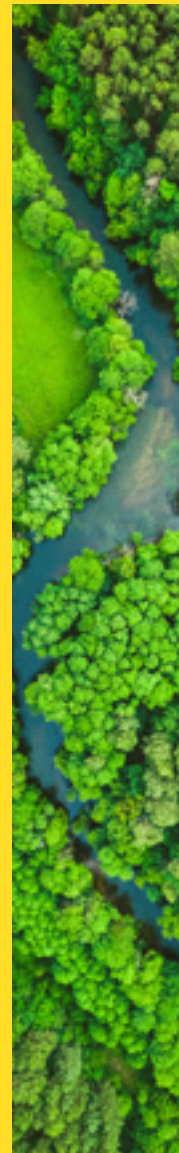


Corporate Sustainability and Shareholder Returns: The Role of Business Impact Maturity





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Executive Summary

This report tackles the well-known question of the relationship between (social and environmental) company sustainability performance, and shareholder returns. Despite several decades of scientific studies on the question, there is still little consensus on the nature (correlation or causality?), the sign (positive or negative?) and the direction of causality (which causes which?) in this relationship. Moreover, ESG (Environment and Social Governance) ratings are known to provide a poor, subjective evaluation of company sustainability performance.

The novelty of our approach consists in the explanation of financial performance as a function of the type of sustainability initiatives put in place by companies. The fundamental assumption is that specific types of sustainability behaviour will have a positive influence on shareholder returns, other behaviours will have no appreciable influence, and others will have negative influence. The same approach has been successfully applied to the study of environmental performance.¹

The implication of our approach is that the quest for the relationship between financial and sustainability performance, which dominated the scientific, business, finance, and policy debate for decades, becomes a lot less relevant. What really matters is to understand the drivers of both dimensions of performance, especially those related to the type of sustainability initiatives that companies are willing and able to launch. To this end, we develop the concept of **Business Impact Maturity (BIM)**, which is defined as *the progressive alignment of business purpose, strategy, structure and culture to the creation of systemic wellbeing through stakeholder integration and ecosystem partnership capabilities*.

Business Impact Maturity: the progressive alignment of business purpose, strategy, structure and culture to the creation of systemic wellbeing through stakeholder integration and eco-system partnership capabilities.

In other words, we assume that the development of sustainability strategy in response to the evolving stakeholder expectation is necessary but not sufficient.

It is the progressive convergence and integration of stakeholders' interests and voice with the company strategic processes, governance structures and shared beliefs that really matters. Our approach borrows from the concept of maturity proposed by developmental psychology, which includes (at lower levels) the appropriateness of behaviour vis-à-vis societal expectations, but then eventually expects more mature individuals to be able to align what they know is appropriate with their own values and with the purpose they give to their own life. Similarly, businesses are expected to go beyond aligning with stakeholder and societal expectations, and progressively integrate their voice in the way corporate purpose and identity are expressed in decisions and behaviour for systemic wellbeing.

Empirically, we test this set of ideas using our unique **GOLDEN Sustainability dataset** of about **1 million** initiatives identified with NLP (Natural Language Processing) algorithms in about **50,000 reports** issued by **12,000 companies** (including about 2,000 privately held ones) from more than 60 countries, over about 3 decades. We use the behavioural characteristics of these initiatives together with the group of strategic stakeholders that the initiative aims to benefit or satisfy. We expect that the larger the proportion of strategically relevant (high maturity) initiatives, such as new product development and organisational change, the more positive the risk-adjusted returns to shareholders are, vis-à-vis unweighted market returns. By the same token, the higher the advocacy nature (low maturity) of such initiatives, the lower the risk-adjusted returns in absolute terms and relative to unweighted market returns. Markets should reward companies that prioritise strategic action over reputational action. We test these expectations by analysing the risk-adjusted returns (Sharpe ratios) of portfolio signals constructed with 983 North American and European companies over 13 years and find robust support. Sharpe ratios of portfolio signals related to strategically relevant initiatives grow from 0.628 (with low presence of such initiatives) to 0.753

¹ Cenci et al., *Nature Communications*, 2023

(high presence), much higher than the unweighted market returns of the same portfolio (0.64). **This translates in a 2.67% excess, risk adjusted, yearly returns, or 40,58% cumulative excess returns over the 13-year observation period.**

On the contrary, ratios of portfolio signals related to advocacy initiatives fall from 0.704 (low advocacy) to 0.64 (high advocacy). This means that the higher the presence of companies focusing on advocacy behaviour in the portfolio, the lower the risk-adjusted returns.

Finally, the **risk** connected to the high strategic relevance and low advocacy initiative portfolios (both related to higher maturity behaviour) is lower than the risk associated with their high advocacy (low maturity) alternatives. This implies that **there is no risk premium to be paid for higher return portfolio signals related to high maturity and low advocacy actions**. It is also worth noting that these results, on superior returns and lower risk levels, are confirmed also in comparison to some of the most widely used ESG ratings, including LSEG (formerly Refinitiv). This report then builds on the results of the financial returns analysis to introduce a broader approach to assess a company's BIM level on a 5-level scale, key dimensions related to purpose, strategy and organisation. The five levels are defined on the basis of the way a company's leadership responds to, and consequently acts on, two fundamental questions:

1. **What type of value do we want to create in this company?** The answer varies from a narrow focus on economic value to a progressively broader notion of well-being, which includes also psycho-physical, social/environmental, and personal development dimensions of well-being.
2. **Who does the company aim to create that type of value for?** Again, the answer can vary from giving primacy to a single group of stakeholders to a progressively broader typology of stakeholders. Importantly, there are also increasingly mature ways to create value for the chosen group(s) of stakeholders, with a progressively more open and integrative approach to involve them in strategic, innovation and, eventually, governance processes.

The responses to these and related questions on the various aspects of strategy (innovation, cooperation, marketing and growth) and organisation (governance, incentive and control systems, leadership models, culture) define a distinct logic of enterprise corresponding to a given maturity level. They range from a shareholder focused (1), to a risk- focused (2), a sustainable (3), a regenerative (4) and finally a systemic (5) logic of enterprise. Note that, the fact that about 50% of sustainability initiatives are advocacy-oriented means

that most companies are in the first two levels. The regenerative, and especially the systemic, logic of enterprise are currently aspirational (at best) and far from being realised for all but a handful of established companies.

What does the combination of the empirical evidence unearthed, and the conceptual development of a comprehensive maturity model imply for businesses, investors, and policymakers? We propose a detailed answer to this question in the Implications section of this report. Concisely, however, we wish to point you to the following takeaways:

- **For business leaders.** There is clear evidence that only some specific types of sustainability initiative contribute not only to improve the company's environmental impact, but the risk-adjusted returns to shareholders. Moreover, we are starting to understand what the fundamental adaptations to the way the company operates are to move to the next level of impact maturity, irrespective of the current stage of maturity.
- **For investors.** The results of the various portfolio analyses with different sorting logics (low, medium, and high levels) related to Advocacy, Preparation and Transformational type of sustainability behavioural signals speak by themselves. They show how important a systematic assessment of corporate sustainability behaviour is to improve both the returns, and the risk profile of the portfolios constructed to add to the standard factors considered (we use the 3-factor model by Fama & French) the additional explanatory and predictive power of sustainability activity.
- **For policymakers.** The implications for the design of positive and negative incentives in public policy interventions are profound. There is now the concrete possibility to design micro-founded sustainable development policies leveraging on the knowledge of what type of business actions are virtuous for the company's stakeholders, including investors, customers, employees, business partners and social communities. This will dramatically enhance both business acceptance and the overall impact of the policy interventions.

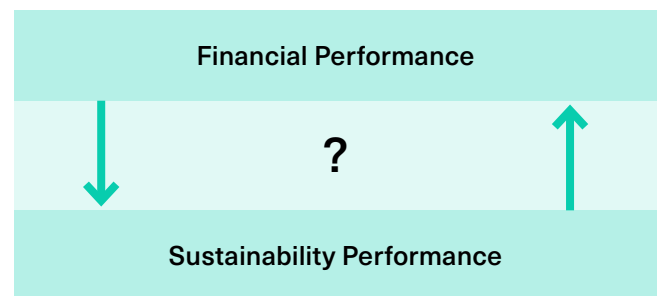
1

Introduction

The quest to understand the nature of the relationship between companies' financial performance and the quality of their social and environmental impacts (sustainability performance) is critically important for scholars, business leaders, investors, policymakers, and civil society. It is also one of the most frequently studied and debated questions in business research across all its sub-fields, such as finance, strategic management, and accounting.

The debate until today: Does it pay to be good? Which is causing which?

Figure 1



In terms of results, however, we have seen progress over the decades, but we are still far from a consensus around the key questions:

1. Is there a trade-off or a positive synergy between a company's financial and sustainability performance?
2. If there is synergy, is it correlational or causal? In particular, is higher sustainability generating higher financial performance, or vice-versa?
3. If there is a trade-off, is it because the companies with the worst environmental performance are perceived as high risk, and thus investors demand higher returns?

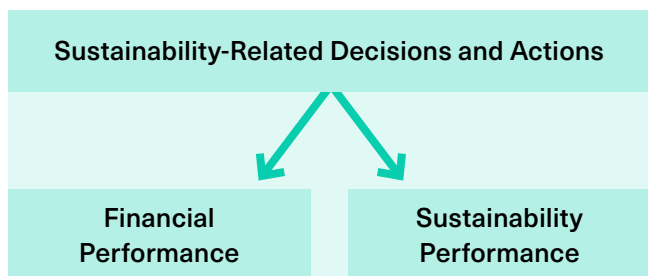
The additional difficulty in this long-standing line of research is that the state-of-the-art in the systematic assessment of environmental and social impacts, except for rare exceptions like carbon emissions and EDI (Equality, Diversity, Inclusion), is highly problematic due to the qualitative, highly subjective and non-transparent process through which these assessments are carried out by ESG (Environment and Social Governance)

rating agencies. The result is a very low correlation between the ESG evaluations carried by different rating agencies for the same company.

In this report, we offer a new way to approach the problem. It is based on the observation that both financial and sustainability performance are consequences of corporate initiatives aimed at improving either type of performance or both. Therefore, questions about the relationship between the two forms of performance lose relevance, and they can be logically replaced by the inquiry into the influence of corporate behaviours on each of the two dimensions of performance. Depending on the type of sustainability behaviour, the nature of the relationship between financial and environmental performance is expected to vary.

A behavioural approach: Sustainability Actions influence both financial and sustainability performance, and eventually their relationship.

Figure 2



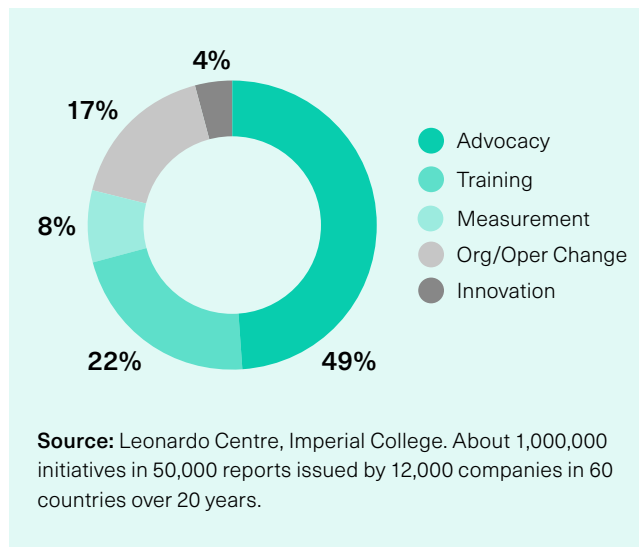
The other advantage of the proposed behavioural approach is that corporate sustainability actions are visible and typically disclosed by companies. This makes the systematic identification and categorisation possible. Consequently, large-scale statistical analysis can shed new light on the roots of both financial and impact performance. For instance, decisions aimed at enhancing a company’s environmental and social impacts could have positive, negative, or neutral effects on its financial performance – and thus impact in very different ways its capacity to produce returns to its investors. Therefore, the key question is: *which decisions and related initiatives are thus producing (in addition to the expected social or environmental impact that they are aimed to generate) positive, negative, or neutral effects on risk-adjusted returns for its shareholders?*

To tackle this question, we first need to have a systematic assessment of corporate sustainability initiatives. Figure 3 summarises the main brackets of corporate sustainability behaviours across major types, ranging from philanthropic donations to training, impact measurement, operational and structural change, and innovation.

