Impact Delta

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Getting Paid for Good Behavior

Investors must understand the full impact of their decisions. Several tools exist to help them

ABOUT THE AUTHORS

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ABOUT IMPACT DELTA

Impact Delta is a consultancy formed of established ESG and impact investing professionals. We advise investors on the firm-wide environmental and social effects of their activities, and develop dedicated impact investing and ESG-focused businesses. Learn more at impactdelta.co

KEY TAKEAWAYS

1 Externalities – or the social and environmental impact of business activity – have never been more important.

a. Evidence mounts that paying attention to impact is associated with superior performance – a finding that holds across asset classes and geographies.

b. Growing evidence of climate change, along with shifting narratives and social norms, are influencing behavior among consumers, policymakers and regulators.

2 The importance of environmental, social, and governance (ESG) issues is driving asset owners and managers to demand more disclosure, standardization and transparency.

a. To uphold their fiduciary duty over 75-year horizons, asset owners and their partners must continue to push for ways to "internalize" externalities through greater disclosure and standardization of non-financial data.

b. While the measurement of ESG factors is still not streamlined, more progress on capturing "non-financial" performance has been made than many market participants realize. Cheaper and broader access to technology such as geospatial data, artificial intelligence and blockchain will drive transparency too.

3 Investors face a calculus about when to switch camps and incorporate ESG-related preferences, measurement and management into their activities.

a. As the process of ESG integration remains incomplete, it presents opportunities to freeride – or take bold action.

a. Investment firms today fall into two broad camps: those that address ESG issues with lip service ("minimum viable effort"), and those that address them with genuine intent ("maximum reasonable effort").

4 The case for switching now to a full embrace of impact-informed investing, despite the inconsistent data, is strong.

a. Change will continue to be non-linear. In 2018 zero countries had adopted zero-carbon targets. Today, dozens have, including major economies such as the U.K., France, and China.

b. Asset flows into high-ESG-quality assets will remain strong. In 2018, sustainable investing assets in developed markets surpassed $30 trillion, increasing by a third with respect to two years before.

5 Switching to a more complete accounting of the impact of investment activities has far-reaching implications for asset manager strategy and operations. Development finance institutions (DFIs) offer many resources to enable this transition.

a. Reorienting towards impact will affect hiring, training, and compensation; organizational structure; information-sharing systems, shared values and cultural norms; brand evolution and all other activities of investment managers. Firms that take a "high sustainability" approach will develop different processes across the board, and over time will differ markedly from those that don't.

b. The biggest single untapped resource for mainstream private equity investors is the development finance community. Organizations like the IFC and the World Bank were launched to address market failures. Their "non-financial" impact is essentially why they exist. Yet the research, data and frameworks they have developed have not been widely explored or adopted by mainstream investors.

Introduction: Externalities and the job of the investor

Investors are paid to see around corners. Their job is to anticipate trends, and back the companies that benefit from them. It is a hard task: the venture capital (VC) industry is based on getting one deal out of about 20 to return the fund, while roughly one-third of most VC fund investments deliver a total loss of capital.

In even the most short-term of public markets, anticipating trends is no less central. Treasury bill investors study economic data and watch the Federal Reserve, and then express their views in the Eurodollar futures market. For these investors too, forecasting the future, even only slightly more than half the time, is at the heart of a successful career.

Externalities – in this report we use "externalities" and "impact" interchangeably – complicate this task. People familiar with economics think of "externality" as being a textbook word for "side effect." This is a fair shorthand; a fuller definition introduces the importance of price and spillovers. Externalities occur "when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided." A negative externality occurs when a cost (e.g., pollution) spills over to someone who isn't the buyer or the seller. And a positive externality occurs when a benefit (e.g., a well-kept private garden visible to the public) spills over. All business activities have an impact, and only some of that impact appears in prices. Some prices are close to being externality-free – Eurodollar futures might be an example – but most are not; in many cases, prices miss substantial costs or benefits to society. Most market prices, in other words, are incomplete.

Here's an example. Keeping one 100 Watt light bulb running for a year requires 876 kWh of electricity. That's 325 kg of coal, 816 kg of carbon dioxide, $96 in electricity, and nearly the same in environmental costs from combustion (See Box 1). Once health costs and full lifecycle externalities (e.g., extraction, processing and transportation) are also included, the true cost is between two and three times the market price. In this case, to think of these costs as "side" effects is to miss the point. Understanding the full impact of a business activity that uses coal, or the impact of any other business, is critical.

Until recently, investors didn't have to pay much attention to externalities. Either the social cost (or benefit) was priced in via a tax (or subsidy), or it wasn't. The numbers that mattered were all on the financial statements, and the importance of those numbers spawned enormous legislative efforts beginning in the 1930s to ensure their disclosure maintained the integrity of the capital markets. No insider trading, in other words, and lots of audit and assurance from third parties. Transparency, based on GAAP in the U.S. and similar principles around the world, begat confidence, which became the bedrock for enormous financial markets innovation and growth. The job of a company management team was to make money for shareholders, as Milton Friedman wrote in an article in the New York Times on September 13, 1970.

Today, other numbers matter too. After this introduction, the next five sections map on to the key takeaways above. They cover:

1. The growing importance of externalities;
2. The path to internalization;
3. The investors' calculus today (or when to start taking ESG seriously);
4. The case for acting now; and
5. The strategic implications of focusing on impact.

Investment firms and operating companies that integrate impact considerations into their core operations and seek to price in long-term risks and opportunities, do so because it makes financial sense. ESG integration, as Figure 1 shows, helps companies to stay focused on a 21st century definition of corporate performance that includes all societal stakeholders, not just the company's shareholders. All investing has impact, even if not all investing is "impact investing" (see Box 2). In the context of a warming planet, an honest accounting for externalities may be the most important trend of all for investors to get right.

Box 1: The Social Arithmetic of Coal

Using the example of one 100 Watt light bulb, the arithmetic is as follows. Coal's thermal energy content is 6,150 kWh per ton, but a power station can only convert about 40% of that into electricity, so 2,460 kWh per ton is the number to use. One light bulb requires 714 pounds (or 325 kg) of coal. And that produces 1,800 pounds (816 kg) of CO_2, as well as five pounds of sulfur dioxide (cause of acid rain), and another five pounds of nitrogen oxide (cause of smog and acid rain). At current electricity prices of 11 cents per kWh, that light bulb costs $96 to run. What doesn't appear in that figure are the environmental costs. Estimates of the social cost of a metric ton (1,000 kg) of carbon dioxide vary, with a range of between $40 and $100. Informed observers, aggregating other studies, use estimates at the upper end of that range. Hence, the environmental cost in carbon dioxide alone is $32-$82, and the acid rain more still. The health costs related to small particulate air pollution are more still, and all this is just from *combustion* of coal. *Extraction* creates further environmental costs (subsiding mines affect and pollute water flows) and health costs (borne by the miners themselves, but also seen in higher rates of pre-term births near surface mines), which puts the full cost of coal at between twice and three times its market price.

Box 2: Hugging Trees or Investing in Children? The Enabling Narrative of ESG Reporting

The importance for investors of the shifting attitudes towards environmental and social issues cannot be overstated. Reframing the narrative around sustainable investing has strengthened the enabling environment of novel ESG reporting and captured the attention of the financial community. At the same time, company managers must now operationalize the new narrative in their own companies by placing ESG reporting at the operational core of their companies' strategies.

