DWS Thought Leadership

THE MEGATREND MULTIPLIER

Sustainability trends are impacting how companies generate shareholder value – now and far into the future

DWS

Contents

Why sustainability matters to business

Sustainability is not a buzzword. It is a game-changer that is transforming how we live and invest and the way that industries operate in the world today.

What is sustainability?

Sustainability refers to corporate, environmental and social impacts that help create long-term value. This can mean using resources in a responsible way so that they aren't depleted. It can also mean investing in a way that creates long-term value that lasts or is sustainable.

What makes sustainability a megatrend multiplier?

Over the past few decades, companies have begun to figure out that sustainable financial performance is not at odds with a sustainable environment and a sustainable society. In fact, they are often complementary goals. As such, more and more C-suites are integrating the principles of sustainability into their business practices and even into their revenue models. An increasing body of data and our own research supports the idea that sustainable business practices can improve the bottom line, reduce investment risk and contribute to performance.

As we look ahead over the next several decades, we see sustainability not merely as a trend but as a megatrend – one that will affect both corporate performance and investment portfolios for decades to come.

Because of the potential multi-decade impact of sustainability factors on companies across every major industry, it creates a multiplier effect that impacts shareholder value creation. In reality, companies do not exist in a vacuum. They shape and are shaped by the environment and societies in which they operate. Sustainability is a megatrend multiplier in part because its impact on companies has an outsized effect over time.

THE FACETS OF E, S AND G

Environment	Social	Governance
Resources and waste Climate change Green products	Human capital Society Product responsibility	Business ethics Corporate governance Public policies
_ Energy (toxic) waste _ Water waste _ Greenhouse gas emissions _ Intensity and footprint _ Clean tech _ Buildings	_ Labor management _ Health and safety _ Product safety _ Freedom of association	_ Anti-bribery and corruption _ Anti-fraud _ Anti-competitive practices _ Board independence _ Compensation

Why sustainability matters to investors

While sustainability is a megatrend, its implications are often vastly underestimated. There's a growing body of evidence-based research demonstrating that environmental, social and governance (ESG) factors can have a material impact on a company's financial performance, including share price performance.

_ Since the 1970s, there have been more than 2,000 academic studies on the link between ESG factors and corporate financial performance.

_ A report from the University of Oxford found that, in 90% of studies reviewed, sound sustainability standards lowered the cost of capital for companies.[1] In 80% of reviewed studies, share price performance was positively influenced by good sustainability practices.

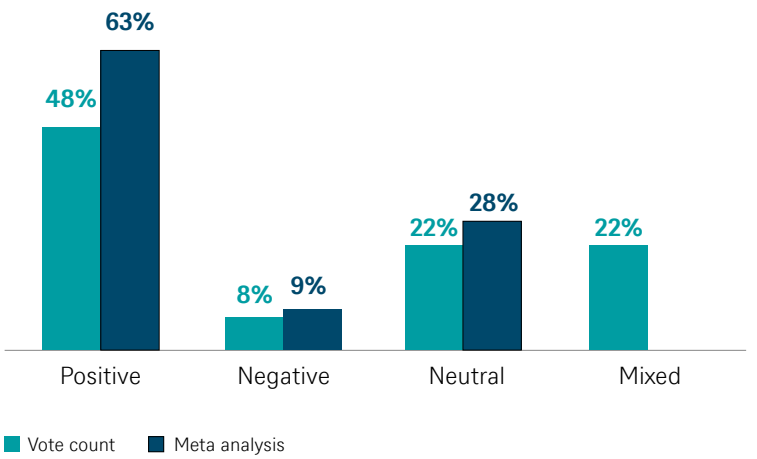
_ One study by Harvard Business School found that companies that developed processes to measure, manage and communicate how they were doing on ESG issues in the early 1990s outperformed a control group in the stock market and in financial results.[2]

_ Another study, by Nordea Equity Research, found companies with the highest ESG ratings outperformed those with the lowest ratings by as much as 40%.[3]

_ One of the most comprehensive empirical studies on ESG and financial performance conducted by Gunnar Friede, Timo Busch & Alexander Bassen found a positive ESG-Corporate Financial Performance relation (ESG-CFP) in nearly 63% of meta studies and 48% of vote-count studies, with less than 10% reporting a negative finding.