This dataset (see Section 2 for more information on the GOLDEN Sustainability dataset) includes about one million initiatives in about 50,000 reports issued by 12,000 companies over the last three decades. The allocation of sustainability initiatives to the various categories of behaviour shows that **about 50% of them are dedicated to advocacy type of actions** (donations, communications, etc.), which might benefit the communities where the company is located but do not change the way the company operates in any significant way. Of the remaining 50%, about 22% is dedicated to training of employees and setting up the appropriate incentives for them to dedicate time and attention to the sustainability impact of their decisions or actions. Then, we find that a good quarter are related to various forms of organisational change, including the introduction of sustainability-related control systems (8%), structural and operational change (17%). **Only about 4% of the initiatives are focused on sustainability-oriented R&D investments and new product launches.**

Companies’ sustainability initiatives split between advocacy and (increasingly) substantive change.

Figure 3



The initiatives in this second half are increasingly related to actual adjustments in the way a company operates. This includes the development of sustainability skillsets and mindsets through training and incentives, the creation and adaptation of sustainability-related processes and structures, and the progressive innovation in products and business models. These types of initiatives can also produce enhanced financial results, especially if they allow the company to meet expectations on its environmental and social conduct in its product, resource, labour and financial markets.

It is therefore plausible to expect that:

1. The advocacy initiatives might create **trade-offs** between shareholders and other stakeholders' expectations, since cash-flows from operations are invested in projects of interest (primarily) to local communities or other social causes
2. There might be, instead, **positive synergies** between the sustainability-driven innovation and change initiatives launched by the company and its financial performance. This might be particularly true if they involve value chain stakeholders, such as customers and suppliers, since the goodwill and collaboration along the value chain positions the company in better terms on critical product and resource markets, vis-a-vis its peers.

The basic intuition on the focal role of corporate sustainability behaviour in explaining financial performance² begs the development of a testable, theoretical model to explain **which behaviours have a positive, neutral, or negative influence on the company's financial performance**. To this end, we leverage work done in development psychology³ to study and test the development of maturity across adult life. Interestingly, the vast majority of individuals reach and remain at a socialisation stage of maturity, where they become conscious of societal expectations and know how to behave in a socially appropriate way. Only 7% of adults move beyond that stage to begin integrating what is socially appropriate with their own values and identity (the Self-Authoring mind). Finally, only 1% of adults reach the highest level of maturity (the Self-Transforming mind) where inner tensions and discovery become the source of profound, subtle satisfaction. In Section 4, we propose a model of organisational level maturity development, in which companies progressively evolve to stages where sustainability strategy and actions, created to respond to societal expectations, are progressively integrated in the various dimensions of business strategy, of governance and structure, and of identity and culture. To this end, we propose the concept of **Business Impact Maturity (BIM)**, which we define as:

The progressive alignment of business purpose, strategy, structure, and culture to the creation of systemic wellbeing through stakeholder integration and eco-system partnership capabilities.

Companies “mature” (in an impact sense) by combining what they believe is the appropriate way to respond to societal expectations with what they identify as their mission (purpose) and driving values (motives).⁴ From this perspective, corporate sustainability can be understood as an effort to make sense of the evolution of societal expectations on business behaviour, and to **realign not only behaviours** (strategies, structures, practices) **but also the cognitive framings underlying such behaviours** (purpose, identity, values) at progressively deeper levels of consciousness.

At the **highest stage of maturity**, companies will have developed a purpose that aims to **create wellbeing** (across all its dimensions) for the actors in their eco-system, and will have aligned their business strategies, structures, systems, and cultural traits around that higher purpose. To achieve that level of maturity, companies will have **tested innovative change approaches** to integrate stakeholder representatives deeply into their strategic decision-making processes and in their governance structures. They will also have developed **capabilities to drive systemic change** in partnership with other ecosystem players, including their peers on a pre-competitive basis.

In the next two sections of the report, we will test the empirical validity of the behavioural approach taken in this report. Section 2 is dedicated to the description of the data utilised and the measures developed from it, while Section 3 describes the methodologies adopted in the analysis and the results that emerged from these analyses. Section 4 is dedicated to the development of the Business Impact Maturity model. In Section 5 we draw implications for business leaders, investors, and policymakers.

² Note that the focus in this report will be on the influence of sustainability actions on financial performance. Their influence on environmental performance (the alignment of corporate GHG emissions with Paris Agreement targets) was examined in a study published on *Nature Communications* (Cenci, Burato, Rei and Zollo, 2023).

³ See, in particular, the work by Robert Kegan on the evolution of maturity in individuals (so-called subject-object theory, 1983, 1998), and the empirical work by Fossas (2018) on the relationship of maturity with happiness.

⁴ See the emerging literature on the evolution of firm purpose. George *et al.* (2021) and the 2023 special issue on Strategy Science dedicated to the topic.



2

The Sustainability Behaviour Data

In this section, we share the key features of the data used for the analysis of portfolio risks and returns based on the characteristics of sustainability behaviour (initiatives). The results of the analyses are reported in the following Section 3.

2.1 The GOLDEN Sustainability Dataset

The GOLDEN⁵ Sustainability dataset is our primary source of information on corporate sustainability behaviour.

It includes about 1,000,000 sustainability initiatives, identified in approximately 50,000 sustainability reports by 12,000 companies, including about 2,000 private and about 10,000 publicly listed companies. The reports come from three major sources: web crawling of sustainability reports issued in English by the largest 25,000 global companies (ranked by size), the market data provider LSEG, previously Refinitiv, and private purchases. We finally filled in remaining gaps with private purchases from sustainability data providers (most notably, Corporate Register). The time span covered goes back to the mid-90s, but it becomes sufficiently rich for statistical analysis starting from the early years of the 21st century. The dataset is updated in December and June of every year. This work is the result of a cross-disciplinary partnership between the Leonardo Centre on Business for Society and colleagues at Imperial's Department of Computing and Data Science Institute.

The data we extract from the reports is structured around the concept of sustainability initiatives. We define these as *concrete actions that a company is pursuing with the specific intent of contributing to tackle a global environmental or social sustainability challenge*.

This concept maps business action against the intent to directly address one of the 17 Sustainable Development

⁵ GOLDEN is an acronym, stands for Global Organizational Learning and Development Network. The data is owned by the GOLDEN for Impact Foundation and licensed to Imperial College London's Leonardo Centre for research purposes.

Goals (SDGs). To avoid year-on-year duplication, we purposely avoid information around past outcomes or future commitment and focus on the activities launched and enacted in the year of each report.

2.2 The Data Construction Process

In order to systematically extract descriptions of sustainability initiatives from the text, we implement a multi-stage natural language processing (NLP) pipeline.

Initiative Identification

First, we convert the documents to Json files and extract all textual data and relevant metadata. We then segment the extracted text into individual sentences, each of which serves as the fundamental unit for initiative identification.

To achieve this, we leverage two state-of-the-art transformer-based language models: Bidirectional Encoder Representations from Transformers (BERT) and Robustly Optimised BERT Approach (RoBERTa). We employ both models in an ensemble structure to increase the predictive power of the system overall and compensate their respective weaknesses. We train the model with a sample of over 1,000 manually annotated reports performed by the GOLDEN Observatory hosted, from 2012 to 2019, by Bocconi University. This large manually annotated dataset of sustainability initiatives allowed us to classify each sentence in a sustainability report as either indicative or non-indicative of a sustainability initiative. The precision of the initiative identification procedure is particularly high (**98% correct identifications**), even for scientific standards.

Initiative Categorisation

The second step of the procedure moves from the identification of initiatives to their classification according to three main dimensions:

- **What:** The primary type of action characterising each initiative
- **Why:** The goal of each initiative, based on the connection to one of the SDGs
- **For Whom:** The class of stakeholders that are the beneficiaries of the initiative

What. A taxonomy of 14 types of actions has been developed through a structured categorisation scheme designed to be exhaustive and mutually exclusive. We list all 14 types we define and their associated description in table 2.1. The categorisation is exhaustive in the sense that both human and digital annotators correctly assign virtually all initiatives to one category. In a very small fraction of cases (less than 2%), the description of an initiative includes more than one identifiable type of behaviour, providing a high level of mutual exclusivity in the categorisation process.

Why. Here, the algorithm associates the text describing each initiative to the text describing each of the UN Sustainable Development Goals (SDG) and identifies the SDG that is most closely linked to the initiative.

For Whom. Finally, we consider which class of stakeholders can directly benefit from the initiative. The classes of stakeholders considered includes the five “primary” classes (employees, suppliers, customers, local communities, and investors) described in the academic literature.⁶

Brought together, these three categorisations allow us to interrogate report texts, and map each initiative to a relatively rich what-why-for whom space that can be used for cross-sectional and inter-temporal comparisons and for statistical analysis of performance consequences.

Concretely, we perform these classifications by having further ensemble models examine the text of the initiatives (no longer the entire report). To mitigate the risk of fragmenting a cohesive initiative description across multiple sentences where, for instance, objectives and actions are described sequentially, we implement a contextual expansion step. Sentences classified as initiative-related are concatenated with their adjacent sentences, thus capturing the broader discourse surrounding the initiative and aiding the secondary classifications.

Whilst we have data from as far back as 1990, we limit our sample to the initiatives launched in the years from 2010 to 2022. Note that this means that the corresponding reports analysed are issued between 2011 and 2023, since they are typically issued during the year following that of the described initiatives. This reduces the frequency of missing data and improves focus on the public companies traded in stock exchanges across the United States and the Eurozone for which we can find complete market data.

⁶ See “Stakeholder Theory: the State of the Art” by Ed Freeman *et al.* (2010).

Business sustainability maturity indicators by action type

Table 2.1

	Type of Action	Action Description
	Donations Funding	Philanthropic activities through which companies donate money, goods or services as gifts.
	Communications	Activities that bring specific information or knowledge from the firm to a certain interlocutor, to generate awareness, engage stakeholders, communicate policies.
	Volunteerism	Activities that stimulate and promote volunteerism, fundraising and personal donations from individuals within or outside the firm (i.e. employees, costumers, community volunteerism).
	Incentives and Disincentives	Activities that typically involve the devolvement of benefits, privileges, or rewards toward a particular stakeholder in order to gratify or stimulate an action.
	Pricing	Marketplace activities by which the firm temporarily sets up or modifies pricing structures and tariffs.
	Organisational Structuring	Activities that involve a structural change in the organisational structure of the firm.
	Modification of Procedures	Activities that modify the procedures adopted by the firm in order to perform a specific activity.
	Assets Modification	Activities that build, expand or modify the physical assets owned and used by the Company to run their activities.
	Training	Teaching activities aimed at improving knowledge, skills, and competencies.
	R&D Investments	Activities that encompass an investment aimed at introducing a technological novelty in a product, service or process.
	Association	Activities through which companies join, collaborate or promote cooperation with other firms, organisations, institutions or communities, including multilateral agreements and collaboration initiatives.
	Assessment and Measurement	Activities with which the firm collect and analyse information from inside or outside.
	Adoption of Standards Rules	Activities involving the underwriting, adoption or compliance with externally sourced policies, guidelines, procedures, or standards.
	New Products	Launch of a new product or service (made available to the market). It includes new product's technical specification, the inclusion of new components or features into an existing product or service, as well as packaging.