The example of climate change is telling. The public discourse around climate change shifted from preserving the environment and mitigating the damaging effects of business behaviors on global warming ("let's save the planet!"), to the negative consequences that irresponsible business behavior has on future generations ("let's secure our future!"). The 70s and 80s "tree huggers" gave way to the 90s and 2000s cognitive scientists who linked the reforms aimed at stopping climate change to different sets of values – from a general inclination toward universalism, to a specific love and care for future generations. The effectiveness of this narrative shift provided the context for all societal stakeholders to internalize the awareness that bold reforms are urgently needed.

The financial community is taking note too. Influential leaders like Larry Fink and Mark Carney have acted as disruptors of an entrenched system which used to look at environmental and social issues in terms of corporate social responsibility only, and their recent public statements have contributed to create a new consciousness in the financial industry. They and others have pioneered the changing public discourse around ESG issues and helped the financial industry navigate the new, uncertain waters – from short-term value creation for their shareholders to the long-term horizon companies must adopt, in their own financial interest, to continue maximizing profit while ensuring that other societal stakeholders participate in the benefits of wealth creation, too.

Managers should now reframe the narrative inside their own companies. According to IFC's Operating Principle #3, in particular, managers should "establish and document a credible narrative on [ESG criteria] contribution to the achievement of impact for each investment." And in order to be effective, this new narrative ought to come from the highest level of management and corporate governance.

Figure 1: A framework for understanding sustainable investing

		Sustainable Development Investing					
	Traditional investing	ESG investment strategies				Impact Investing	
		Negative screening	ESG integration & engagement	Positive or best-in-class screening	Sustainability themed	Market rate	Concessional
Key features	Invest to maximize financial returns regardless of ESG factors	Exclude activities or industries with clearly defined negative impacts from an investment portfolio (e.g., arms)	Integrate ESG factors into investment decisions to better manage risk and possibly enhance financial returns	Selecting best performing companies across industries in terms of sustainability performance	Invest in themes or assets constructed around the SDGs (e.g., water and gender)	Invest with the intention to generate positive, measurable social and environment impact alongside a financial return	
Return expection	Financial market rate only	Financial market rate focused				Social return & market financial return	Social return & sub-market financial return
Impact		Do no harm	Investment likely to create positive sustainable development outcomes				

Source: Global Investors for Sustainable Development Alliance. "Renewed, Recharged and Reinforced. Urgent actions to harmonize and scale sustainable finance," *UN Department of Economic and Social Affairs*, 2020.

1 Externalities have never been more important

In the last two years, externalities have become a more consequential part of investors' jobs. Societal attitudes on the interlocking issues of the environment, racial justice and social justice have shifted quickly, and asset owners' positions are following suit. The American business community itself, as represented by the Business Roundtable, redefined the purpose of a corporation to "promote an economy that serves all Americans." By this, 181 CEOs associated with that statement promised to lead their companies for the "benefit of all stakeholders – customers, employees, suppliers, communities and shareholders."

The international community is moving in a similar direction. The United Nations Secretary-General has called on the financial industry, among others, to "price externalities into the economic and financial system." In April 2020, the UN Economic and Social Council forum on financing for development, which represents leading public, private, and social stakeholders, reaffirmed its commitment to "create incentives for long-term sustainable investing, which could include requiring more meaningful disclosure on sustainability issues, clarifying fiduciary duties and asset owner preference, and pricing externalities."

Other evidence for this inflection point mounts. Greta Thunberg rose from obscurity to become Time Person of The Year after an extraordinary year-long advocacy journey that started on the steps of the Swedish Parliament. The United Kingdom became the first major economy to commit to carbon-neutrality by 2050, and China the latest, as it pledged during the last session of the UN General Assembly to hit peak greenhouse gas emissions before 2030 and to achieve carbon neutrality by 2060. The police killings of George Floyd and Breonna Taylor have catalyzed changes in the private sector, among them the resignations of the CEOs of CrossFit and The Wing. The Supreme Court recently extended the 1964 Civil Rights Act to protect sexual orientation from discrimination in the workplace, a decision that capped over two decades of advancement of LGBT rights. The 2019 Nobel Prize for Economics went to three MIT and Harvard professors who have devoted their research to fighting poverty, while the ongoing Covid-19 pandemic has exposed inequalities still widely entrenched in wealthy societies, including health and income disparities that disproportionately affect minorities in the United States.

In the investment industry, public market ESG funds set a new quarterly-inflows record in Q1 2020, a trend that continued and accelerated in Q2, despite the bear market catalyzed by the Covid-19 pandemic. BlackRock's CEO, Larry Fink, made sustainability the central theme of his annual letter to CEOs, and in April 2020, the Harvard endowment announced its intention to be greenhouse-gas-neutral by 2050. It also announced a plan to monitor the emissions of the portfolios of its underlying managers. In March 2020, an open letter was jointly published by the Government Pension Investment Fund (GPIF) of Japan, CalSTRS in the United States, and USS in the United Kingdom. These three asset owners control two trillion dollars, and they wrote:

> ***"Asset managers that integrate ESG factors throughout their investment process, vote according to the mandate to which they have pledged, and are transparent with us about their level of corporate engagement, demonstrate to us that they are committed to long-term value creation in line with our interests. We prefer to build and maintain relationships with asset managers who fit this description over those who do not."***

The GPIF also authored, in collaboration with the World Bank Group, a recent report that advocates increasing "sustainable investments" by leveraging private sector capital to the magnitude required to meet the Sustainable Development Goals (SDGs) (See Box 3). The task is substantial: UNCTAD

estimates that $5-7 trillion will be required every year until 2030 to meet the targets, with the bulk of the funding coming from the private sector. Reflecting on the Covid-19 pandemic in July 2020, Jay Collins, Vice-Chairman of the Banking, Capital Markets and Advisory division of Citigroup, a member of the UN Economic and Social Council, said that the international community has "the potential to re-imagine capitalism in a post-Covid world, to embrace long-termism and multi-stakeholder corporate behavior and to use Covid-19 adversity to reinvigorate our commitment to addressing the greatest social, environmental and economic challenges of our time." Indeed, and probably not coincidentally, "Reimagining Capitalism" is the title of a book published in April by Harvard economist Rebecca Henderson. While capitalism is one of humanity's "greatest inventions", she writes, it is also on the "verge of destroying the planet and destabilizing society as wealth rushes to the top."

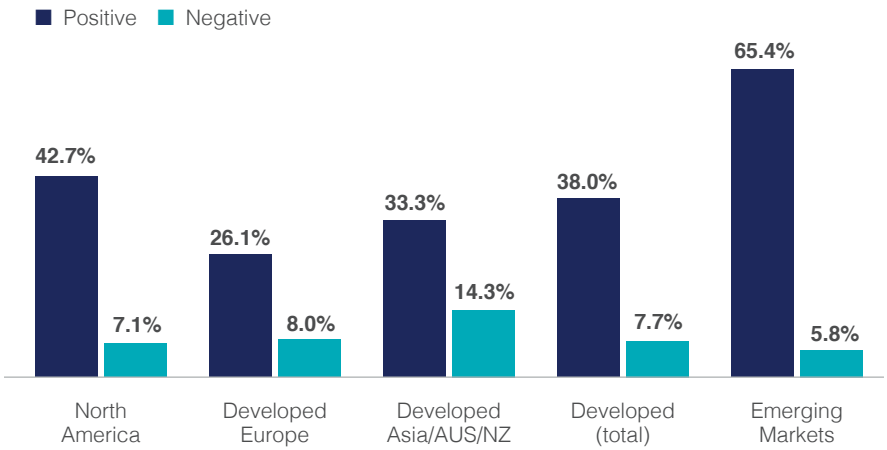
What has changed? Have people suddenly become less greedy? Or more fearful? The evidence is forcing people to alter their practices.