The study aggregates the findings from nearly all academic review studies between 1970 and 2014, including 60 individual review studies covering 2,200 primary studies, the vast majority of which are concentrated on equities (87%). It captures a broad view of corporate financial performance, which it defines as accounting-based performance, market-based performance, operational performance, perceptional performance, growth metrics, risk measures, and the performance of ESG portfolios.[4]

FIGURE 1: ESG AND CORPORATE FINANCIAL PERFORMANCE STUDY
Aggregate evidence from more than 2,000 empirical studies



Source: S&P Global, Exploring Links To Corporate Financial Performance, April 2019

[1] Oxford University: Corporate sustainability and profitability are interrelated
[2] Robert Eccles, Ioannis Ioannou, George Serafeim, The Impact of Corporate Sustainability on Organizational Processes and Performance, November 2014
[3] Harvard Business Review, The Investor Revolution, May 2015
[4] S&P Global, Exploring Links To Corporate Financial Performance, April 2019

Addressing the alphabet soup of terminology

Sustainable investing and ESG investing are often used interchangeably, but there are differences. Sustainable investing can include a broad range of issues and typically encompasses several different styles of investing, including ESG and impact investing. ESG refers to the environmental, social and governance practices of an investment and how they may have a material impact on financial performance. Sustainability and ESG factors can cover a multitude of issues, from energy consumption, pollution and animal welfare to human rights, child labor, shareholder rights and executive compensation.

Impact investing is another style of investing with sustainability in mind. The objective is typically to achieve a specific impact that benefits society or the environment.

Although there are degrees of difference in each term, they can all be grouped under the broad umbrella of responsible investing (RI).

Short- and long-term investment impact

Aside from the ethical and corporate social responsibility pressures to adopt a responsible investing strategy, there are very tangible benefits. For example, a study by the University of Cambridge and several asset managers found that ignoring climate change and its associated risks could have a significant and detrimental effect on investment performance. Future climate change risks could lead to losses of 23% for fixed income portfolios and up to 45% losses for equity portfolios.[5]

Our own research, in conjunction with the University of Hamburg, found that there has been a strong positive correlation between ESG and corporate financial performance (CFP) across equities, fixed income and real estate.[6] This meta-study showed that only 10% of the studies displayed a negative ESG-CFP relationship, with an overwhelming share of positive results, of which 47.9% in vote-count studies and 62.6% in meta-studies yielded positive findings.

As is shown in Figure 2, there is also a consistent pattern that implies sustainable investments may pose less of a risk than traditional ones.

Between 2004 and 2018, the average downside deviation for sustainable funds' market value was repeatedly smaller each year.

There are many reasons why a strong focus on ESG factors could improve performance, not least because it shows that the company's management is conscientious and engaged.