2.3 Behavioural Bases of Business Impact Maturity

In this report, we aim to empirically test whether certain types of sustainability initiatives are connected with higher or lower shareholder returns. We hypothesise that certain types of behaviour create trade-offs between financial performance and business impact, whereas others are more likely to generate positive synergies between the two dimensions of performance.⁷

We thus focus on **three behavioural signals**, each including a mix of “what” and “for whom” categorisations, associated with progressively higher levels of business impact maturity. Each signal is measured in relative terms, vis-a-vis the total number of initiatives put in place by the company and identifies the companies that exhibit a higher or lower ratio compared to their industry peers.

1. Advocacy

The first behavioural signal is made up of advocacy actions performed to benefit local communities in one of the challenges defined by the UN SDGs. Advocacy actions include philanthropic activities such as donations, funding, and volunteering. They also encompass components like communication, incentives, training, and organisational structuring operations aimed at benefiting the broader society and local communities. For instance, incentives may take the form of vouchers to support local communities, training activities offered to societal counterparts, volunteering programs, and organisational changes relating to the establishment of foundations or instruments in pursuit of social causes.

2. Preparation

The second behavioural signal focuses on the actions performed by a company that are preparatory to transition from advocacy to higher maturity actions such as innovation and change initiatives. Preparation signals are primarily internally focused actions that focus on employee development, incentives, and sustainability-related control processes, such as adopting standards and rules, establishing impact measurement systems, and the components of communication and organisational change targeting employees.

3. Transformation

The third behavioural signal – Transformation – reflects the strategic actions aiming to drive sustainability-related

innovation and transformational change, especially focusing on the way the company engages its value chain partners. Therefore, in addition to modifications to processes, systems, and assets, as well as R&D investments and the launch of new products, this type of impact behaviour includes communication, incentives, training, and organisational activities directed at customers and suppliers.

Given our hypotheses that different maturity levels have a comparatively different effect on financial performance, we also consider a “combined” signal that is built by computing the ratio between the “transformation” and the “advocacy” signal of a company. We call this indicator the Impact Maturity Ratio.

In addition to a synthetic approximation of a company's BIM from a behavioural perspective, this indicator can be applied to study the comparative dynamics of regions and sectors. Figure 2.1 shows the evolution of the ratio in Europe, United States and Canada, and Asia-Pacific. European companies show higher levels of maturity, especially compared with their North American peers. Asia-Pacific companies, however, show a remarkable improvement from the early 2010s with their ratio overtaking European companies in 2022.

Another interesting comparison relates to cross-sector dynamics. Fig. 2.2 shows, for instance, that hard-to-abate sectors appear to consistently behave in a more mature way, compared to Technology, Financial Services and Health Care sectors.

Other Data Sources

Our study aligns the stocks of companies in the GOLDEN dataset with their daily returns from January 2010 to December 2022. Due to the lag in the availability of sustainability reports, returns are matched with the year following the report's publication.

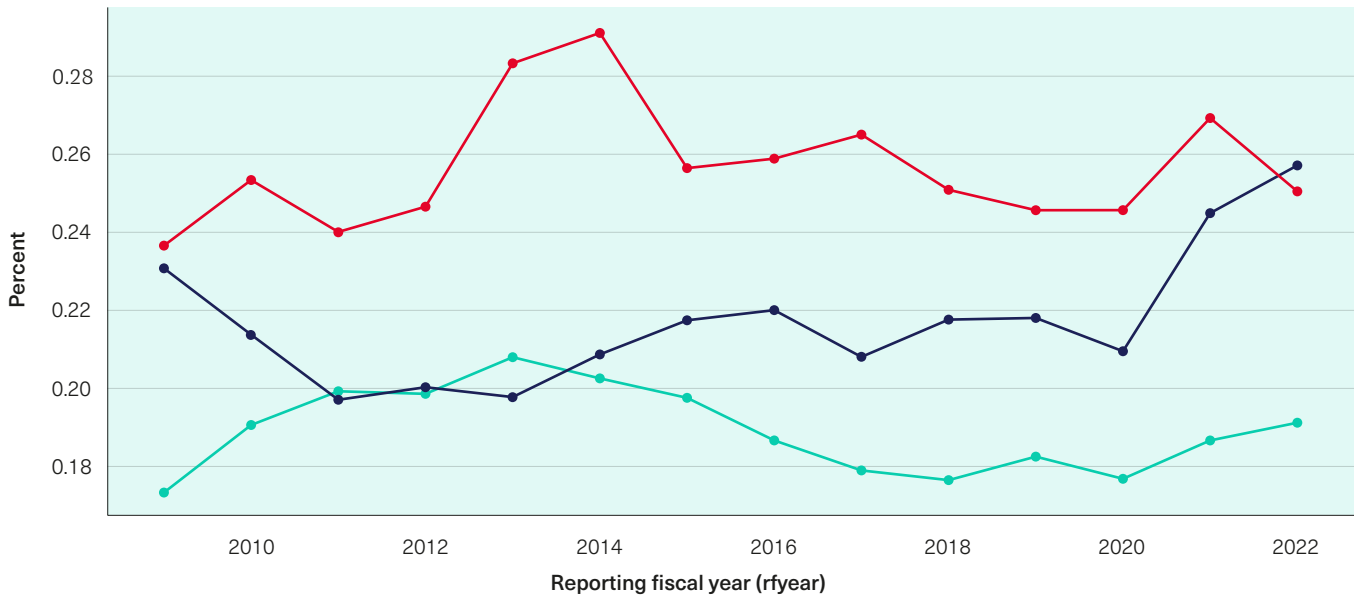
The returns data covers common equities listed on major US exchanges (Amex, NASDAQ, NYSE) and the main European exchanges. It is sourced from Compustat. We further collect data on ESG scores from LSEG – formerly Refinitiv, using the Eikon API, with a one-year lag to align with returns.

Trucost provides absolute scope 1 emission data. Scope 1 emissions, aligned with the returns with the same one-year lag, complement our information set.

⁷ Note that this logic is a first step toward a more comprehensive treatment of the notion of Business Impact Maturity, which will be introduced in Section 4. We focus on these behavioural explanations of performance because they are both the most intuitive and the most cleanly measurable assessments for the empirical investigation of the financial impact of sustainability behaviour.

Transformation to advocacy prevalence over time across macro-regions

Figure 2.1

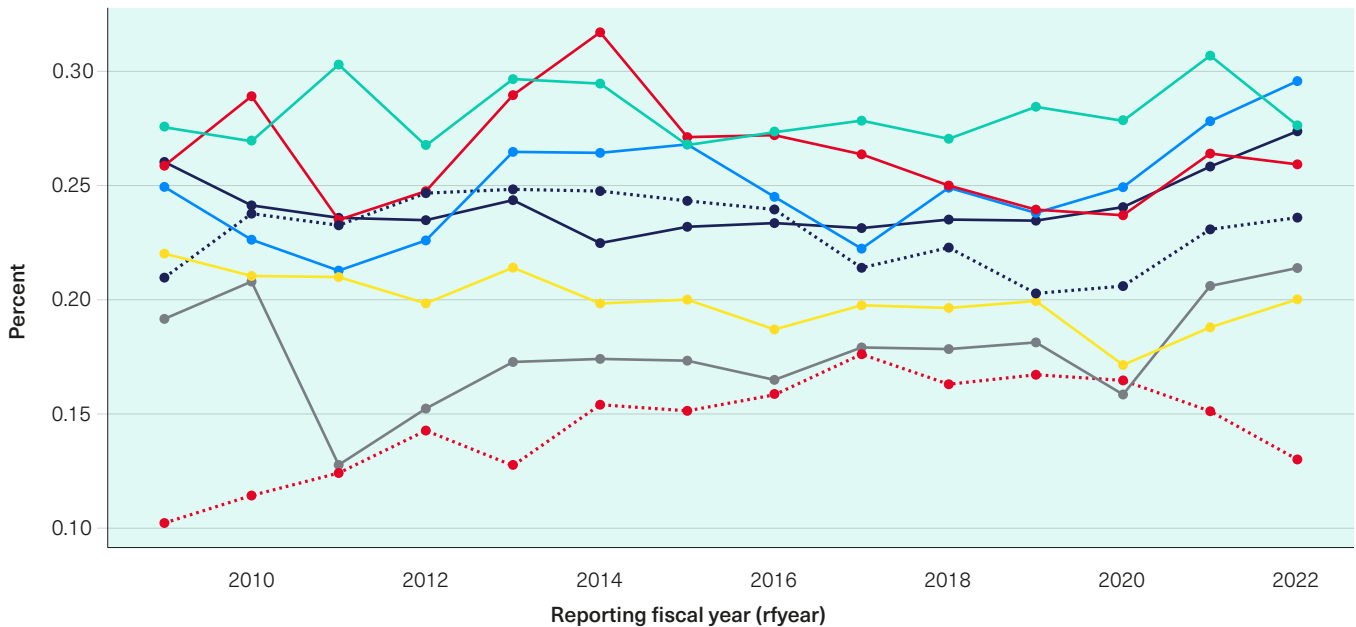


- Asia-Pacific
- Europe
- United States and Canada

This figure shows the ratio between the intensity of the transformation indicator over the advocacy indicator over time across different macro-regions. By construction, a value of one would imply that in a year the aggregate number of transformation initiatives equals the number of advocacy initiatives.

Transformation to advocacy prevalence over time across sectors

Figure 2.2



- Consumer Staple
- Consumer Goods
- Energy
- Financial
- Health Care
- Industrial
- Material
- Technology

This figure shows the ratio between the intensity of the transformation signal over the advocacy signal over time across different sectors. By construction, a value of one would imply that the aggregate number of transformation initiatives equals the number of advocacy initiatives in a given year. The higher value is associated to more mature companies and vice versa.



3

Sustainability Behaviour and Risk-Adjusted Returns

In this section, we leverage the data we described in Section 2 to empirically test a range of propositions related to the impact of sustainability behaviour on risk-adjusted returns.

We tested the following propositions using the empirical data described in section 2:

1. **The Maturity Effect.** Portfolios constructed with companies that are in the highest quartile of the Transformation type of behaviour generate higher risk-adjusted returns compared to (a) those in the low or middle levels of Transformation behaviour, and (b) the unweighted risk-adjusted market returns of the same portfolio.
2. **The Greenwashing Effect.** Portfolios constructed with companies that are in the lowest quartile of the Advocacy type of behaviour generate higher risk-adjusted returns compared to (a) those in the middle or high levels of Advocacy behaviour, and (b) the risk-adjusted returns of all the companies in the same markets.
3. **The Additional Explanatory Power.** Does adding the structured measurement of companies' sustainability behaviour add new explanatory power to the best stock return models we currently have? In other words, does the behavioural approach we are advocating make a real difference in improving our stock return models?
4. **The Risk Minimisation Effect.** Although the test of the Maturity and the Greenwashing Effects use measure of risk-adjusted returns, do the high Maturity and Low Advocacy portfolios show lower risks, measured in different ways, compared to the other portfolios, to the market portfolio and to the ESG (Environment and Social Governance) ranking (LSEG, formerly Refinitiv) portfolios?

Methodology

The first step was to create a general portfolio of all publicly listed companies in US and the key EU stock exchanges, included in the GOLDEN dataset of sustainability initiatives. The portfolio includes 983 companies. We then used the behavioural signals based on sustainability behaviour (Advocacy, Preparation and Transformation) to create three signal level portfolios: Low (the bottom quarter), middle (the second and third quarter), and high (top quarter). At the end of each month, these portfolios were rebalanced with the most up-to-date information at the time and hold our investment for the subsequent month. We structure the first portfolio in January 2010 and carry over the same approach throughout the full sample, with the last portfolio weights being computed in November 2022.

Each behavioural signal is computed as a relative measure vis-a-vis the average values in sector and the currency area to compare firms with similar production functions and to ensure enough depth within each grouping. The sectors are aggregate GICS taxonomy: Consumer (Staples and Discretionary), Industry (Industrials and Materials), Energy (Energy and Utilities), Finance (Financials and Real Estate), Tech (Information Technology and Communication Services), and Healthcare.