Here are six catalysts:

i. Evidence – from a review of 2,000 earlier studies – that good practice on "externalities" is associated with good corporate financial performance (hence the quote marks), at least in the public markets. Figure 2 summarizes studies which had geographic data; in the full dataset, the finding held across asset classes, and in E, S, and G when examined separately. Assessments of ESG performance vary (more on that below), but overall, the best performing groups of companies on ESG according to any given ratings agency (including MSCI, Sustainalytics, Refinitiv) have outperformed their industry peers. The effect may be even stronger in emerging markets, as the IFC found in a review of 656 companies in its portfolio. Investee companies with good E and S scores outperformed the MSCI Emerging Market Index by 130 basis points. A review of performance in the early months of the Covid-19 pandemic found companies that integrate ESG factors into their core operations seemed to outperform those that didn't. Over longer time frames, researchers have found "high sustainability" companies to display greater non-financial disclosure, be more long-term oriented, and perform better (both in stock market and accounting performance) than their "low sustainability" peers.

Figure 2: Public markets evidence of ESG's materiality to financial returns continues to grow

ESG–Corporate Financial Performance relation in various regions (vote-count studies sample) n = 402 studies



Overall study highlights

- Published in late 2015, reviewed >2,000 earlier studies (1982–2015) examining link between ESG and corporate financial performance
- Studies examined E, S, and G separately and together
- Studies focused on equities, fixed income, real estate or were portfolio-wide
- Overall, 63% of studies had positive findings; 8% had negative findings

Note: The paper reviewed over 2,000 earlier studies. Of these 402 had a geographic breakdown, and so were eligible for inclusion in the chart above.

Source: Friede, Gunnar, Timo Busch, and Alexander Bassen. "ESG and financial performance: aggregated evidence from more than 2000 empirical studies." *Journal of Sustainable Finance & Investment* 5.4 (2015): 210-233.

ii. Evidence that the Earth does in fact "charge rent." This evidence has shifted from cerebral concept to visceral experience through:

   a. Record-breaking temperatures. Nineteen of the hottest years ever have occurred since 2000. Heatwaves keep breaking records, and now account for the deaths of 150,000 people a year.

   b. Record-breaking losses on natural disasters. Hurricane Irma (2017), at 180mph, narrowly missed the highest-wind-speed-at-landfall record for an Atlantic hurricane when it hit the Leeward Islands. It caused $50bn in damage, and was followed by Maria, also category 5, two weeks later, which battered the island of Puerto Rico and caused $139bn in damage. 2020 has produced so many Atlantic storms that, for only the second time, the NOAA has been forced to use Greek letters. The Tubbs wildfire in 2017 triggered the first climate change bankruptcy in the form of PG&E, and cost shareholders $20bn. The 2020 wildfires in California, Oregon and Washington State are the worst on record.

iii. More specific forecasting and valuation of climate change's economic damage. The IPCC's estimate, published in 2018, puts the net present value of those costs at $54 trillion from 1.5°C warming in 2100, and $69 trillion for 2°C (see box 3.6 in the IPCC paper). Those estimates were drawn from a briefing note published by a team at the University of East Anglia, and have since been peer-reviewed. The briefing note also estimated the damage of remaining on the "business-as-usual" path of 3.66°C by 2100 at $551 trillion – or over 10x the 1.5°C alternative. Even at 2°C, asset owners see "potentially catastrophic systemic risk" to their portfolios."

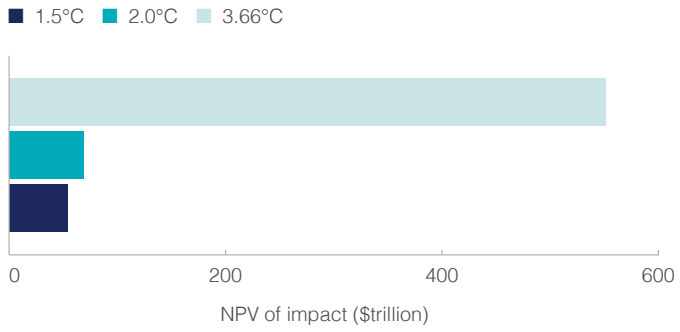
iv. A recognition that tackling climate change is a question of horizons – it is a "when" question not a "whether" question – and that it behooves asset owners (with 75-year horizons) to change the incentives of asset managers (with 5-10 years horizons) to align with their interests. The "tragedy of the horizons" a phrase coined by Mark Carney, is in part what prompted him to convene the Task Force on Climate-Related Disclosure (TCFD).

v. Shifts in norms that have allowed generally mainstream members of society to adopt behaviors previously thought of as radical or fringe. The growth of veganism illustrates this, which in turn has made the success of Beyond Meat – now with a market cap of over $10bn – possible.

vi. A reframing of the narrative around climate change, from a non-specific and non-urgent conservation question – how can we protect planet earth? – to the specific and urgent issue of securing the future of our children.

Figure 3: If warming is kept to 1.5 degrees by 2100, the NPV of impacts is $54 trillion. At "business as usual" 3.66°C, it is $551 trillion

Estimate of net present value of impact ($trillion)



Overall study highlights

- Briefing note published in May 2018 by Tyndall Centre for Climate Change Research at the University of East Anglia
- The IPCC's 2018 economic cost figures are based on this study, led by Rachel Warren, and funded by the UK Government's Department for Business, Energy and Industrial Strategy.
- Study notes: "The economic benefits of limiting warming are also significant, with mean values of NPV of climate change induced damages (including market, non-market impacts, impacts due to sea level rise and impacts associated with large scale discontinuities) of 551, 69, and 54 trillion $ for NPV."

Source: Warren, Rachel, et al. "Risks associated with global warming of 1.5 or 2C." *Tyndall Centre Briefing Note*, 2018.

2 The path to internalization – greater disclosure, standardization and transparency

Investors appear to be convinced enough about the importance of sustainability and externalities in general to sign up for various international conventions that recognize them. Examples include:

- UN PRI (signatories have grown from 100 at launch in April 2006 to over 3,000 by mid-2020);
- UN Global Compact (representing 11,183 companies in 156 countries); and
- The Equator Principles (adopted by 108 financial institutions in 38 countries).

But they also find themselves navigating a difficult landscape of non-financial reporting that is not yet standardized, and sometimes presents outright conflicting information. American Tower (a cellular tower company) became known for receiving a top rating from one ESG ratings provider, and a rock-bottom rating from another. This wide range of ratings is true of Tesla too: MSCI rates it as one of the best ESG performers among car manufacturers, FTSE rates it among the worst, and Sustainalytics is in the middle.

Why could this be? A paper by Florian Berg, Julian Koelbel, and Roberto Rigobon, three researchers at MIT, looked at the ESG ratings of five prominent agencies – KLD, Sustainalytics, Video-Eiris, Asset4, and RobecoSAM. Consistent with the American Tower example, one finding was that the correlation among them was only 0.61. Credit ratings, by Standard and Poor's and Moody's, are correlated at 0.99. Setting apart the consideration that much ESG information is based on voluntary disclosure, scope, weight and measurement divergence explain this (See Box 3).