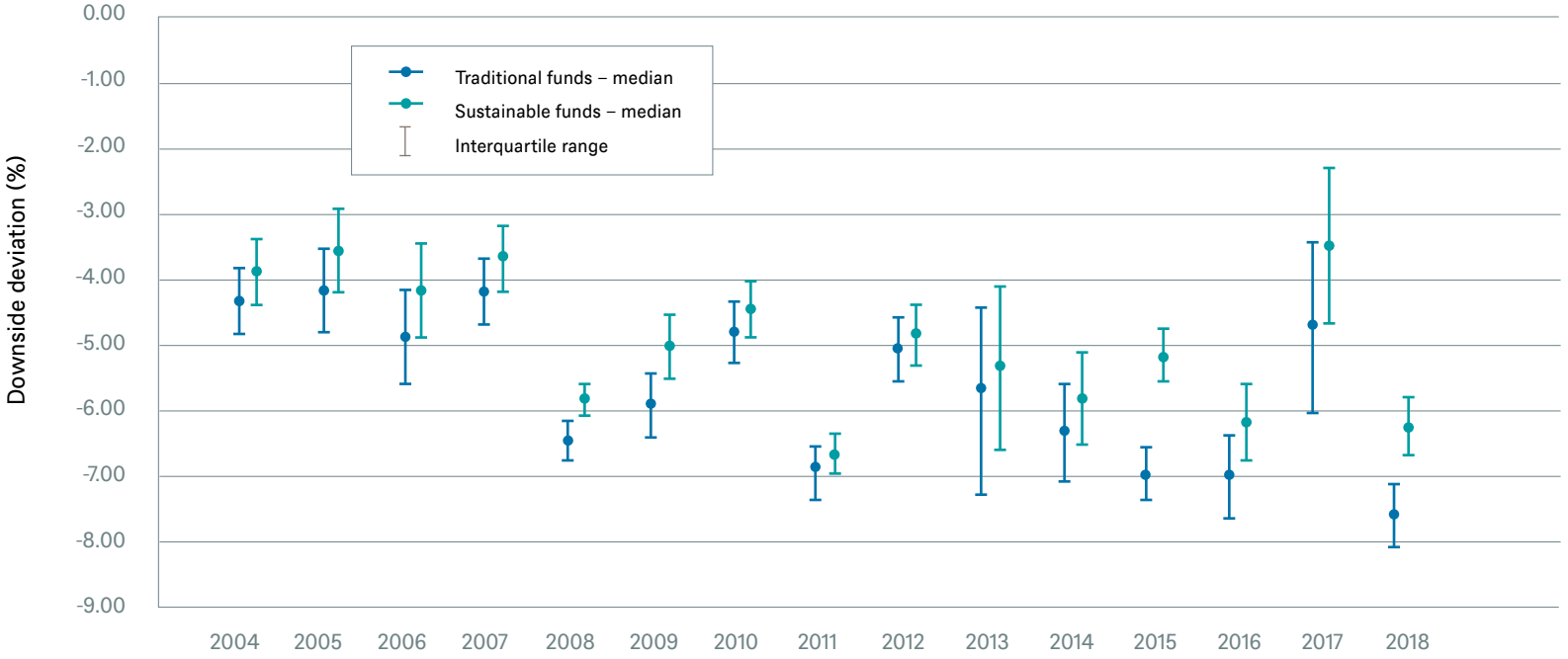
As both ESG practices and the metrics for measuring responsible investment grow more sophisticated, we believe we should see the benefits of sustainability for company performance and RI more clearly.

A survey of 650 institutional investors with $24 trillion AUM found that they have a growing desire for data and evidence that shows ESG will deliver better returns.[7] A third of the investors said this information is the main factor that would help them to increase allocations to sustainable investments.

Our own research, in conjunction with the University of Hamburg, found that there has been a strong positive correlation between ESG and corporate financial performance (CFP) across equities, fixed income and real estate.[6]

[5] University of Cambridge Institute For Sustainability Leadership, Unhedgeable risk: How climate change sentiment impacts investment, 2015
[6] DWS, ESG & Corporate Financial Performance: Mapping the global landscape, 2015
[7] Schroders Institutional Investor Study 2018: Institutional perspectives on sustainable investing

FIGURE 2: MEDIAN DOWNSIDE DEVIATION OF SUSTAINABLE AND TRADITIONAL FUNDS, 2014-2018



Downside Deviation															
Sustainable Funds *	-3.86	-3.52	–4.14	-3.66	-5.83	-5.03	-4.44	-6.66	-4.80	-5.32	-5.80	-5.14	-6.15	-3.47	-6.24
Traditional Funds	-4.29	-4.16	–4.82	-4.12	-6.43	-5.87	-4.79	-6.88	-5.02	-5.66	-6.30	-6.96	-6.96	-4.59	-7.56
Difference	0.43	0.64	0.68	0.46	0.60	0.84	0.35	0.22	0.22	0.34	0.51	1.8	0.80	1.11	1.32
(Sustainable – Traditional)	**	*	**	**	*	**	**		***	**	***	***	***	***	***
Statistical Significance	99%+	***	95%+	**	90%	*									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018

Source: Morgan Stanley analysis of Morningstar data, 2019. *Scalable sustainable and impact investing solutions that seek to deliver competitive financial returns, while driving positive ESG outcomes.