3.1 The Maturity and Greenwashing Effects

We have used the Sharpe Ratio as a measure of risk-adjusted return. The Sharpe Ratio is one of the most established metrics in finance and describes how much returns (in excess of a risk-free asset) investors receive for the risk of holding a specific stock. (the standard deviation of the stock). Excess returns⁸ are at the numerator, risk is at the denominator of the ratio. The higher the ratio, the more rewarding is the stock for investors.

Table 3.1 shows the performance of portfolios constructed by taking company stocks sorted in high/ medium/low levels according to the three behavioural signals described in Section 2.

Rows 1–3 report the signal chosen for sorting stocks into portfolios. The clusters reflect growing levels of maturity, as previously described. The combined portfolio mixes companies with high transformation and low advocacy initiatives.

Columns 2–4 report the risk-adjusted returns in the form of Sharpe ratios, of equal-weighted portfolios, whose constituents are stocks in the bottom 25% (Low), neutral (Mid), and top 25% (High) of the relevant sorting variables (Advocacy, Preparation, Transformation). For instance, the data in the first row and second column describes the Sharpe ratio for a portfolio whose companies have the smallest number of advocacy actions, relative to the total number they launch. Vice versa, data in the third row and third column reports the Sharpe ratio of a portfolio whose constituents have the highest number of Transformational initiatives, relative to the total number of initiatives.

Behavioural indicator tracked in the GOLDEN dataset.

Table 3.1

	Low	Mid	High
Advocacy	0.704	0.624	0.640
Preparation	0.684	0.623	0.662
Transformation	0.628	0.607	0.753
Combined	0.621	0.620	0.735

This table reports the annualised Sharpe ratios of long-only strategies formed by investing on stocks in the bottom 25% (Low), neutral (Mid), and top 25% (High) of the relevant sorting variables. The latter are detailed over the rows. The combined signal is computed as the difference between the number of actions that relate to organisational transformation and advocacy, relative to the total number of sustainability actions. As for the other signal, we

standardise these signals by sector and currency area across our cross-section of stocks at each point in time. Data on the risk-free rate for developed markets is gathered from the website of Professor Kenneth R. French. The analysis is based on the full sample ranging from January 2010 to December 2022. Besides, the Sharpe ratio of an equally-weighted portfolio built on all stocks in our universe, proxying the market, is 0.640.

⁸ Note that we will use the language of excess returns in this report although the appropriate technical term is “abnormal returns” since we will show that they exceed a 3-factor Fama French model of stock returns.

From this analysis, several results emerge.

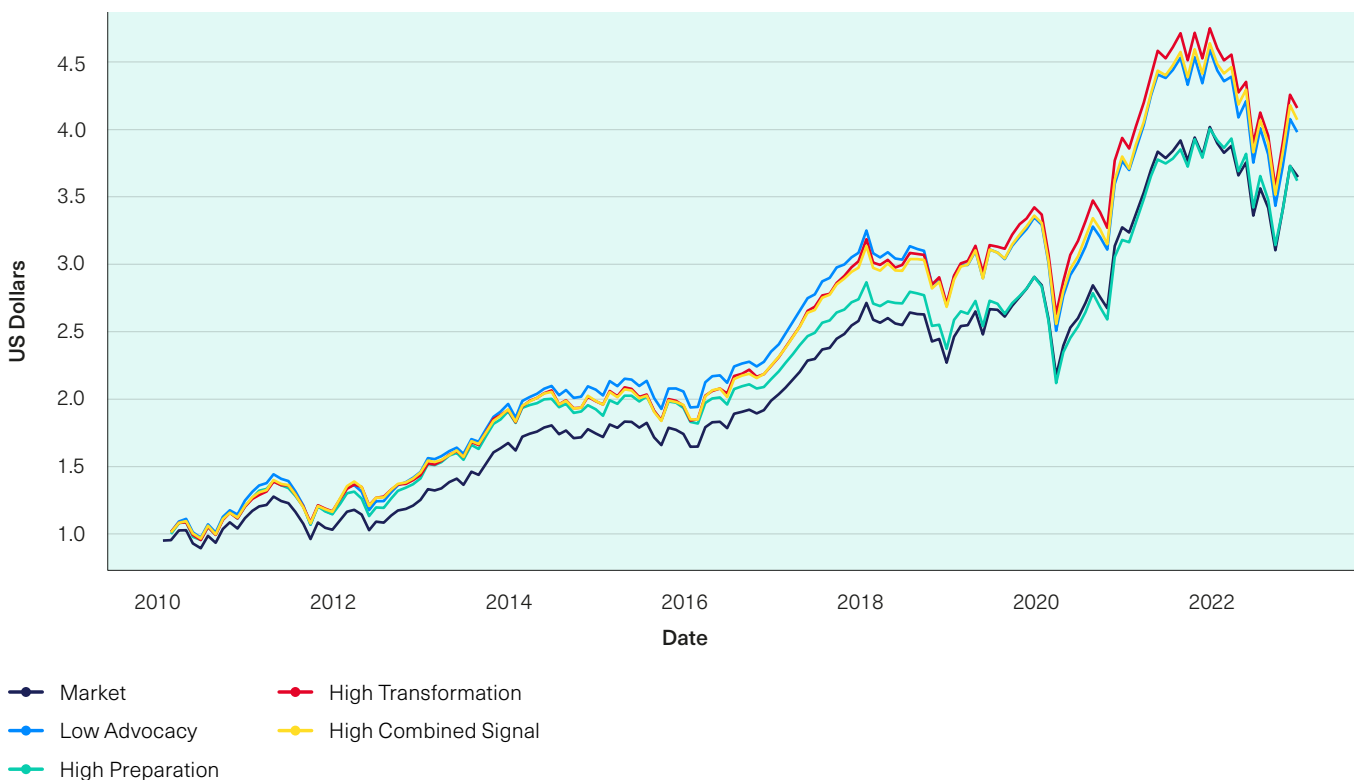
1. **Maturity Effect.** Higher levels of Transformation activity are associated to higher risk-adjusted returns. Sharpe ratios related to increasing levels of this type of mature activity increase as the portfolios go from low to middle to high levels of Transformation activity. The Sharpe ratio for High Transformation is 0.753, in contrast with 0.628 in Low. Consider that the Sharpe ratio for the unweighted market portfolio is 0.64. **This translates in a 2.67% excess, risk adjusted, yearly returns, or 40,58% cumulative excess returns over the 13-year observation period.**
2. **Greenwashing Effect.** Portfolios built on stocks focusing on Advocacy activities show an inversed dynamics vis-a-vis their signal strength and the Sharpe Ratio. In other words, when Advocacy activity is low, companies do better than when companies are sorted in portfolios with high levels of Advocacy activity. This is shown by the highest Sharpe ratio in the Low Advocacy portfolios (0.704) compared to 0.640 generated by companies in High Advocacy portfolios.

3. **Combined Portfolio Strategies.** Row 4 reports the Sharpe ratios associated to a combined signal. Namely, the signal calculated as the difference between the number of actions that relate to transformation and those related to advocacy, relative to the total number of sustainability actions. Results indicate an increase in Sharpe ratio from 0.621 for the Low combined signal portfolios to 0.735 for the High signal. Again, consider that the equally weighted market portfolio has a Sharpe ratio of 0.64.

Although the Sharpe ratio is in line with the expected effects according to the business impact maturity theory, the result of the combined signal is stronger as it looks at multiple maturity aspects of each firm at the same time. This is visible from the now stabler increase in Sharpe ratio from Low to High. Figure 3.1 graphically summarises the performance of these strategies over time.

Cumulated dollar returns of portfolios built with different behavioural signals

Figure 3.1



3.2 Explaining Stock Performance

In the second set of analyses, we assess whether the signals based on sustainability behaviour can contribute to the explanation of stock returns over and above some of the best-established models in the finance literature: the 3-factor Fama-French model.⁹ The Fama-French models are essential tools in finance for analysing stock returns, managing portfolios, evaluating performance, and conducting academic research, particularly when a multi-factor approach is needed to explain the variations in stock returns. To this end, we run a series of Fama-French regressions to disentangle the drivers of the portfolio excess returns and see to what extent the sustainability behaviour signals proposed in this report can add significant additional explanatory power to the model, on top of the traditional factors.

Table 3.2 presents the results for all the portfolios built based on the sustainability behaviours measured with the GOLDEN dataset. The rows detail the relevant regression coefficients and metrics, while columns 2–13 display the results for each strategy (Advocacy, Preparation and Transformation) and portfolio sort (Low, Medium, and High levels of activity). Among all portfolios, only three exhibit significant alphas, i.e. they contribute to explain

the variation in stock returns over and above the standard Fama-French 3 factors:

- **Low Advocacy:** 0.17% monthly, 2.06% yearly, and 30.12% over the period.
- **High Transformation:** 0.22% monthly, 2.67% yearly, and 40.58% over the period.
- **High-Combined:** 0.20% monthly, 2.43% yearly, and 36.3% over the period.

In terms of the Betas (the importance of the three factors included in the Fama French model) the Low Advocacy portfolios show higher betas, while the High Transformation portfolio shows the lowest ones (the High Combined somewhere in between). This means that sustainability behaviour improves also the explanation of the risk factors in the model.

In conclusion, the proposed behavioural approach based on a systematic assessment of corporate sustainability behaviour significantly improves the capacity to explain risk adjusted stock returns, with positive alphas as high as 40% over the period of observation (2010 to 2022) and lower risk factors related to the correlation with market returns, with small stock returns and with book to market ratios.

Three-factor Fama-French model regressions

Table 3.2

	Advocacy			Preparation			Transformation			Combined		
	Low	Mid	High	Low	Mid	High	Low	Mid	High	Low	Mid	High
α	0.17	0.05	0.07	0.12	0.06	0.11	0.06	0.03	0.22	0.04	0.05	0.20
β_{mkt}	1.12	1.08	1.10	1.09	1.08	1.11	1.10	1.10	1.06	1.09	1.10	1.07
β_{smb}	-0.08	-0.15	-0.19	-0.21	-0.14	-0.10	-0.14	-0.14	-0.15	-0.17	-0.13	-0.15
β_{hml}	0.21	0.26	0.24	0.17	0.27	0.27	0.26	0.28	0.16	0.25	0.26	0.20
$P(\alpha)$	0.04	0.51	0.39	0.15	0.49	0.13	0.42	0.70	0.01	0.55	0.54	0.02
$P(\beta_{mkt})$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
$P(\beta_{smb})$	0.17	0.00	0.00	0.00	0.02	0.02	0.04	0.01	0.01	0.00	0.01	0.01
$P(\beta_{hml})$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adj. R^2	0.96	0.96	0.96	0.96	0.96	0.97	0.96	0.96	0.95	0.96	0.96	0.96

This table reports the three-factor Fama-French regressions for a range of long-only portfolios. The regressions are estimated on data ranging from January 2010 to December 2022 and the standard

errors are robust to heteroscedasticity. Factors and risk-free data for developed markets is gathered from the website of Professor Kenneth R. French.

⁹ An asset pricing and portfolio management the Fama–French three-factor model was proposed, for the first time, in 1992 by Eugene Fama and Kenneth French to explain stock returns. In 2013, Fama shared the Nobel Memorial Prize in Economic Sciences for his empirical analysis of asset prices. The three factors are (1) market excess return, (2) the outperformance of small versus big companies, and (3) the outperformance of high book/market versus low book/market companies.

3.3 Lowering Risk

As a final step in our analysis, we complement the risk evaluation of the proposed behavioural approach embedded in the Sharpe ratio comparisons and the Fama French model regressions with two ad-hoc analyses of non-linear risk, typically not captured by these traditional estimations.

Table 3.3 reports the Maximum Drawdown and Value at Risk¹⁰ for each of the behavioural signals (Advocacy, Preparation, Transformation) and portfolio sort (Low/Medium/High).