Today's ESG information is thus noisy, with important practical implications. Relative to a world with clearer ESG data – to state the obvious – bond and stock prices cannot reflect ESG performance accurately, and so companies themselves face weaker incentives to deliver good ESG performance. One way to mitigate these issues is for investors to consider at least two ESG ratings (a requirement that already exists in the European Union for structured finance instruments) in order to better assess the ESG performance of a company or an investment. Some observers contend that is still not enough, as ratings groups largely depend on voluntary disclosures. Investors still must do work to evaluate ESG performance. Non-standardized information presents plenty of scope for freeriding in the investment industry too: investment firms can sign up for broad frameworks to assuage the concerns of asset owners, but do little differently in practice. The difficulties with the data, critics say, are numerous.

Box 3: Three Sources of Divergence in ESG Ratings

SCOPE DIVERGENCE

This occurs when one agency includes certain activities, such as lobbying, and another excludes them, while both might look at greenhouse gas emissions and employee turnover.

WEIGHT DIVERGENCE

Different agencies may assign different weights to greenhouse gas emissions relative to human rights performance.

MEASUREMENT DIVERGENCE

Labor practices can be assessed in different ways. One approach might take court cases or complaints, while another might look at turnover.

There is cause for optimism, however. Standardization efforts are well under way, and even more ambitious work has begun to produce a holistic accounting for the impact of a business.

On the standardization front, during the 2020 Annual Meeting in Davos, the World Economic Forum (WEF) released a consultation paper that proposes two sets of metrics that draw from existing standards and disclosures, including the GRI, the SASB, and the TFCD. The UNDP has recently launched a consultative process too – SDG Impact – to establish standards for private equity fund managers and bond issuers seeking to contribute to achieve the SDGs. The Positive Impact Initiative, launched by UNEP in 2017, introduced a framework to allow investors to analyze and manage their companies for impact. The Global Investors for Sustainable Development (GISD) Alliance recently showed how some asset managers are creating proprietary ESG risk and opportunities models that combine high-frequency raw data streams with artificial intelligence to create datasets unavailable to most investors. Blockchain, geospatial data and artificial intelligence will play a growing role too, such as in supply chain traceability and climate finance applications. As ESG data become more accurate and consistent, fund managers as well as company executives will be able to focus more on achieving greater social and environmental impact, as opposed to spending time on defending the legitimacy of their own disclosures and chosen reporting approaches. In the face of ESG-criteria and reporting debates, savvy investors and multilateral organizations are finding ways to fill the gaps. Critically, poor environmental and social stewardship will also be easier to spot.

What about efforts to produce a holistic view? Skeptics are quick to point out that many outcomes are impossible to quantify – for example, "enhanced human opportunity." They also suggest that it's impossible to compare preserving rainforest with immunizing kids. But more progress on these questions has been made than many mainstream market participants appreciate. Examples include:

- Y Analytics, which was launched with backing from TPG. This group seeks to place a monetary value on environmental and social outcomes using the most relevant available peer-reviewed academic research. Its approach is called the "Impact Multiple of Money." The process does rest on making assumptions and judgments, something which architects of the approach readily acknowledge. (Accounting statements rest on judgments too.) The claim is not that the approach is perfect, it is just that it develops the most rigorous basis currently available for making trade-offs between investments, and comparing impact of different kinds. Central to this approach is accounting for negative impact pathways as well as positive ones.
- Future Fit Business, a non-profit based in London. This has turned the systems-based Natural Step framework into a set of standardized tools and a 23-part benchmark used by companies such as Novo Nordisk, a Danish multinational pharmaceutical company.
- The Impact-Weighted Accounts project at Harvard Business School. This aims to create "financial accounts that reflect a company's financial, social, and environmental performance" and "transparently capture external impacts in a way that drives investor and managerial decision-making." The project has produced accounts for 1,800 companies so far. Of the 1,694 enterprises with positive earnings before interest, tax, depreciation and amortization (EBITDA) in 2018, 252 (15%) would have seen their profit more than outweighed by the environmental damage they caused. For 542 companies (32%) EBITDA would fall by 25% or more.

The path of travel is clear. Transparency makes markets more efficient, and it is in the collective interest of market participants, if not the interest of every actor, to make markets efficient. Markets, even in prisoner of war camps, tend to become more efficient over time. Mankind has solved inconsistent data problems before – notably in the 1930s, with the emergence of accounting standards – and much progress has already been made on today's data headaches already. The TCFD presented its final recommendations in June 2017, which included its now well-known four-part (governance, strategy, risk management, and metrics) framework. Since then it has published two status reports. In the first, in September 2018, 513 organizations had expressed their support for the recommendations; by the second, in June 2019, 785 had. Important market participants, such as Larry Fink, have lent their support to further progress. In his 2020 letter to CEOs, Fink wrote:

> ***"This year, we are asking the companies that we invest in on behalf of our clients to: (1) publish a disclosure in line with industry-specific SASB guidelines by year-end, if you have not already done so, or disclose a similar set of data in a way that is relevant to your particular business; and (2) disclose climate-related risks in line with the TCFD's recommendations, if you have not already done so. This should include your plan for operating under a scenario where the Paris Agreement's goal of limiting global warming to less than two degrees is fully realized, as expressed by the TCFD guidelines."***

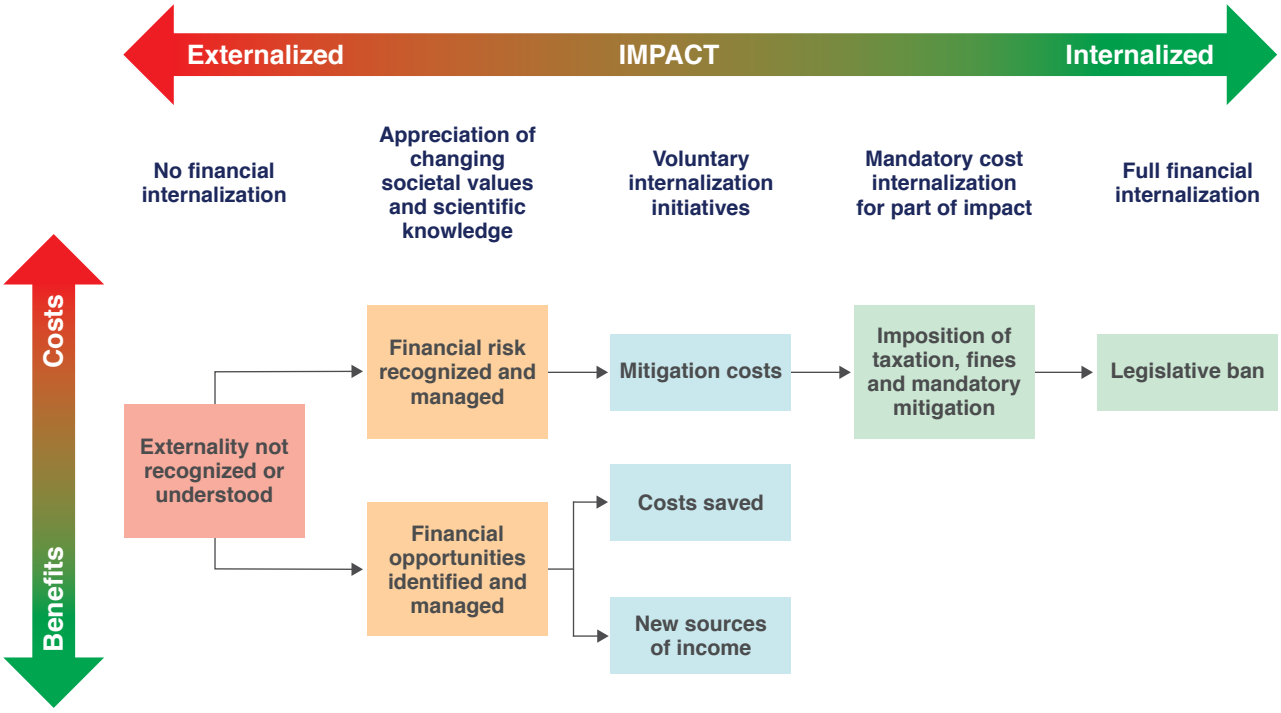
And he continues:

