes is understood. It is highly unlikely that a single company or investor can achieve system-level change alone. However, the private sector will only take collective action if its contribution is recognized and remunerated.

Unlike with some other public goods, the case for excluding non-contributing entities from the benefits of system-level solutions is not a valid approach. There is certainly a case for governments to play a larger role through traditional tax and subsidies designed to encourage better behavior and tackle the free-rider problem. However, there is a limit to how effective the state can be in monitoring complex and interlinked sustainability outcomes.

Instead, governments would be wise to think about strengthening market incentives to integrate system-level analysis into decision making. Transparency and accurate reporting are critical to overcoming the free-rider problem. First, information disclosure can form the basis on rewards and penalties for investor groups, both from clients and from government monitoring of subsidies and taxes.

To facilitate greater client engagement on system-level issues, more incentives must be introduced to align incentives across the investment chain. By understanding asset owners, consultant and end-beneficiary preferences on systematic issues, it is possible to strengthen intrinsic motivation to integrate systemic risks into decision-making.

Second, the alignment of ambitions on system-level issues should be embedded more clearly in collaborative investor groups or global initiatives. Collaborating with like-minded investors can reduce information costs by sharing resources, skills, and expertise among collaborators. It can also facilitate peer-group level monitoring either by other contributing parties or by specified and agreed governance frameworks. For example, for selected collaborative engagements, the UN Principles of Responsible Investment Secretariat is also

responsible for monitoring and engaging investors.

Finally, more work must be done to offer an independent assessment of contributions, with a process of external auditing of system-level analysis and decision-making imperative to ensure that good behavior is rewarded and bad behavior disincentivized.

It is important that the adoption of system-level analysis is sustainable from a commercial perspective. This requires not only firms to better articulate the value added of system-level monitoring. This may include measuring how integrating systemic risk in decision-making may reduce volatility of returns, but also demonstrating how systemic stewardship is delivering on the sustainability objectives of clients and contributing to the improved functioning of markets that regulators have been requesting.

Conclusion

System-level thinking is not a cure-all for the economic system. It is quite possible that the standard cost/benefits analysis can offer improved sustainability outcomes if we are better able to measure externalities and orientate asset allocation to longer-term considerations of the direct and indirect effects of economic activity.

However, there is growing concern that the complexity of modern and highly globalized economic systems may not be sufficiently captured by the myopic approach to internalization of costs and benefits preferred by individual firms and investors. Furthermore, in the last decade or so, the shortcomings of the economic system when it comes to sustainability have become increasingly apparent.

A system-level approach offers a different and potentially more impactful alternative for analysing sustainable economic issues and allocating resources for the long term. However, there will be trade-offs and costs associated with this approach that will need to be justified.


For system-level thinking to succeed, it will be necessary to enhance the benefits derived from system-level solutions and help to mitigate the costs. I argue this requires the acquisition of new skillsets and analytical know-how. It also necessitates a more collaborative approach, with new coalitions to be formed both between the public and private sector and within the private sector.

That does not mean that there is not a place for more effective government regulation to deliver better and more sustainable economic outcomes. But to deliver environmentally or socially desirable goals, system-level solutions will require fully mobilized and incentivized private-sector action.

A critical facilitator of these sustainability coalitions will be greater transparency. Within the private sector, I call for greater monitoring

of system-level activity across three key components: 1) client monitoring, 2) peer monitoring, and 3) third-party audit. By understanding and assessing each entity's incentives, activities, and outcomes, it is possible to enhance accountability for system-level outcomes and embed incentives to deliver better and more sustainable economic outcomes.

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