It also compares them with the portfolios based on LSEG (Refinitiv) ESG ratings and with the equal-weighted market portfolio.

Starting from the maximum drawdown and focusing on the best performing behavioural strategies, the High-Combined strategy has the lowest drawdown at -24.21% monthly, vis-à-vis -24.90% for High-transformation and -25.96% for Low-advocacy. These are all lower than the maximum drawdown associated to the LSEG (Refinitiv) ESG-sorted portfolio which stands at -26.67%. Whereas our results are in line with findings from Hoepner (2024), strategies sorted on ESG ratings are much less so, since the one based on stocks with the highest LSEG score has a maximum drawdown of -28.47%. As a point of reference, our proxy for the market has a maximum drawdown of -25.56%.

The Value at Risk numbers are more uniform across the board. High transformation and High Combined strategies have VaR of approximately -10.5% monthly. Low Advocacy strategy remains the riskier of the best behavioural strategies, with a VaR of -11.32% monthly. Strategies based on Refinitiv ESG scores are more in line with these figures ranging from -10.5% to -11.2% monthly. These figures are in line with the market and its VaR of -10.5%.

To summarise the results of the set of analyses presented above, the portfolio strategies based on a systematic assessment of corporate sustainability behaviour show that those associated with higher levels of maturity generate significantly higher risk-adjusted returns compared to both a market benchmark as well as ESG rating scores, as well as lower (or similar, using VaR) linear and non-linear risk levels.

Downside risk.

Table 3.3

		Maximum Drawdown (%)	Value at Risk (%)
Advocacy	Low	-25.96	-11.32
	Mid	-26.14	-10.46
	High	-25.59	-10.19
Preparation	Low	-24.55	-10.37
	Mid	-25.92	-10.75
	High	-27.11	-10.68
Transformation	Low	-26.80	-11.00
	Mid	-27.41	-10.49
	High	-24.90	-10.32
Combined	Low	-26.17	-10.28
	Mid	-26.98	-10.79
	High	-24.21	-10.60
ESG	Low	-26.67	-10.61
	Mid	-25.84	-10.47
	High	-28.47	-11.21
Market		-25.56	-10.54

This table reports risk metrics on a range of long-only portfolios. Namely, the maximum drawdown and historical Value-at-Risk (VaR) at 1% level. The maximum drawdown is the largest loss from a peak to a trough of a portfolio, over the full sample ranging from January 2010 to December 2022. The historical VaR at 1% level is the first percentile of the returns of a portfolio.

The proposed behavioural approach based on a systematic assessment of corporate sustainability behaviour significantly improves the capacity to explain risk adjusted stock returns, with positive alphas as high as 40% over the period of observation (2010 to 2022).

¹⁰ The Maximum Drawdown refers to the largest peak-to-trough decline (percentage-wise) in the value of these portfolios. The historical Value at Risk is computed at the 1% level.



4

Toward a Business Impact Maturity Model

In this section we expand on the purely behavioural approach adopted in the previous sections to propose a complete BIM (Business Impact Maturity) model including the purpose, strategic, organisational and cultural elements of maturity.

Maturity has been studied in development psychology for a very long time. Of particular interest for our purpose are the models explaining the stages of development of maturity from adolescence to adulthood. The early adulthood maturity development aims to move from an instrumental to a “socialised mind” level, where we learn to respond to the environment in a socially appropriate manner. In the next stage, we learn to align socially acceptable behavioural patterns with our value system and life purpose (the “Self-Authoring Mind”, less than 7% of adults reach this level). In the most advanced level of maturity, we learn to integrate tensions and paradoxes to reach internal and external balance (the “Self-Transforming Mind”, reached by less than 1%).

In the business context, a similar evolutionary process would begin with the transition from instrumental to socialised logic of business, based on the adoption of behaviour appropriate to societal expectations. However, just like for individuals, higher levels of maturity allow companies to integrate what they believe is the appropriate way to respond to external expectations with what they identify as their purpose and shared values.

The progressive alignment of socially acceptable behaviour with increasingly mature purpose and values, therefore, implies the development of specific capacity to (a) integrate stakeholder (reps) in the strategic processes and governance structures of the company, and (b) to partner effectively with actors in their ecosystem (including peers) to generate, at the highest level of maturity, systemic wellbeing.

Hence, our definition of Business Impact Maturity (BIM) as *the progressive alignment of business purpose, strategy, structure and culture to the creation of systemic wellbeing through stakeholder integration and ecosystem partnership capabilities.*

4.1 The Five Levels of Impact Maturity

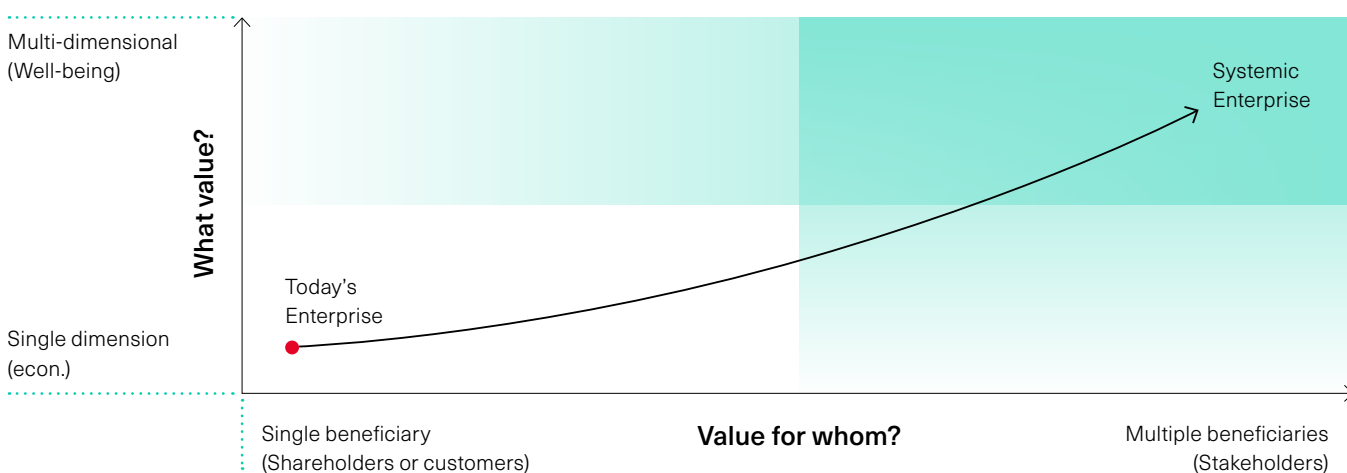
In this section, we thus propose a more comprehensive BIM model, which includes both behavioural and non-behavioural elements to be assessed along a 1 to 5 scale of increasing levels of maturity. These levels of maturity are determined by the answers to two fundamental questions (see Figure 4.1 below).

1. **What type of value do we want to create?** The standard answer to this question is: “Economic value, of course!”. However, value can be defined in much broader terms, beyond economic wealth. It could include many other forms of well-being, such as psycho-physical health, social inclusion and appreciation, educational value (skillsets and mindsets), hedonic value (e.g. joy, satisfaction) and meaning. Any company constantly creates and destroys value for its stakeholders along all these dimensions. The question is to what extent it is deliberately targeting, and thus it is organised, to create value along progressively more sophisticated and complex dimensions of value.

2. **Value for whom?** The answer to this question can also be “obvious” in most cases: for investors, for customers, of course!” However, here again, there are more sophisticated ways to address this theme. There are other classes of stakeholders that are essential for the existence, growth and success of any company. Management and employees own most of the human capital (knowledge, capabilities) and the social capital (trust, quality of relationships internal and external to the company). Suppliers and partners provide resources, technology, insight and social capital to the company. Local communities give any company its license to operate and contribute the natural capital (air, water, soil and underground resources), in addition to the social capital with the local government and the families of local stakeholders. Again, any company, consciously or unconsciously, creates and destroys value for all these constituencies. The question is how many of them are deliberately included in the way the company shapes its identity, its mission and the strategies to realise it, its governance and structures, etc. The higher the complexity and the sophistication that the company is committed to making as part of its identity, the higher the level of BIM.

The Evolution of Business Toward a Regenerative Economy

Figure 4.1



Business organisations at the highest level of maturity, as defined above, have evolved to define their purpose (why they exist) and mission (what they do to realise their purpose) as their own specific way to create holistic value for the ecosystem in which they operate. They also have aligned their strategies, structures and cultural traits to that particular purpose and mission. They do so by learning how to integrate their stakeholders’ interests and voice in their governance structures as well as their strategic decision-making processes. We name this form of business organisation a **Systemic Enterprise**.

A systemic enterprise is the ultimate step of the maturity development process. As of today, we know of no established companies that has evolved from the standard shareholder primacy, pure economic value, model to realise that logic of enterprise across all its purpose, strategy, structure and culture dimensions. However, many companies have moved well beyond the initial stage and are progressing towards more mature logics of business. It is therefore important to understand the characteristics of these intermediate forms of enterprise. This requires the full development of a BIM model describing the intermediate steps across the various strategic and organisational dimensions of the company.

Based on the answer to the two questions discussed above, we can identify the five BIM levels described in Table 4.1 below:

The evolution of purpose at different stages of impact maturity

Table 4.1

	1 Shareholder Focus	2 Risk Focus	3 Sustainable	4 Regenerative	5 Systemic
What Value?	Economic value	Economic and reputational value	Economic value enhanced by reducing negative impact on nature and society	Economic value is a means to the end of creating positive impact on nature and society	Value is viewed as all the forms of wellbeing that ecosystem partners aspire to
Value for When?	Shareholders' primacy	Shareholders' value, with stakeholder rhetoric	Value for investors in human, social, natural and financial capital	Value for all strategic stakeholders	Value for eco-system partners who affect and are affected by the firm
Stakeholder Value Logic	Communication: <i>Let us tell you</i>	Sensing: <i>Tell us what the issue is</i>	Ideation: <i>Help us to find solutions</i>	Selection: <i>Be part of decision and implementation</i>	Scaling: <i>Work with us on systemic change</i>
Focus of Impact Behaviour	Advocacy	Impact assessment Awareness training	Net zero impact change, Incentive alignment, Mindset development	Net positive impact change, Transformational change	Systemic innovation and change

1. Shareholder Focus. This is today's standard model, where value is conceived solely as economic form. Shareholders have primacy above all other stakeholders on governance and distribution of residuals. Sustainability-related activities are typically a public relationship exercise, with a one-way communication flow, built on advocacy (philanthropic) actions.

2. Risk Focus. At this stage, the company realises that negative environmental and social impacts are important risks for its reputational capital and brand value. Value is therefore viewed as both economic and reputational (quality of relationship, trust, brand). The engagement of stakeholders takes on a "listening" mode to identify the appropriate rhetoric and narratives. Impact activities add to the advocacy initiatives awareness-building training and impact assessment processes necessary for impact reporting.

3. Sustainable. At this stage, the notion of value broadens to include social and environmental impacts of business activity. These impacts are viewed as means to the economic end and are primarily enacted in terms of reduction of negative impacts (e.g. reaching net zero). Stakeholders (now more broadly construed) are involved also in ideating possible solutions to their value expectations, and activities include incentive alignment, leadership mindset development and net-zero oriented innovation and organisational change.

4. Regenerative. In a regenerative level of maturity, the company's purpose is redefined as a distinctive way to create net positive impact, rather than eliminating negative impacts. There has also been a cognitive switch in the causality logic between impact and profit. Profit is conceived as a means to the end of creating holistic well-being for the company stakeholders. Stakeholders at this stage include the investors in the company's financial, social, human and natural capital, including employees, suppliers and local communities, and are involved in the selection and testing of impact initiatives. The key capability to develop is to integrate stakeholder representatives in the strategic decision processes and the governance structures (see below).