> ***"We believe that when a company is not effectively addressing a material issue, its directors should be held accountable. Last year BlackRock voted against or withheld votes from 4,800 directors at 2,700 different companies. Where we feel companies and boards are not producing effective sustainability disclosures or implementing frameworks for managing these issues, we will hold board members accountable. Given the groundwork we have already laid engaging on disclosure, and the growing investment risks surrounding sustainability, we will be increasingly disposed to vote against management and board directors when companies are not making sufficient progress on sustainability-related disclosures and the business practices and plans underlying them."***

Externalities are inherently hard to measure and price – hence their name. But they can be thought of as being on a continuum (Figure 4), with certain activities being completely ignored and unpriced by the market at one end, and others being priced accurately (or internalized) due to a ban.

Most externalities lie somewhere in the middle. They can be measured, at least partially, and those measurements can inform investors' judgements, if they see the work as worth their time. Paraphrasing the old adage, "you can't improve what you don't measure", what gets measured gets priced in. It is to that question we now turn.

Figure 4: Externalities, and approaches to internalizing them, can be arranged on a continuum



Source: Unerman, Jeffrey, Jan Bebbington, and Brendan O'Dwyer. "Corporate reporting and accounting for externalities." *Accounting and Business Research* 48.5 (2018): 497-522.

3 The investors' calculus today (or, when to start taking ESG seriously)

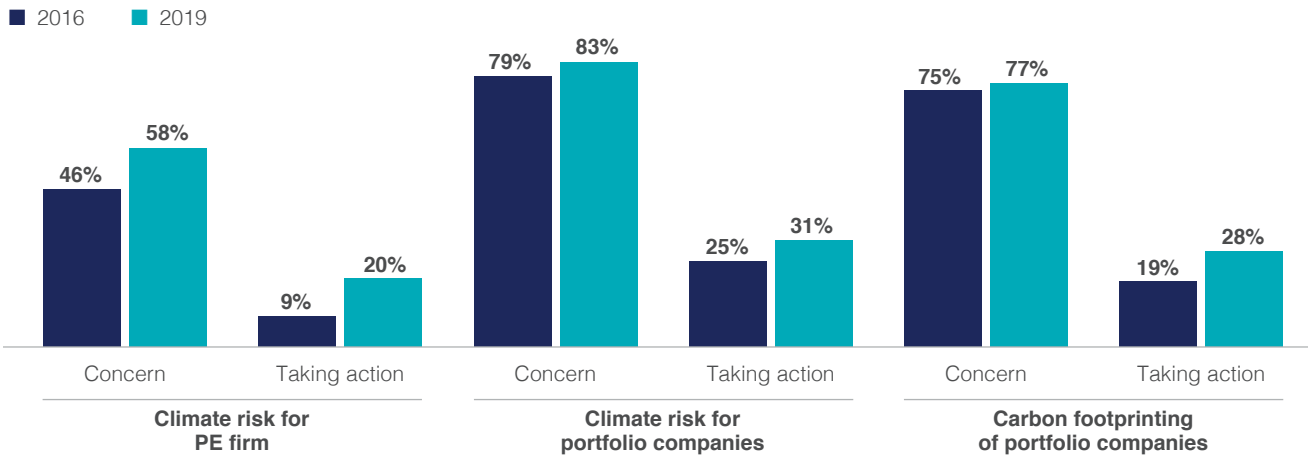
All investing is about choosing – choosing one stock over another, one company to research further ahead of a potential acquisition, or not; and in the end, it is about choosing where to spend time. This is the lens mainstream firms now bring to the basket of half-measured sustainability, diversity, and other ESG topics that they are now asked to consider. Under the assumption that most investors are profit-maximizers, they will allocate time in ways that generate rewards for themselves – in the returns they generate, and in the assets they can raise to invest. The better they do on both fronts, the more their investment firms are worth.

As with all tipping points, we observe laggards and leaders (Figure 5) on the shift towards sustainability, and today, reasonable people can easily look at the same set of facts about ESG and reach different conclusions. The old-fashioned profit maximizer will spend as little time as possible on ESG questions, focusing only on areas where a completely clear relationship exists between an investment in ESG topic A (e.g., diversity), which leads to greater profits in business line B. It is in her supposed interest to pay lip service, perhaps by joining UN PRI to help with asset-raising, but devote the bulk of each day to uncovering cheap companies. We call this the **"minimum viable effort"** (MVE) group. This group can reasonably point to the current (albeit diminishing) inconsistencies in ESG measurement frameworks to explain their low effort approach.

Leaders take a different view. They are convinced that alignment with long-term asset owner needs is in their own interests. And so they proactively seek the best data, understand the differences in externality measurement approaches, and "see around corners" as far as they can. While investors have been punished for being too early on trends, that probably is not true for those who turned bearish on coal. From January to November 2019, amid a broadly rising U.S. stock market, the value of the top 10 U.S. coal producers fell 59%. The leader group invests time in understanding semi-externalities as deeply as they can. Assuming these investors continue to grasp the non-linear nature of the shift to a more responsible capitalism, they will be rewarded for doing so. We call this group the **"maximum reasonable effort"** (MRE) group.

Figure 5: Among PE investors, there is a gap between concern and action

Respondents expressing concern and taking action, %



Note: Chart shows percentage of respondents that selected either "very concerned" or "slightly concerned" when asked: "What is your level of concern for emerging responsible investment or ESG issues?" Then, for each issue selected as "very concerned" or "slightly concerned" respondents were asked "How are you addressing this issue?" Percentage of respondents that then selected "Yes we have already implemented measures" is shown. Base: All respondents 2019 (n=162) and 2016 (n=111)

Source: Jackson-Moore, Will, Phil Case, Emilie Bobin, and Joukje Janssen. "Older and wiser: Is responsible investment coming of age? Private Equity Responsible Investment Survey 2019." PwC, 2019; "Are we nearly there yet? Private equity and the responsible investment journey." PwC, 2016.

4 The case for acting now

What is the most economically rational position to take? ESG reporting criteria offer an organizing framework for evaluating investment decisions, and can help on both the risk and the return front. We review these first, and then we turn to the question of timing.