Evolution of responsible investing

Accountability may have already driven the investment world to a pivotal point, but direct calls for transparency as an aspect of sustainability look set to tip the scale.

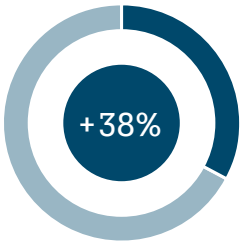
The growing interest in sustainable investing has also led to a demand for greater transparency from companies. More and more investors see sustainable investing as an important risk management tool. We have found that companies with high rates for ESG factors have a low cost of capital.[8] After all, ESG demands transparency, which may help foster trust. All these factors can have a material impact on business performance.

Socially responsible investing (SRI), arguably the first form of sustainable investing, involved screening out certain companies based on investor values. Investors who didn't want to support tobacco or weapons, for example, would avoid investing in those industries. But this often meant eliminating high-performing companies without replacing that portfolio performance.

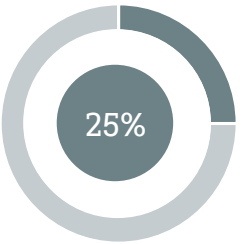
Today, sustainable investing includes many more options and data availability has improved the opportunity set.

HOW ESG INVESTING HAS GROWN

ESG investing grew 34% (between 2015-2017) to reach $30.68trn in AUM.



In the U.S., ESG assets at the end of 2017 had risen by 38% compared to 2015 to reach $12trn.



ESG as before in the U.S. now represents over 25% of all assets under professional management, an increase from 11% since 2012.

Data from the Global Sustainable Investment Association.
Source: GSIA (2018)

Investors can put their money in funds that focus on themes such as clean water or renewable energy. They can also include sustainability factors into fundamental analysis. The market for sustainable investing has grown accordingly. The Global Sustainable Investment Alliance (GSIA) estimates that ESG assets totaled $30.7 trillion in 2018.[9]

According to a McKinsey report from 2017, the most widely applied sustainable investment strategy globally, used for two-thirds of sustainable investments, is negative screening.[10] This involves excluding sectors, companies, or practices from investment portfolios based on ESG criteria. But ESG integration, which is the systematic and explicit inclusion of ESG factors in financial analysis, has been growing at 17% per year and is now used with nearly half of sustainable investments.

[8] DWS, Digging Deeper into the ESG-Corporate Financial Performance-Relationship, 2018
[9] Global Sustainable Investment Alliance, 2018 Global Sustainable Investment Review
[10] McKinsey, From 'why' to 'why not': Sustainable investing as the new normal, 2017

The high price of ignorance

Sustainability is no longer an isolated theme. Instead, it now forms part of an all-encompassing, multifaceted megatrend that is upending the investment world.

Sustainability as a megatrend is disrupting many industries to one extent or another, but we see the disruption focused in three key areas: energy, water and new technology. These trends are playing out in some industries more than others, but over the course of decades, we expect them to cut across all sectors. We believe companies that ignore these trends do so at their peril. In our view, companies and investors that keep on top of them will be rewarded.

Energy and the dynamics of power

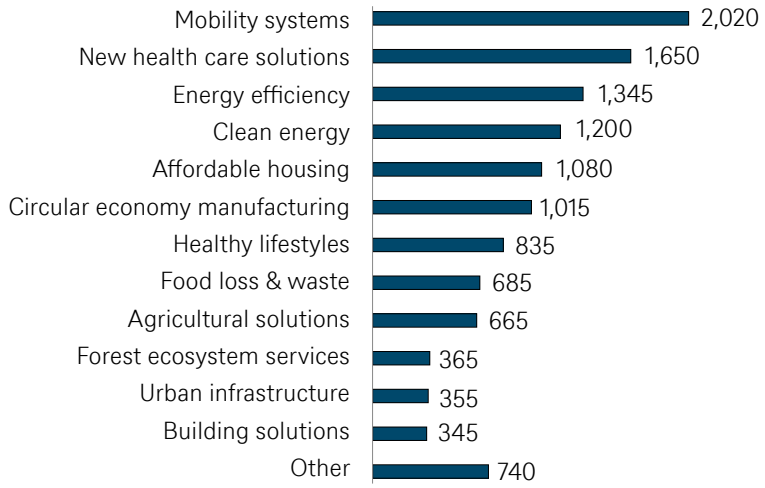
Interest in renewable energy is at an all-time high. Utilities and independent power producers, eager to diversify their power sources, are pouring money into the renewable energy sector. Worldwide, investment in renewable energy was $288.9 billion in 2018 – the ninth straight year that investment exceeded $200 billion.[11]