5. Systemic. At the very end of the BIM development journey, the logic of value takes on a systemic well-being perspective. All actors in the company's eco-system, beyond value-chain partners and local communities, are actively involved, including competitors, the public sector and civil society. Purpose evolves to create eco-system value by tackling systemic challenges through collaborative, collective, actions. Stakeholders and eco-system partners are engaged in systemic innovation, testing and scaling of solutions to shared challenges. The key capability to develop is system-level partnership design and coordination, on a pre-competitive basis.



4.2 Strategy and Business Impact Maturity

What do the five BIM stages imply for the way we can expect companies to decide and act along the key dimensions of strategy? Below we analyse the evolution of innovation, cooperation, growth and marketing strategy at increasing levels of BIM. Before we dive into it, though, it is worth considering a few general points. First, BIM requires a progressively critical role of cooperation vis-à-vis competition in the business strategy domain (how do I succeed in a given market?). The reason is that success in a stakeholder economy prioritises the capacity to find common ground and obtain support by value chain partners and employees, rather than bashing opponents and squeezing efficiency out of suppliers, employees and customers. Second, cooperation progressively becomes more important and central to growth strategy, especially vis-à-vis acquisitive growth.

Acquisitions become learning-oriented actions, managed “as if” they were partnerships, and then eventually used only to fill gaps (e.g. tech capabilities for systemic solutions) in regenerative or systemic innovation initiatives. Third, given the increasingly high innovative nature of the impact challenges, organic growth alternatives will also progressively make way for broader forms of partnership necessary to share complementary capabilities, resources and relational assets. For example, procurement strategies evolve toward broad value-chain collaborative initiatives. Finally, as maturity develops, growth and competition become the **outcome** of impact-driven innovation, cooperation and marketing strategies, rather than **strategic targets** (e.g. market shares and growth rates) driving the selection and execution of strategic initiatives. Keeping this in mind, Table 4.2.1 shows how we think about the evolution of strategic action at progressively higher levels of impact maturity.

The evolution of strategy at different stages of impact maturity

Table 4.2

	1 Shareholder Focus	2 Risk Focus	3 Sustainable	4 Regenerative	5 Systemic
Innovation Strategy	Standard innovation strategies	Green products to reduce brand risk exposure	Business Model Innovation (BMI) for net-zero impact	BMI for net positive Impact and monetisation	Systemic Impact BMI and scaling
Cooperative Strategy	Standard strategic alliances	Collaboration for advocacy purposes	Partnerships to reduce negative impacts	Value chain cooperation to generate net positive impact	Eco-system partnerships for systemic change
Growth Strategy	Standard M&A	Acquisition of sustainable brands	M&A to learn how to achieve net-zero impact	Minority equity to support value chain cooperation	Shared acquisitions to fill gaps in systemic coop solutions
Marketing Strategy	Maximize sales by creating artificial "wants"	Green labels and branding	Customer-centred net-zero impact innovation and marketing	Value-chain based net positive impact BMI and marketing	Eco-system cooperative BMI and marketing for systemic solutions

Innovation Strategy. In a standard business logic, innovation serves the purpose of improving the company's competitive position either through product differentiation (usually product and business model innovation) or on cost leadership (usually process innovation). As BIM evolves beyond the reputational risk management objectives (BIM level 2), innovation takes on the role of finding product, process and business model solutions to progressively reduce, and eventually eliminate, negative impacts on the natural and social environment. In BIM level 4, firms will engage value chain partners to co-develop, test and scale, net-positive impact solutions for the whole value chain. At BIM level 5, the broad coalitions of eco-system partners, including competitors, collaboratively innovate and test solutions to systemic challenges (e.g. cross-system circularity, over-consumption, etc.).

Cooperative Strategy. Starting from standard approaches to cooperation at BIM level 1, typically with bilateral strategic alliances, companies add the use of cooperation for advocacy and reputational risk reduction purposes at Level 2. Cooperative strategy becomes progressively the driving strategic activity from BIM Level 3 onward, with increasingly ambitious impact objectives and correspondingly broader (and more complex) collaborative solutions. BIM 4 cooperation involves primarily value-chain partners to identify and implement partial solutions, in competition with peers' value chains. At BIM 5, though, eco-system level partnerships include competitors, secondary stakeholders (NGOs, unions, etc.), public and financial sector support to test and implement sector-wide solutions to systemic challenges.

(Acquisitive) Growth Strategy. As we noted, we expect that the evolution to higher maturity levels influence the choice of the mode of growth, progressively transitioning from acquisitions to partnerships. Importantly, however, the management of acquisition processes is expected to change as impact maturity reflects in the logic of value and related leadership mindsets (see below). In a net-zero impact strategy pursued by a Sustainable Enterprise

(BIM 3), acquisitions play a fundamental capability development role, since the technologies and the products that can reduce negative impacts need to be typically acquired, carefully retained and deployed across markets. The post-acquisition approach, therefore, would typically be framed in a collaborative and protective mode, like in high-tech acquisitions. In a regenerative logic, cooperation is expected to be the dominant alternative to involve value chain partners in the search for innovative solutions. Equity (minority) investment might play a role to strengthen cooperative ties and to provide required capitals to resource-stretched partners. In BIM level 5, the systemic transition leaders might inject capital in ad-hoc collaborative structures potentially required to develop systemic solutions to, say, circularity or over-consumption challenges.

Marketing Strategy. Here is perhaps the most challenging type of transition in strategic behaviour. Even the most advanced companies today are struggling to give marketing functions a role that goes beyond the maximisation of sales at any cost. BIM 1 typically includes the artificial creation of wants, rather than the satisfaction of real and responsible well-being needs of final consumers. Whereas in BIM 2, companies would create and market additional green labels for reputational and risk management reasons, the real pursuit of net-zero targets requires the progressive elimination of high (negative) impact products. At higher BIM levels, marketing aims to work with consumers, business customers and suppliers to develop and market lower negative impact and positive impact business model solutions. For instance, these might imply the education of consumers to transition toward longer-life, fully re-manufacturable, products (a net-zero solution) with related service add-ons (bringing the net-positive component). In a BIM 5 logic, marketing strategy aims to contribute to the creation of system-wide initiatives to implement fundamental systemic innovations for the benefit of all eco-system players. Examples include eliminating fast-fashion logics and routines in the textile sector or diffusing re-fill habits in consumer goods.

4.3 Organisation and Business Impact Maturity

Business impact maturity translates not only in increasingly high-impact strategic behaviour but also in progressively evolved organisational attributes, as summarised in Table 4.3 below.

The evolution of organisation at different stages of impact maturity

Table 4.3

	1 Shareholder Focus	2 Risk Focus	3 Sustainable	4 Regenerative	5 Systemic
Governance	Classic models of shareholder primacy	Board committee dealing with risk minimization	Stakeholder reps. in the Board. Board committee on net-zero strategy	Board elected by core stakeholders. Shared non-retained earnings	Innovative forms of collab. governance of common resources and of solutions to systemic challenges
Sustainability Function	Specialized PR function	Focus on compliance and reputational value	Part of strategic committees, advising CEO, CFO	Part of C-suite, lead on net-positive strategy	Lead on system cooperation strategy
Leadership Mindset	Sustainability an unproductive "feel good" disruption	Sustainability is about reputational risk and compliance	Eliminate negative impacts on E&S is part of our strategy	Creating net positive impact drives our strategy	We drive systemic change for the benefit of all
Talent Management	Mindset and incentives on econ. results	Awareness building on sustainability risks	Net zero training; incentives at executive level	Net positive mindset. Aligned incentives for all	Systemic cooperation mindset for ecosystem impact
Control Systems	Standard accounting and control systems	Collection of initiatives Scope 1 impact metrics for reporting purpose	Scope 3 volumes in control and reporting	Monetary value of scope 3 volumes part of financial accounting	Ecosystem impact monetary accounting
Organisational Capabilities	Standard operating, change and learning routines	Routines for impact assessment and risk reduction	Innovation, change and learning capabilities to achieve net zero targets	Stakeholder cooperation routines to create and deploy positive impact initiatives	Systemic cooperation for innovation and change capabilities
Organisational Culture	Focused on economic value creation	Isolated initiatives and champions – no shared impact culture	Top-down cultural change initiatives for net zero logic/values	Bottom-up impact movements linked to regenerative logic and initiatives	Ecosystem actions drive emerging systemic identify

Governance. As stakeholder involvement becomes more strategic in nature (BIM 3 and above), their involvement in corporate governance is expected to deepen and broaden. It starts from structural changes in the functioning of the Board of Directors (specialised committees), where the impact themes and related strategies (net-zero, net-positive, etc.) are discussed and approved. At higher levels (BIM 4) multi-stakeholder governance models might be first tested and then implemented to not only give voice to stakeholder interests and contributions, but also to share the residuals of the economic activity (non-retained earnings). At BIM 5 stage, we expect the emergence of collective, collaborative, systems to collaborate with company governance in governing common resources and addressing systemic challenges.

Sustainability Function. The structural position of a company's sustainability function, how it deals with impact themes, and the roles of its leaders, are likely to co-evolve as companies mature (see Leonardo Report in 2023¹¹). From a specialised PR function, focused on reputational risk and disclosure (BIM 1 and 2), the sustainability function takes on a strategic role as the company defines its net-zero targets and related strategies as potential ways to differentiate from competitors. That contribution to business strategy evolves to a co-leading role as the strategic ambition rises to the creation of net-positive impacts (BIM 4). Finally, this function becomes the leading force in the creation and deployment of eco-system partnerships at the highest maturity level.

¹¹ Zollo, M. et al. (2023) *From sustainability to business strategy: how the role of the Chief Sustainability Officer is evolving to shape business strategies*, Leonardo Centre on Business for Society, Imperial College Business School.

Leadership Mindset. The evolution of leadership mindset is at the same time a pre-requisite and a consequence of the cognitive shifts characterising impact maturity levels. In fact, one of the key questions that require both research and business attention is: what are the most effective learning approaches to the progressive development of net-zero, net-positive and systemic logics of business? As Table 4.3 shows, each BIM stage defines the way in which leaders make sense of the social and environmental impacts of their decisions, of the role of key stakeholders in meeting stakeholders' evolving expectations of the company's actions, and the overall identity, mission and strategy to create value (conceived in broader ways) for company stakeholders and, at BIM 5, for the ecosystem in which it operates.

Talent Management. Another key organisational consequence of the evolution in BIM is the way talent is acquired, nurtured, motivated and retained. As the various dimensions of value emerge as determinants of the purpose and identity of the company, so the design of incentives and of the mindset development programs evolve to realise the company's objectives within the shared values and the broader perimeter of an increasingly stakeholder-centred organisation. The key is to align these step-changes with both leadership behaviour and concrete, strategically relevant, action to create progressively more impactful value for stakeholders and, in the end, for the ecosystem. The capacity to act (not only to think) systemically, to create collaborative initiatives within the value chain, across value chains, and with ecosystem partners (especially competitors) is a fundamental requirement to advance to higher BIM levels. Especially so, as it needs to diffuse from the senior levels in the organisation to all other levels, necessary condition to be credible and accountable in the company's efforts to be inclusive with value chain partners and local communities.

Control Systems. As the organisation progresses to higher BIM stages, it learns how to assess the impacts of its own, and then progressively of its stakeholders', actions, build sophisticated (inclusive, not impositive) control systems and reflect these in increasingly detailed and transparent reporting systems. For instance, BIM 3 companies are capable to report on scope 3 (volume) impacts of both upstream and downstream value chain partners. BIM 4 will need to learn how to translate those volume impacts into positive and negative financial equivalents, so that they can be fully integrated in operating costing and pricing. BIM 5 companies will then be able to do the same to account for, control and report on the eco-system innovation and change collective actions to address systemic challenges.

Organisational Capabilities. As business impact maturity evolves, what kind of capabilities do companies need to develop to successfully realise the increasingly ambitious value creation goals? By now you got the point. As they evolve toward BIM 3 levels and higher, companies need to develop new (business model) innovation, change and learning capabilities that include a progressively broader set of value chain partners, to then arrive at the inclusion of local communities and eco-system partners (in BIM 4 and 5) to identify and deliver on comprehensive logics of value and related strategic targets.