First, ESG factors can be a magnifying lens for potential investment risks. For example, insurance companies that were earlier to internalize climate change-related risks are now better positioned to respond to more frequent and severe natural disasters. And forward-thinking insurers have brought the fight against climate change into their business practices. In February, Swiss Re announced that by 2023, it would stop providing insurance to and investing in the 10% most carbon-intensive oil and gas producers in the world. Investors who avoided coal five years ago are in better shape than those who didn't. The extraordinarily polluting nature of coal may be too easy a test case – even firms with modest claims to MRE status could see coal's future was dim. The picture for fossil fuels more generally has darkened. As wind and solar costs have fallen sharply, so oil majors have been forced to revalue their assets. In the midst of the economic turmoil caused by the Covid-19 pandemic, Shell wrote down its assets (unextracted oil) by $22bn at the end of June 2020; a day before that announcement, Total wrote down its assets by $8bn, and earlier that month BP took a similar non-cash impairment of $13-17.5bn. Those decisions were in part the result of a shift in the industry long in the making. And some climate change arithmetic is fairly straightforward. To stay under a two-degree warming threshold, 80% of coal, 50% of gas, and 30% of oil reserves are thought to be "unburnable."

Second, a focus on impact can help identify opportunities. Companies across sectors and industries can take advantage of shifting social trends as well as new environmental regulations. For example, an increased, and today often systems-based, awareness of obesity's causes (as well as the growing prevalence of obesity itself) presents business opportunities in healthier foods as well as in certain structural interventions (e.g., food supply solutions for schools). Interventions of this kind may also specifically benefit lower socio-economic groups. Similarly, OrCam has developed glasses that can "read aloud" from envelopes and bus timetables, with life-changing impact for the 35m blind and 250m visually-impaired people globally. As Ronald Cohen explains, an impact mindset opens up as further market the 773 million people worldwide who are illiterate. Most of these are women.

Examples like these, let alone record-smashing wildfires, have prompted some investment firms to cross the aisle from MVE to MRE. One partial example is Brookfield, which signed UN PRI in February 2020, and then in August hired Mark Carney (former Governor of the Bank of England and a key architect of TCFD) to become Vice Chair and Head of ESG and Impact Fund Investing. The example is only a partial one, because the hire of Carney represents Brookfield's intention to improve its impact capabilities still further from a solid base, and some $50bn in renewables assets. EQT has long been in the MRE camp, and has published a greenhouse gas (GHG) emissions report since 2015. It also offsets all GHGs that it can't avoid. But the pattern of switching in the industry overall has been piecemeal and sporadic. Many firms, even with tens of billions of assets under management, don't have a full-time head of ESG. The average firm (the mode, to be precise) in the private equity industry overall is still in the MVE camp. Considerations of impact fill one slide – at the very end of investment committee presentation decks.

MVE players might point to the persistently high production of carbon dioxide from fossil fuel combustion (2019, at 36.8 billion metric tons, broke 2018's record of 34.1) and say fiduciary duty compels them to invest in the highest risk-adjusted opportunities they see. To this group, the world is still producing massive amounts of carbon, and their job is not to save the planet; it is to make money for their clients. They owe it to their investors to change only when the world does. Acting too early is risky.

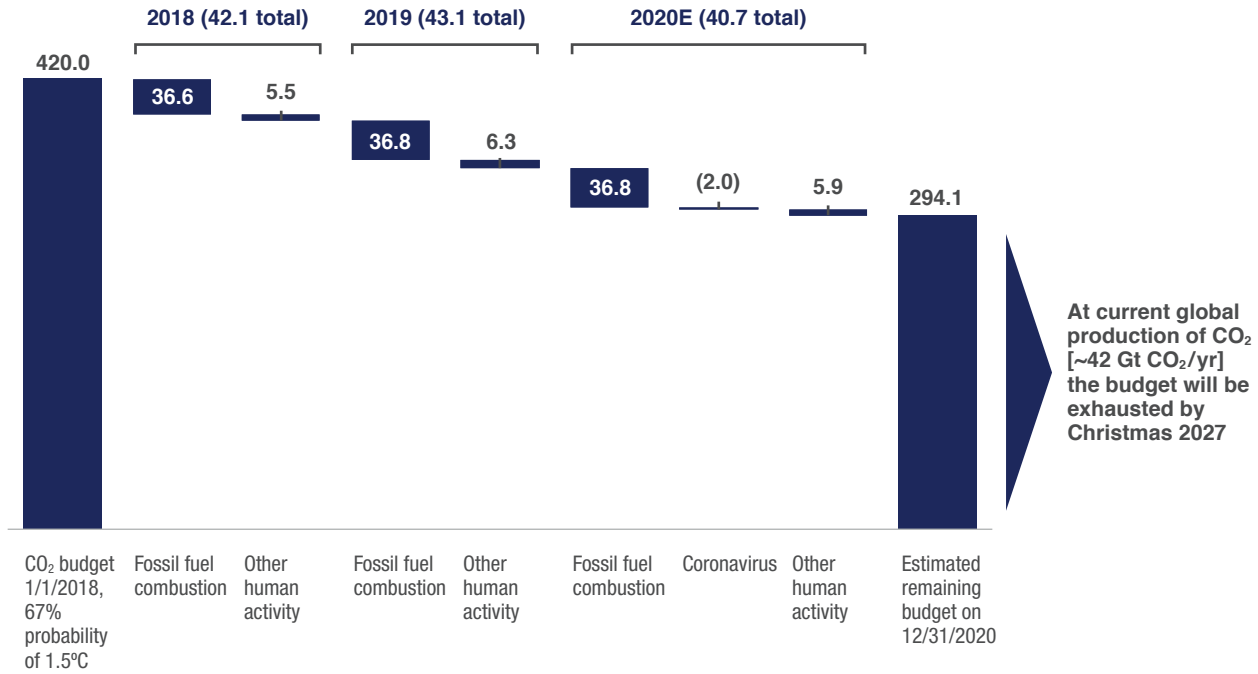
Why, then, should an MVE actor move now – even if it doesn't particularly care about the planet? We offer three reasons: non-linear risk, the benefits of being in the information flow as standards evolve, and asset flows.

On the risk front, investors must keep the non-linear nature of change we have already seen, and what therefore lies in store. In October 2018, the International Panel on Climate Change (IPCC) laid out the costs failing to keep global warming below 1.5 degrees, and letting it rise 2 degrees instead. These differences included, among others: 205 million extra people at risk of heat stress in India, a decline of crop yields of 1.7% in the U.S. and Africa, and 21 million extra people at risk of drought in the European Union. The IPCC also explained, on page 108 of its October 2018 report, that if the world wanted a 67% probability of remaining under 1.5 degrees of warming, it had 420 billion metric tons (or 420 Gigatonnes, "Gt") left in its carbon dioxide budget on January 1, 2018. The world is currently producing around 43 Gt per year, with about 37 Gt coming from burning fossil fuels, and a further 6 Gt coming from deforestation and other land use changes. So, at current rates, the world will blow this budget by Christmas 2027 (Figure 6).

Electorates and legislatures could stand by and let this happen. Or they might unexpectedly (but necessarily) vote in aggressive laws to change CO_2 production. At a minimum, they might object to using tax dollars to warm up the planet: in 2017, government fossil-fuel subsidies came to $5.2 trillion, of which the U.S. accounted for $649bn. As of May 2019, zero countries and regions had committed to carbon neutrality by 2050; a year later, 20 had – including major economies such as the U.K. and France. In September 2020, China pledged carbon neutrality by 2060.