Investment in the sector has lowered the price of renewable energy – so much so that it is now priced competitively against fossil fuels. A new report by the International Renewable Energy Agency (IRENA) found that even without subsidies, renewable energy is now most often the cheapest source of energy.[12]

The cost of all commercially available renewable power generation technologies declined in 2018, with concentrated solar power declining by 26%, bioenergy by 14% and hydropower by 12%.[12]

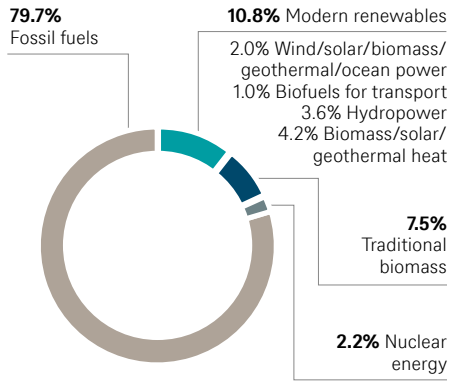
We still see plenty of room for growth in renewable energy. Changing consumer preferences and lower cost of renewable energy will likely push further demand.

12 LARGEST BUSINESS THEMES IN A WORLD ECONOMY HEADING FOR THE SUSTAINABLE DEVELOPMENT GOALS (US$ BN IN 2030)



Value of incremental opportunities in 2030 USD bn 2015 values
Source: Business and Sustainable Development Commission 2017

ESTIMATED RENEWABLE SHARE OF TOTAL FINAL ENERGY CONSUMPTION, 2017



Note: Data should not be compared with previous years because of revisions due to improved or adjusted data or methodology. Totals may not add up due to rounding.

Source: Based on OECD/IEA and IEA SHC.

[11] REN21 Renewables 2019 Global Status Report
[12] International Renewable Energy Agency, Renewable Power Generation Costs in 2018

Water and waste management

Only 2.5% of the world's water is fresh water and two-thirds of that is locked in glaciers or otherwise not available to use.[13] With the growing human population and rate of development, many of the world's water systems are becoming stressed. Rivers, lakes and aquifers are drying up or are choked with pollution. At the current rate of consumption, two-thirds of the world's population could face water shortages by 2025.[14] Water shortages would create sanitation and health crises, which in turn could cripple economies across the globe.

Innovative companies in water-intensive industries are finding ways to reduce water use and to reuse water. Not only does using sustainable methods potentially help boost the bottom line, but it's also become an area of focus for regulators in various countries. For many companies, reusing water is becoming mandatory.

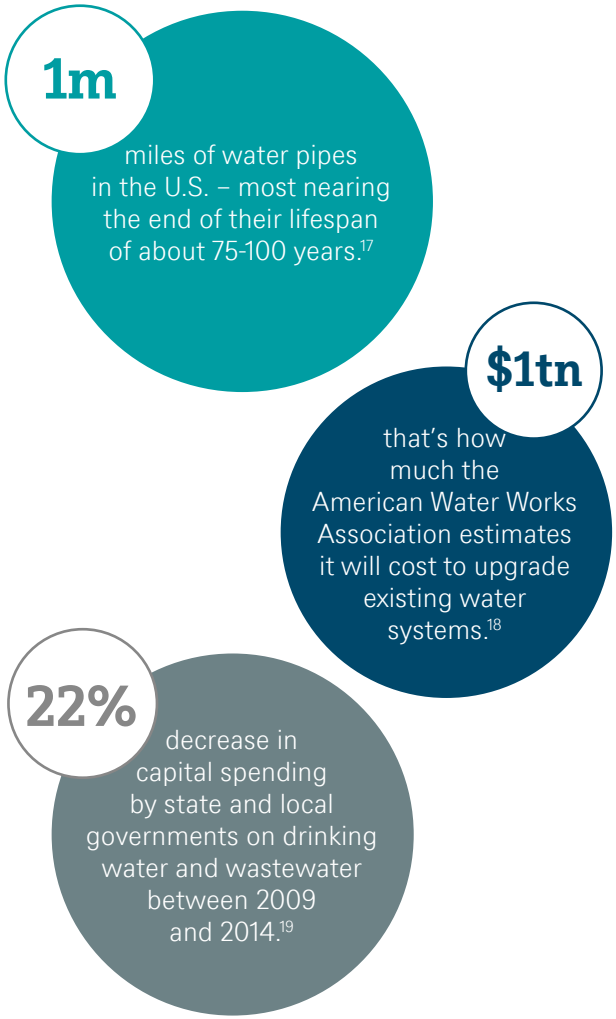
Conserving water supplies will also mean significant investment in infrastructure – pipes, sewer systems and treatment plants all need to be fixed and made more efficient. In the U.S., 14% to 18% of the treated water supply is wasted every day due to leaky, aging pipes.