Organisational Culture. The progressive adaptation of organisational culture to the evolving logic of value and related levels of BIM is considered by many the most difficult and, at the same time, most crucial aspect of a company's long-term capacity to create well-being for all who contribute to its success, and the socio-economic and natural ecosystems in which it thrives.

The progressive adaptation of organisational culture to the evolving logic of value and related levels of BIM is widely considered the most difficult. Equally, it can be viewed as the most crucial aspect of a company's long-term capacity to create well-being amongst those who contribute to its success, as well as the socio-economic and natural ecosystems in which it thrives.

Whereas at lower BIM levels, claims to "identity" and cultural alignment are typically rhetorical, void of substantive effort, let alone convincing results, BIM 3 companies are more able to connect spontaneous initiatives in a coherent cultural change plan underpinning the net-zero ambitions and related multi-stakeholder value logic. The difference at BIM 4 is that organisational change becomes an instinctive movement involving people across all functions and levels, and their related stakeholders, within a more detached and supportive role of leadership. This will eventually bring to BIM 5 logic of cultural change which blends systemic thinking and values through the active participation of large parts of the organisation in ecosystem innovation and change initiatives.

Note that this framework does not imply, and should not be used to imply, that a company will exhibit the same level of maturity across all the dimensions described above. A company might be more advanced in some dimensions than others. This can be due to several factors, including barriers to change across dimensions (e.g. the notion of value and the causal links between economic and non-economic forms of value) and the differing "speed" of evolutionary change in aspects of maturity. For instance, it is a well-known fact that changes in organisational structure are much easier to accomplish compared with changes in collective cognition (e.g. the shared view on the company's purpose) and capability development.

We do not expect, however, that a company can exhibit radically diverging levels of maturity along different dimensions at any given time. The nine dimensions defining each level are expected to correlate with a given stage of business impact maturity and tend to converge, given time, toward the same level (presumably, the higher level of maturity reached by the same company on its most "advanced" dimensions).



5

Implications

In this closing section, we distil the key insights emerging from the results of the analyses and conceptual developments shared in the earlier sections. The implications of this report are therefore organised according to the key actors that can benefit for their own objectives: businesses, investors and financial institutions, as well as policy makers and international institutions.

5.1 Insights for Business

Businesses are the central actors in the systemic transition toward a regenerative and just economy. They thus stand as the main beneficiaries of both the financial analysis on the impact of business behaviour and the new framework on the evolution of business impact maturity.

From Competitive to Evolutionary Advantage

The financial analyses discussed in Section 3 show that companies with a stronger maturity index (a higher ratio of Transformative to Advocacy actions) outperform their peers on risk-adjusted returns generated for their investors. The reason is that transformative actions (innovation and organisational change geared to better collaboration along the value chain) are perceived by both investors and value chain partners as strong signals of serious commitment to weave impact into the company's innovation and growth strategies.

Therefore, companies that are more advanced than their competitors in developing and deploying impact-driven strategies will be stronger competitors on product, resources and labour markets, and, consequently, they will attract higher investments on financial markets. This new impact-driven strategy is fundamentally based on cooperation with value-chain partners, replacing the exploitative logic that power the standard notions of competitive advantage. We use the term **evolutionary advantage** to describe companies' capacity to produce social, environmental as well as financial value for investors, clients, employees, suppliers and communities based on the progressive development of impact maturity, as described in Section 4 of this report.

Collaborative Impact Strategies

The quantitative, data-driven approach to understand the impact of specific actions by companies provides objective measures of the quality of impact strategies put in place by companies. It also connects companies' actions to the type of stakeholders that are engaged and eventually benefit from them. The insights emerging from the proposed behavioural approach facilitate the adoption of a common language, and thus a related cooperative potential, for business leaders across the key internal functions as well as in their cooperation with their function's internal and external stakeholders. This new perspective enables an integrative way to make strategic decisions and, most importantly, to deploy them effectively with the support of the relevant stakeholders.

A process of unlearning previous behavioural stereotypes and relearning regenerative and inclusive logics of business progressively develop mature ways to "strategise" and "organise". This enables the cooperative involvement of stakeholders in all the steps of the strategic innovation process: from sensing threats and opportunities to the ideation, choice, testing and scaling of innovative solutions. Companies that progress in this learning and change-driven innovation process faster than their peers will accumulate an evolutionary advantage that can jointly generate economic and non-economic wellbeing for all the involved stakeholders.

Coherent Maturity Development at Pace

There is a (very) long way to go before companies reach the highest level of impact maturity, as defined in the proposed framework. Importantly, the various dimensions of maturity described in the framework evolve at different speeds and with different mechanisms. For instance, cultural change and cognitive shifts in people's mindsets are notoriously more complex, uncertain and slow to trigger, compared with structural and operational change dimensions. This means that it is not necessarily easy to "leapfrog" more mature competitors. The goal of the maturity model is to illustrate what type of transformational change interventions are also coherent with the stage of maturity achieved by the organisation at a given point in time. In other words, a highly mature impact strategy is defined as the most synergistic set of actions *given where the company is* on the impact maturity scale across each of the organisational dimensions analysed.

Radical Reallocation of Impact Strategy Investments

Data shows that, on average, nearly 50% of the initiatives launched by companies are focused on advocacy, and only 4% on innovation. This means that there is a

particularly large room to radically redesign companies' impact strategies moving away the attention from advocacy and focusing on transformational change and innovation initiatives. Even reallocating budget from low to higher maturity endeavours might go to a significant, cost-neutral, way towards the goal to enhance the strategic content of impact efforts. This massive reallocation of resources to higher maturity initiatives has the additional advantage of involving all the key functions (and their stakeholders) in the definition, planning and execution of the transformational journey toward a regenerative, and eventually a systemic, logic of business.

The innovation in the notion of impact strategy, therefore, includes both the *content* of the actions to consider to reach the next stage in the impact maturity journey, as well as the *process* to follow to develop the strategy. The process relies on the progressive inclusion of representatives of stakeholders (e.g. clients, suppliers, employees, investors, etc.) in the steps necessary to identify the problem or the opportunity, develop alternative options to select from and test, and finally scale the successful strategic moves. Needless to say, stakeholder integration in the strategy-process is itself a radical innovation that needs to be carefully planned and piloted before it becomes an institutionalised process in the company.

Capability building

The redesign of the company's impact strategy (content and process) requires a significant investment in institutional learning processes. Capacity building on how to work with key stakeholders to distil valuable lessons from impact-driven change experiences is a critical step for managers and employees to reconsider standard notions of doing business by keeping stakeholders at arms' length. This rethinking and redesign process is a precondition for stakeholders' engaged participation and active co-creation in impact strategy-making and implementation.

A community of employees embracing a higher purpose for their company, for instance, can result in a more proactive contribution to the generation of innovative initiatives across the different functions and themes. Often, a transformative approach driven by leaders at the top of the organisation fails to involve internal and external stakeholders in the creative process of sensing problems/opportunities and ideating solutions. Moreover, it can fail to create the learning processes, *with* and *for* internal stakeholders, which can deliver on both the organisational change objectives and on the individual and organisational capacity development goals.

Stakeholder-Centred Business Model Innovation

One critical piece in the acceleration of the impact-business strategy integration process concerns the degree and stage of stakeholder involvement in business model innovation. Today, even the most mature companies engage stakeholder representatives only to gauge expectations on new products/business models to be developed. Rarely does this engagement reach the ideation stage and involve stakeholders in the selection, testing, and deployment of the solutions. Ditto on governance and strategy processes: It is well and good that companies create impact-related committees on the Board and dedicated cross-functional committees, but they typically do not include representatives of external stakeholders (customers, suppliers, communities, etc.). The road from impact strategy integration as part of business strategy formation to stakeholder (representatives') inclusion in business strategy processes is still long and complex. The courage to innovate and experiment on stakeholders' progressive inclusion in strategy (and other strategically relevant) processes is central to the advancement toward higher levels of impact maturity.

More broadly, the evidence-based identification of the most impactful innovations, change, learning and scaling processes can generate a significant acceleration in the impact transition of the company. For instance, setting up experimental designs to pilot the inclusion of stakeholder reps in activities related to business model innovation, strategic decision-making and governance can improve both the quality and the speed of the progression to higher levels of business impact maturity.

Impact Monetisation

A key step in the transition toward a full integration of impact within business strategy requires companies to learn to go beyond compliance (reporting and certification of the impact of their activities). Compliance is not strategy; it is about homogenisation of practices which can give (at best) a temporary reputational advantage to early movers. Of strategic relevance is the ability to translate the (certified) impact assessments into revenue generating propositions. For instance, some mature companies leverage blockchain to certify and monetise social and environmental impact with their beneficiaries. The beneficiaries can be their direct stakeholders, such as customers, suppliers, employees, investors, but also indirect (secondary) stakeholders such as governments and donors. The transactions typically materialise on distributed ledgers (DL) through smart contracts, such as carbon credits, but this approach can be extended to other impact areas such as biodiversity, social inclusion and psychological

wellbeing. Impact monetisation is an enabling capability to unlock potentially unlimited market opportunities and realise net positive value creation.

Systemic innovation

Most of the challenges require solutions that go beyond the capacity and the boundaries of a single organisation. Whether we consider circular economy models to reduce waste in landfills and pollution or behavioural changes in customers and salesforce to reduce overconsumption, companies need to collaborate with other actors to tackle systemic challenges.

As we saw above, raising business impact maturity to a systemic enterprise level requires not only to adopt a net positive (rather than net zero) impact as a specific definition of company purpose. It also requires the strategic commitment to drive (at least to contribute to) systemic change within the company's ecosystem. At this level of maturity, the boundaries of the enterprise are de facto extended to include other key stakeholders, such as customers, first and second tier suppliers, and communities. Importantly, this model of enterprise will have developed cooperative capabilities to a very high level, necessary to collaborate with competitors in creating the collective actions necessary to realise the targeted type of systemic change for every actor's benefit.

This is, to a large extent, the description of future stage scenarios, even for the most mature companies today. We hope that this report can help today's frontier companies to envision, and begin working toward, the innovations and experimentations in the design and deployment of collective actions to tackle the major systemic challenges in their business eco-system. Identifying and testing the effective content and the process of systemic innovation initiatives is an ambitious, and yet fundamental, step in the maturity development process. A step for which not only business, but all the other eco-system actors (financial and government institutions, civil society, academia) need to innovate, experiment, and learn how to coordinate collaborative action at scale.

5.2 Insights for Financial Institutions

Financial institutions play several key roles not only in the functioning of the economic system but also (and importantly) in the systemic transition toward environmental regeneration and social wellbeing (inclusion, fair distribution of opportunities, etc.). This means that each financial institution facing these systemic challenges has two simultaneous transformational tracks to work on. First, the transition of its own business toward higher levels of impact maturity, just like any company in any sector. Second, learn how to assess, select, and support customers across all sectors in the development and deployment of their own impact strategies. If the former is challenging enough, the latter is either completely out of reach (at low maturity levels) or an unprecedented opportunity to create massive amount of value for their stakeholders, including customers and shareholders, (at higher maturity levels).

Of course, the financial sector is made up of many different types of actors with significantly distinct roles and business models, from commercial and investment banks to investors and wealth managers, from private equity, hedge, and venture capital funds, and more. We will thus summarise the insights that this report might provide to financial institutions by breaking them down across the type of actor in the financial system.

Investors and Wealth Managers

The results of our analyses (Section 3) tell a truly clear story for investors and wealth managers. First, building portfolios that either focus on companies with low levels of advocacy activity, compared to their industry peers, or focus on companies with higher-than-average transformational change activities, especially with value chain partners, (or both) will produce *significantly higher returns* compared to market indices. Second, the same portfolios feature lower (rather than what is typically expected higher) *risk levels*, compared to market indices, measured in several different ways. Putting together the risk and the return results, the behaviourally “mature” portfolios overperform benchmark market index up to 40% cumulative risk-adjusted returns over 13 years. Third, the same is true if the comparative analysis is carried out vis-à-vis the major ESG ratings. This means that there is a clear, concrete, advantage to building portfolio strategies based on an objective, standardised, assessment of companies’ sustainability *behaviour*, as opposed to the current ESG standard processes of qualitative, subjective, assessments of companies’ ESG impacts.