Figure 6: At current rates, a carbon dioxide budget of 420 Gt will be spent by Christmas 2027

2018, 2019, and estimated 2020 production, compared with IPCC's estimated 1.5°C budget on 1/1/2018, gigatonnes (Gt) CO_2



Note: A gigatonne = 1 billion tonnes. A tonne is a metric ton, or 1000kg. A U.S. ton is 907.18kg. Other human activity comprises mostly agriculture, especially livestock, and land use changes, such as deforestation. Coronavirus is estimated to cut emissions by 2 Gt in 2020. Pre-coronavirus 2020 estimate is assumed to be 2019's full year figure.

Source: Impact Delta analysis based on Masson-Delmotte, Valérie, et al. "Global Warming of 1.5°C." *Intergovernmental Panel on Climate Change*, 2018; Friedlingstein, Pierre, et al. "Global Carbon Budget 2019." *Earth System Science Data*, 11, (2019): 1783-1838; and Le Quéré, Corinne, Jackson, R.B., Jones, M.W. et al. "Temporary" reduction in daily global CO_2 emissions during the COVID-19 forced confinement. *Nat. Clim. Chang.* 10, (2020): 647–653.

Beyond non-linearity, the alphabet soup of emerging sustainability accounting standards offers opportunities for investors to gain an informational edge. The work to understand SASB's requirements, the TCFD's philosophy, and GRI's approach is not trivial. But doing that work will allow investors more accurately to judge the risks of their positions.

Finally, active managers in the public markets often make a distinction between "fundamentals" and "technicals." A security's price can change for either reason: a company's underlying business prospects might improve, or its stock might move into a widely held index such as the S&P 500. Both developments increase the stock's price. Similarly, in the fixed income market, prices shift by more than fundamentals would justify when a bond is upgraded from junk to investment grade status.

We see much evidence to suggest that high ESG-quality assets (publicly traded securities, or private companies) will benefit from strong "technicals." Early in 2018, global sustainable investments topped $30.7 trillion in the five major markets of Europe, U.S., Japan, Canada, and Australia/New Zealand, a 34 percent increase with respect of two years before. U.S. investors pulled $137bn out of stock funds in Q2 2020, but ESG investors added $9.3bn. In the first six months of 2020, as the Covid-19 pandemic started to unfold worlwide, ESG funds took *in* $20.9bn, which is just under 2019's *full year* inflow figure of $21.4bn. And flows in 2019 were four times higher than they were in 2018. Also, technicals can bleed into fundamentals over time too. With more dollars in ESG-oriented funds, more underlying operating companies will seek to improve their ESG profiles. Companies that supply positive-impact products will see an uptick in their business performance over time. Three researchers have expressed the ongoing market-wide shift to ESG using the framework of Markowitz's famous Modern Portfolio Theory model, which we discuss in Box 4.

In sum, it is still possible to ignore or only half-acknowledge the relationship between 2020's climate-related disasters, and continue in the MVE state. With a five- to ten-year view, and given asset owner incentives, this is unlikely to be good business. What are the strategic implications for investment firms – and particularly private markets firms – of shifting to a full-impact view of performance? We turn to this next.

Box 4: Modern Portfolio Theory and ESG

In a recent essay, three researchers at AQR suggested an extension of Markowitz's famous Modern Portfolio Theory model. Markowitz proposed that an "efficient frontier" exists, and investors able to hold the market portfolio in combination with a risk-free asset could position themselves on a "line of tangency" for the highest possible return per unit of risk (in this case, measured by volatility). In the AQR paper, the researchers suggested another portfolio exists, which is the ESG-variant of the market this is the general market, but with a greater weight on some stocks than others due to their ESG profiles, and in some cases certain stocks might be excluded altogether.

They further divide investors into three groups: Type-U investors, who are unaware of ESG considerations; Type-A, who are aware; and Type-M, who are motivated by ESG considerations, and are even willing to accept lower returns as a result. The point is, in a market dominated by Type-U investors, and when high ESG scores predict high profits, then high ESG stocks produce high returns. When the economy has many type-A investors, then returns of ESG stocks are no longer connected to their ESG status, because ESG stock prices are bid up in expectation of ESG-related profits. And in a market dominated by Type-M investors, high-ESG stocks produce low returns, because demand for these stocks is high. (As an aside, a world filled with Type-M investors might be the one closest to accurate externality pricing, and the one with the best chance of staying under 1.5 degrees.)

Which market are we in now? For the time being, it appears Type-U investors still dominate. A quarter of investable assets in the world are deemed "sustainable" – albeit with an undemanding, and self-reported, definition of what that means. The volume of assets that claim to be sustainable has grown from $22.8 trillion in 2016 to $30.6 trillion in 2018 at a CAGR of 16%. This implies more and more investors are crossing the aisle. For investment firms that already own high-ESG assets, that is surely a good thing.

5 Strategic implications: What investment firms need to do about impact

Seven years ago, would you or your firm have predicted the speed of coal's demise? What is the next coal? What would happen to your portfolio if a carbon tax of $100 were to be introduced next year – and is your firm conducting stress tests to prepare? In how many years will LPs discontinue mandates because of poor management of externalities?

Switching to MRE forces investment firms to address several strategic questions about their core operations. They touch on every facet of the firm, including hiring, training, and compensation; organizational structure; information-sharing systems, shared values and cultural norms; and brand evolution stakeholder engagement. Firms that take a "high sustainability" approach will develop different processes across the board, and over time will differ markedly from those that don't.

EQT, a Stockholm-headquartered firm, illustrates how a MRE firm works in practice. The firm does have a head of sustainability, but senior deal partners in each group are also held accountable for the ESG-performance of the teams under their purview. These considerations are a factor in compensation. Each investment is given a sustainability improvement plan, which is checked at each portfolio company review meeting. Environmental improvement costs (e.g., asbestos abatement) are included in deal underwriting, even when no regulation might require it, and competing firms bidding for the same businesses have no intention of incurring those costs. The firm's efforts around impact are summed up in its vision "to be the most reputable investor and owner." Its sustainability efforts are headlined as "make a positive impact with everything we do."

How relevant is this example to the industry overall? We think it is instructive. The firm is ranked eighth in Private Equity International's top 300 asset raisers of the last five years, and now has EUR40bn of assets under management. TPG, ranked fourth in the PEI list, has recently begun using the Y Analytics methodology across its entire portfolio. Carlyle, ranked second, appointed Megan Starr in 2019 to improve its impact across its whole portfolio.

Incentives will become more effective as the data they rest on also improve. Several resources exist already, and firms don't have to be explicit "impact investors" to use the tools developed for that space.The biggest single untapped resource for the mainstream private equity investors is the development finance community. Entities like the IFC, the World Bank, and other development finance institutions (DFIs) were founded to address market failures: their "non-financial" impact is essentially why they exist. Other resources can help too, but we dedicate most attention to those produced by DFIs, because of their depth, and the limited extent to which they have been adopted.

Below is a non-exhaustive list of five data-related activities associated with a strategic focus on impact. The activities are the sub-headings, and resources are outlined below each. There are certainly gaps and overlaps, but those should not deter investment firms from starting now.