That's nearly six billion gallons of water a day wasted.[15] The American Water Works Association (AWWA) estimates that upgrading existing water systems to meet growing needs will require at least $1 trillion in investment.

New technology

Technology is playing a vital role in innovative sustainable business practices and both corporate and individual investors are taking note. Interest in greentech or cleantech – which encompasses a wide swath of industries and solutions ranging from electric cars to fuel-efficient jet engines and new manufacturing methods – is growing. Specialized investment funds focused on this sector are cropping up.

Start-ups are developing green technologies for agriculture, automotive or transportation, manufacturing, and other industrial uses. A study from the University of Cambridge[16] found that 657 U.S. cleantech start-ups had been established between 2003 and 2012.



[13] International Atomic Energy Agency, All About Water, September 2011
[14] World Economic Forum, Water scarcity is one of the greatest challenges of our time, March 2019
[15] American Society of Civil Engineers, 2017 Infrastructure Report Card
[16] University of Cambridge, Green tech startups see boost in patents and investment when partnering with government, March 2019
[17] Circle of Blue, Infographic: The Age of U.S. Drinking Water Pipes – From Civil War Era to Today, February 2016
[18] American Water World, New Report Highlights Staggering Costs Ahead for Water Infrastructure, April 2012
[19] ASCE, Infrastructure Report Card, 2017

Risk goes by many names

Climate change is exposing companies and industries to more and different kinds of risk, all with significant financial consequences. A recent report from the World Economic Forum listed extreme weather, failure to mitigate or adapt to climate change, and natural disasters as the top three most likely global risks.[20]