Finally, the proposed behavioural indicators can be embedded in a design of a new generation of impact funds linked to different levels of maturity of companies

in the portfolio and can potentially be adopted as a benchmark to assess the relative performance of portfolios built on standard ESG or other selection criteria. The segmentation based on the level of maturity can also be aligned with the existing regulations implemented by policy makers across regions such as the CSRD in the EU. The redesign of investment products to integrate these new metrics can be applied to most of the existing asset classes, such as equities, debt, alternatives, and derivatives.

Banks

Over and beyond the insight described above (5.1) for any business to build strategic advantage by accelerating its own internal transition with transformational change and innovation initiatives, commercial banks can seize unprecedented opportunities to strengthen their long-term relations with business clients by supporting their transition (let alone developing new ones) with tailored solutions such as green bonds, sustainability linked loans and sustainable trade finance. Sustainability linked loans connect funding to specific KPIs associated to sustainability targets, such as CO₂ emission reduction, gender equality, reduction of biodiversity losses, etc. These solutions are expected to become routines in the financial markets at the expenses of traditional products.

Importantly, the asset reallocation toward more mature companies can increase the pressure on companies to abandon advocacy initiatives and accelerate their transition toward more impactful strategies. At the same time, clients at low maturity levels could thus be asked to pay premium price for funding, while being offered support to develop impact strategies that can result in lower funding costs. In addition to accelerating the impact transition across all sectors and geographies where the bank operates, and to add a new dimension of advanced customer service, this asset reallocation strategy produces the expected reduction in Scope 3 emissions of bank’s carbon portfolio, as per its net zero strategy (and regulatory requirements in several regions of the world).

Here is where the Business Impact Maturity framework can become a critical tool to enhance the pricing models for the various impact-based funding products designed and launched by the bank. The behavioural approach introduced in this report can significantly enhance the ex-ante pricing and selection processes as well as the ex-post monitoring and support processes in bank funding solutions.

This means to really move beyond the passive adoption of credit scoring systems and initiate the development of an *active* banking approach based on newly developed support capacities for clients’ design and deployment of effective impact strategies. This advanced approach

requires a deep redesign of the bank's business model and related structures, systems, and culture, as described in the BIM model. Interestingly, the two (internal and external) impact strategy tracks rapidly become essential for each other's success. We recommend, therefore, to resist the temptation to start one track (typically the external, client facing, one) without making the same investments in the internal track of capacity building and transformational change. Furthermore, these two tracks cannot be successfully completed solely with internal resources, irrespectively of the size and profitability of the banking institution. As it was discussed in Section 4, they are meant to be done not only for, but also with, the key stakeholders (clients, employees, suppliers, partners, and local communities) to enable the simultaneous strategic, structural, and cultural evolution of the bank.

Private Equity

Private Equity Funds are currently in the middle of a Copernican revolution, since the new logic of accelerating portfolio companies' impact capacities has shown to create unprecedented value for the Fund's limited and general partners as well as for the company's stakeholders, including their local communities. The trailblazing work by KKR's senior partner Pete Stavros¹², which has now scaled from experimentation to standard investment philosophy for US acquisitions, is diffusing across many leading names in the industry. Note that this "revolution" is so far limited to integrating employees' ownership in the deal's structure and impact KPIs (both environmental and social) in the business plan to be delivered. Although radical for the sector, it is barely approaching level 3 in the maturity scale introduced in this report. It is easy to expect that more, a lot more, will be done to extend employee involvement to the other classes of strategic.

The unique role of PE Funds is that the control of the portfolio company allows them to introduce progressively more sophisticated and mature interventions to accelerate the implementation of the impact strategy within the time horizon of the holding period (e.g. 3–5 years). The fact that they currently manage over \$13 Trillion across different size and markets gives them both the opportunity and the responsibility to play a key role in the systemic transition toward an equitable and regenerative form of capitalism.

Venture Capital

Venture Capital Funds are similarly affected by this transition from multiple perspectives. First, the Limited Partners (LPs) in the funds are increasingly asked to report on the environmental impact of their investments. This burden is thus transferred to the Venture funds, which are expected to include impact strategy logics at the selection, management and exit stages. Secondly, most of the start-ups are created by design to tackle some of the major societal challenges. Again, there is a strategic lever in being able to monetise the social and environmental impact of the portfolio companies' business model. To do so, however, VC (Venture Capital) funds need to invest heavily in capacity development specific to impact transitions, which will enable them to support the design and realisation of mature impact strategies in their portfolio companies. Thirdly, the exits toward either a trade sale to a large company or toward a public listing will require an alignment with these new standards. Therefore, this new logic is becoming a strategic differentiation factor for both independent and corporate venture funds.

FinTech

The capacity to measure and monetise impact through blockchain technologies and smart contracts is shaping a new landscape of players and business models in the financial sector. The development of market exchanges where tokens and utility currencies are becoming the new ecosystems to monetise multiple dimensions of social and environmental impacts, beyond CO₂ emissions. From biodiversity, to circularity, from education to inclusion, a new universe of opportunities for financial exchanges is rapidly emerging in a volatile context. Even central banks and international institutions (e.g. IFC, ECB, China Central Bank) are partnering with local banks and fintech companies to test alternative market models in most of the regions. To work well and meet expectations, these new models also require the combination of financial technologies and trustworthy institutions as market enablers. Again, the maturity level of the players and the availability of objective, quantifiable, evidence of behaviour will support the sound and sustainable development of these key fintech solutions.

¹² See several videos introducing KKR's employees ownership approach. For example <https://www.youtube.com/watch?v=Zxt6f2DCky4>. The case of CHI is particularly illustrative.

5.3 Insights for Policy Makers

How can the shared evidence on the economic relevance of business impact maturity, together with a comprehensive model to assess the level of impact maturity across the key dimensions, be of service to the development of effective policy interventions to accelerate the private sector's sustainability transition? This report is not designed explicitly to respond to this question, but some initial considerations might be helpful, nonetheless:

1. Behavioural Micro foundations of Policy

interventions. The proposed approach to assess the (financial and non-financial) implications of business behaviour can be a particularly useful tool to design micro-founded policy interventions. For instance, the knowledge of the negative (not just neutral) implications of advocacy activity by companies could justify negative policy incentives for companies that over-invest in such type of initiatives. At the same time, knowing that transformational change and innovation initiatives create significantly higher risk-adjusted returns for investors could justify positive incentives for companies willing to share their initiatives with peers on a pre-competitive basis. Since sustainability innovation initiatives are also driving net-zero strategies that are aligned with national Paris Agreement targets¹³, policy interventions targeted to assess and reward companies that over-invest in such activities can reap systemic benefits and accelerate the delivery on national climate change mitigation targets.

2. **Precision Policy Design.** The Business Impact Maturity model offers a science-based and comprehensive tool for careful tailoring of policy interventions across sectors and geographies. This report shows evidence of a significant amount of heterogeneity across sectors as well as across countries and regions in terms of distributions of companies' impact activities, and consequently of maturity levels. Therefore, the type and strength of policy interventions, including positive and negative incentives, capacity building, impact strategy support and international cooperation on selected value chains, need to, and can, be adjusted to the specific business conditions and maturity levels. This requires extensive experimentation to fine tune this innovative type of policy interventions at sector and country level. Cross-disciplinary research is already exploring these frontier options of dynamic policy making, with precision interventions based on the level of business impact maturity within sectors as well as regions and countries.

3. **High/low-income countries' coordination and cooperation.** Since the most impacted countries from a social and environmental sustainability perspective are also those with the most limited resources, it is essential to build collaborative programmes across countries and regions. The opportunity to leverage the maturity assessment tools applied to multinational companies (MNCs) and their global value chains, as well as to countries, can unlock significant cooperations by private and public sector players, co-funded by international as well as financial institutions. Moreover, the design and development of outcome-based financial instruments, with institutional support, can facilitate the attraction of investments from local and global financial markets to sector and country-based systemic change initiatives. A great example is the cooperation between Switzerland, Ghana, and Vanuatu under the clause 6.2 of the Paris Agreement, where Switzerland commits to reduce emissions by funding sustainable practices in Ghana and renewable energy investments in Vanuatu.

4. **Setting Ambitious Targets.** The number of investments calculated to achieve the 2050 Agenda targets across the UN SDGs has been evaluated at \$150 Trillion, or about 150% of a yearly global GDP. This massive investment by private and public sectors across the globe can hardly be motivated by the moral obligation of the private sector in playing its part to develop and use the solutions to the challenges it helped create. It requires a different narrative, one that builds on the unique opportunities for companies to jointly create financial and societal value. In turn, the new narrative needs to replace the net-zero impact logic that is today's mantra, since it is of limited strategic value (what happens once "zero" is achieved?) Hence the importance, from a policy perspective, of showing the scientific evidence of superior returns generated by specific impact strategies, combined with a maturity model that can help both companies and policymakers identify what needs to be done to move the company(ies) from the status quo to the next maturity level. These tools could facilitate the cognitive shift from a net-zero to a net-positive value logic and purpose. The shift to net-positive thinking will then help in finding and realising impact monetisation capabilities, especially in combination with systemic innovation and collaboration capacities in both business and institutional actors.

¹³ See Cenci, Burato, Rei and Zollo (*Nature Communications*, Dec. 2023)

Towards A New Partnership for a Regenerative and Inclusive Economy.

One way to think about the potential impact of this report is to consider the implications of the two instruments introduced (the evidence of superior risk-adjusted returns to higher maturity strategies, and the BIM assessment model) for the combined, behavioural change in the private, financial, and public sectors of the economy. The common interest in achieving, or facilitating the achievement, of progressively higher maturity levels creates novel common ground for cross-sector (societal sectors) cooperation. It would also provide a common language and metrics to assess progress toward such goals. Finally, it will provide the common purpose and the value logic to create collaborative systemic change initiatives that will not only more effectively address the grand challenges facing the global socio-economic system, but they will reduce the risks and the costs for the necessary experimentation, capacity building and scaling of successful systemic innovations.

Here is a vision and a theory of change that will hopefully inspire and motivate organisational and collective transformational change efforts for all the actors involved in the development of a healthy, regenerative, and fair wellbeing economy.

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The Leonardo Centre on Business for Society is a cross-disciplinary Centre of Excellence at Imperial College Business School, part of Imperial College London, the world-leading university for science, technology, engineering, medicine and business (STEMB).

The Leonardo Centre exists to understand and accelerate the emergence of innovative logics of business based on the creation of net positive impact for humanity. We engage the best minds in science, business and institutions to collaborate, experiment and scale systemic solutions for a regenerative and inclusive economy.

We welcome committed leaders to explore this transformational journey with us.

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Acknowledgments:

Special thanks go to Eillie Pinney Studios, Greg Brina, Frank Brueck, Nicoletta Fallerini, Janice Man and Yvonne Zhang from the Leonardo Centre and Imperial College Business School for their contributions and support in the development of this report.

In preparing this report, the authors have relied upon appropriate available data, information and industry standards at the time of writing. It contains various statements and opinions that are or could be “forward-looking” statements, however a number of risks, uncertainties and other important factors could cause actual developments and / or results to differ materially from expectations. This report should not form the basis of any third party’s decision to undertake, or otherwise engage in, any activity and third parties do not have any right to rely on it. The report, by its nature, is not comprehensive and has not been independently verified. Neither Imperial College London nor any of the authors of this report accepts any duty of care, responsibility or liability in relation to this report or its application or interpretation, including as to the accuracy, completeness or sufficiency of it or any outcomes arising from the same.

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