5.1 Develop a framework for impact management

The IFC's nine Operating Principles for Impact Management (released in April 2019) have become perhaps the single most influential framework in the evolving impact investing field. Over 100 international investors have signed on to these principles, which offer a framework to integrate ESG factors throughout the investment lifecycle. The Impact Management Project (IMP) has developed a widely-used framework too, named the five dimensions of impact. Why does the IFC have nine points and the IMP only five? The IFC is broader: for example, signatories commit to disclose yearly how they implement the principles and agree to an independent audit. But the core concepts in each are the same. Investors should understand the outcomes they are aiming for, who is affected, how much impact the investor expects to have, and what the risks are.

5.2 Estimate impact ex-ante and monitor in real time

Furthermore, the IFC has codified its own assessment tool for estimating ex-ante the social and environmental impact of potential investment opportunities, known as the Anticipated Impact Management and Measurement (AIMM) toolkit. This goes into substantial and necessary detail for investors seeking to understanding the entirety of their anticipated impact, while linking it to the broader SDGs. (The Y Analytics IMM approach does that too.)

A toolkit like the AIMM also allows the IFC (or any investor) to monitor in real-time the effects of its investment decisions on impact indicators and goals, providing feedback to fine-tune an investment when inputs are not contributing as expected to desired goals. Ensuring the inclusion of ethical, social, and environmental values can help investors mitigate compliance and reputational risks. In a similar effort, the World Bank has introduced its own ESG guidelines to estimate the environmental and social risks of its investments.

An ESG system integrated into the company core operations ensures its inputs are systematically linked with its activities, outputs, outcomes, and impact results – the company's *theory of change* – flowing from the goods or services the company markets. For example, a company that makes faucet aerators to reduce water use maps out its theory of change by using the following indicators:

Inputs: capital, human, and physical resources invested in the company's activities (e.g., money invested in machines that make faucets);

Activities: concrete actions taken by the company (e.g., operating workflows of the production plant);

Outputs: tangible products resulting from the activity (e.g., # faucet aerators produced and sold);

Outcomes: changes resulting from the activities (e.g., # people reached by water flowing from faucet aerators sold); and

Impact results: wider changes occurring in communities as a result of company activities (e.g., reduction in public water consumed by households that have introduced faucet aerators; ability to serve a greater number of people with water).

Companies can monitor their contribution to sustainable development by linking their strategy with the SDGs. Orbia, formerly known as Mexichem, has adopted this approach. It has arranged its business around six "Challenges We Address" – such as "how do we feed the world sustainably" (linked to SDG 2 Zero Hunger) and "how can we better manage our water systems" (linked to SGG 6 Clean Water and Sanitation). Globally, more companies are appointing women on their Boards, as recent studies increasingly show higher overall business performance.

5.3 Improve ESG-related disclosure and transparency

Moving from measuring outputs to outcomes is a key pillar of the IFC Toolkit for Disclosure and Transparency, a practical tool that combines IFC's Environmental and Social Performance Standards with a Corporate Governance Methodology, and that was designed for investors seeking to operationalize the IFC's approach towards sustainable development investing and, more specifically, ESG reporting. The toolkit was launched in January 2018 at the London Stock Exchange, and it builds upon internationally recognized reporting frameworks, such as the GRI and the SASB. It was conceived within the Sustainable Stock Exchanges (SSE) Initiative, a United Nations Partnership Programme organized by UNCTAD, the UN Global Compact, UNEP FI and the PRI, which seeks to build the capacity of stock markets to promote sustainable development investing and improve corporate performance on ESG issues.

Investors must evaluate companies based on the disclosures they are legally obliged to deliver, but also on the ESG approach embedded in the company strategy, core operations, risk management, and culture. Key to the toolkit's comprehensive approach is the integration of ESG reporting criteria into any company's strategic and financial disclosure. Would investors want to know just the absolute values of ESG metrics in their potential investee's core operations, or the absolute value *and* variation of these ESG indicators? And in either case, are investors content with ESG reporting on the investee's internal operations, or would they also want to understand externalities in the company's supply chain? In time, firms will be rewarded for a bias to transparency, and the toolkit can help them.

5.4 Screen some companies out early

Interestingly, tobacco and alcohol companies top many ESG ratings, and several funds branded on their green credentials in fact invest in oil companies. This happens because investors may not follow a systematic and transparent screening process. As they develop a more structured approach to externalities, investors should consider screening out early companies on the basis of traditional moral values (e.g., tobacco, alcohol, or controversial weapons like landmines) or standards and norms (e.g., products or services that do not comply with human rights or environmental standards). One exception might be for long/short funds, in which case such companies might be screened in as candidates for the short book.

5.5 Use other existing resources

Finally, investors can look at entities and systems that are both larger and smaller than the companies they research. For example, they can take advantage of an sovereign ESG database recently made available to the public by the World Bank, which helps them assess the country where the company operates. Conceived primarily for sovereign bonds, it provides the tools to assess ESG macro dimensions the investors should examine anyway for the companies – particularly in emerging markets – they assess. Similarly, EcoVadis has an ESG-focused database of some 70,000 companies, many privately held, that are suppliers to larger firms.

Conclusion

If nothing else, the sheer quantity of carbon dioxide produced by the global economy each year tells you that the full impact of business activities is extremely inaccurately accounted for. Yet, while not all business leaders have forsaken Friedman's position that their only job is the enhancement of shareholder value, they are likely to find fewer and fewer members of the public, let alone institutional asset owners, in their camp.

Investors must navigate this demanding landscape, with increasing societal scrutiny on the one hand, and still-evolving standards for "non-financial" disclosures on the other. Evidence for the financial materiality of ESG performance continues to grow. And more and more investors are becoming convinced of the need to hold portfolios with strong ESG credentials, if only – quite apart from the future of the planet – because they see demand for ESG-related assets as likely to grow over time. Some have met this challenge with "minimum viable effort", while others, convinced that a bias to positive impact creates value, now invest with "maximum reasonable effort."

While some dimensions of investing are changing, the need to allocate time and resources prudently remains a constant. How can investors ensure their ESG research efforts are efficient? Externalities are inherently hard to measure. But investors need not start from scratch. The development finance community has been researching these questions for two generations, and other impact investors have made important strides forward. Yet relatively few private markets investors use the tools their counterparts at the IFC, World Bank and others have developed. Those that do may find in them a path to alpha.

Public companies are already being evaluated by ratings groups like MSCI on their ESG performance, and mutual funds and ETFs increasingly are too. A project at Harvard Business School is taking that a step further, with the goal of assembling impact-weighted accounts. Against this backdrop, the relative reluctance of private markets investment firms to invest more heavily in their ESG and impact measurement capabilities is something of a conundrum. The Covid-19 pandemic, hurricanes and wildfires of the last three years are reminders the stakes can hardly be higher – something which investors no longer need to look around corners to see.

Box 5: A Review of Three Related Concepts

The Sustainable Development Goals (SDGs) are a set of 17 integrated targets, adopted by the United Nations in 2015, as a "universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030."

Sustainable Development Investing (SDI) refers to "deploying capital in ways that make a positive contribution to sustainable development, using the SDGs as a basis for measurement."

Impact Investing can be defined as "investments made into companies or organizations with the intent to contribute to measurable positive social or environmental impact, alongside financial returns." While all investments have an impact, "impact investing" is associated with the intention to create and measure substantial positive externalities. Some, but not all, impact investing is associated with a willingness to accept below-market returns. A growing number of impact investors connect their efforts to specific SDGs.