Transition risk

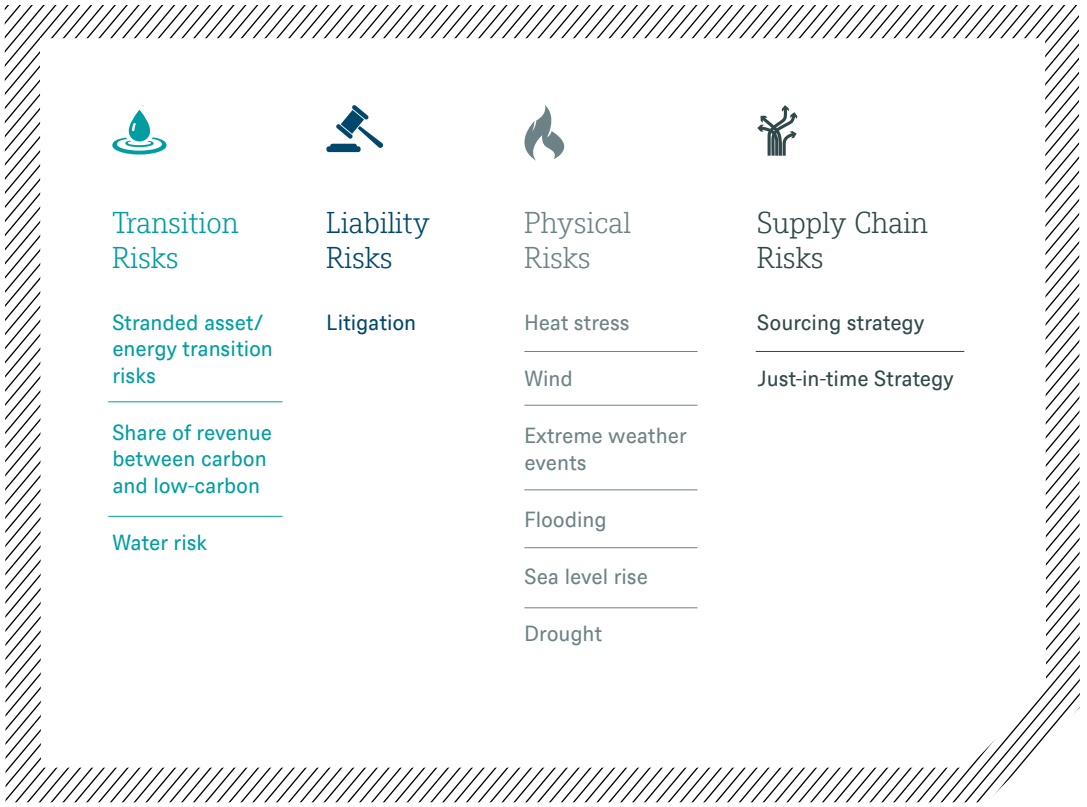
Companies that are heavily dependent on fossil fuels will likely need to find ways to change or reinvent themselves as consumers start favoring renewable, low-carbon alternatives and governments aim to meet ever stricter carbon commitments. The world's largest coal producer filed for bankruptcy in 2016 amid declining coal prices and tighter environmental regulations.[21]

Valuations of financial investments, such as equities and bonds, of companies linked to the fossil fuel industry are also in danger of being repriced as a result of shifts in the market, changes in technology and consumer preferences.

Liability risk

Companies found responsible for abusing the environment face liability risk from those seeking compensation. The number of climate laws passed globally has increased twenty-fold over the past 20 years.[22] Liability over climate change is still nascent, but happening with more frequency.

THE COMPLEXITY OF INCORPORATING CLIMATE RISK INTO FUNDAMENTAL COMPANY ANALYSIS



[20] World Economic Forum, These are the biggest risks facing our world in 2019, January 2019
[21] DWS Sustainable Finance Report, Issue #2, 2019
[22] London School of Economics and Political Science, Global Trends in Climate Change Legislation and Litigation: 2017 update, May 2017

Those most at risk for liability are the largest carbon emitters. But investors and other financial institutions could also face liability risk for investing in these companies.

Physical risk

Extreme weather will impact buildings, households, companies and industries. Increased flooding or wildfires are forcing insurance companies to do more to calculate financial losses due to extraordinary conditions. Valuations of stocks and bonds may change for companies exposed to physical climate risk in their operations and supply chains. Physical climate risks are likely to rise over time and improved disclosures about risks from climate models will become increasingly important for investors.

In 2018, a group of the world's largest companies estimated the current value of climate risks to their businesses at almost $1 trillion, with many of these risks expected to materialize in the next five years.[23]

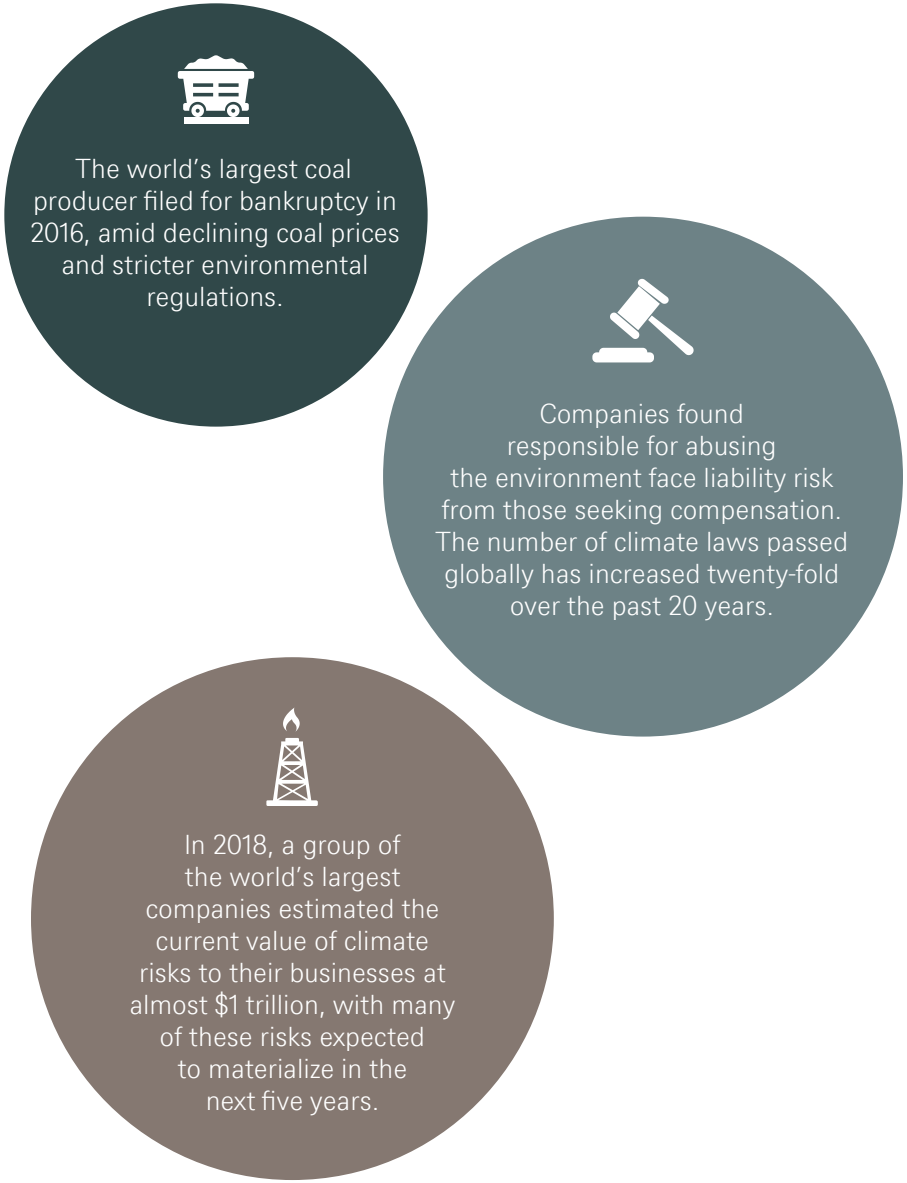
Supply chain risk

Thanks to decades of increased globalization, commercial supply chains are more complicated than ever.

Not only do they stretch between several continents, but the process of manufacture, assembly and distribution of modern tech or automotive products in particular, often means zig-zagging several times across geographies before hitting their market.

Finely tuned, "just-in-time" supply chains are particularly effective for perishable products or those for which lengthy warehouse storage is too significant an expense.

The more extensive the supply chain, the greater the risk from extreme weather events, which can impact on logistics and transportation. As a result, corporates are working hard to evaluate comparable risk and expense – whether that means reshoring their operations or building out a back-up supply chain to keep business continuity seamless.



[23] CDP, Major risk or rosy opportunity: Are companies ready for climate change?, 2019

Material risks – hedging against climate change

The effects of climate change are already emerging, from increased flooding and unpredictable rain patterns, to record heat waves and larger and larger wildfires. But companies and investors don't have to sit idly by.

Conscientiousness around ESG metrics drives profitability

In equities, companies adopting a more proactive stance towards environmental responsibility perform better over the long run.

It's not hard to see how poor environmental practices can negatively impact profitability. The Deepwater Horizon disaster of 2010 cost the company $65 billion. Government reports later blamed defective cement, cost-cutting decisions and a weak safety system. The company had to pay $19 billion in fines in 2015.[24]

The impact of poor practices are not usually so dramatic. But companies that follow best practices and make an effort to reduce their carbon footprint can find cost savings by using fewer resources and earning goodwill from consumers and investors.

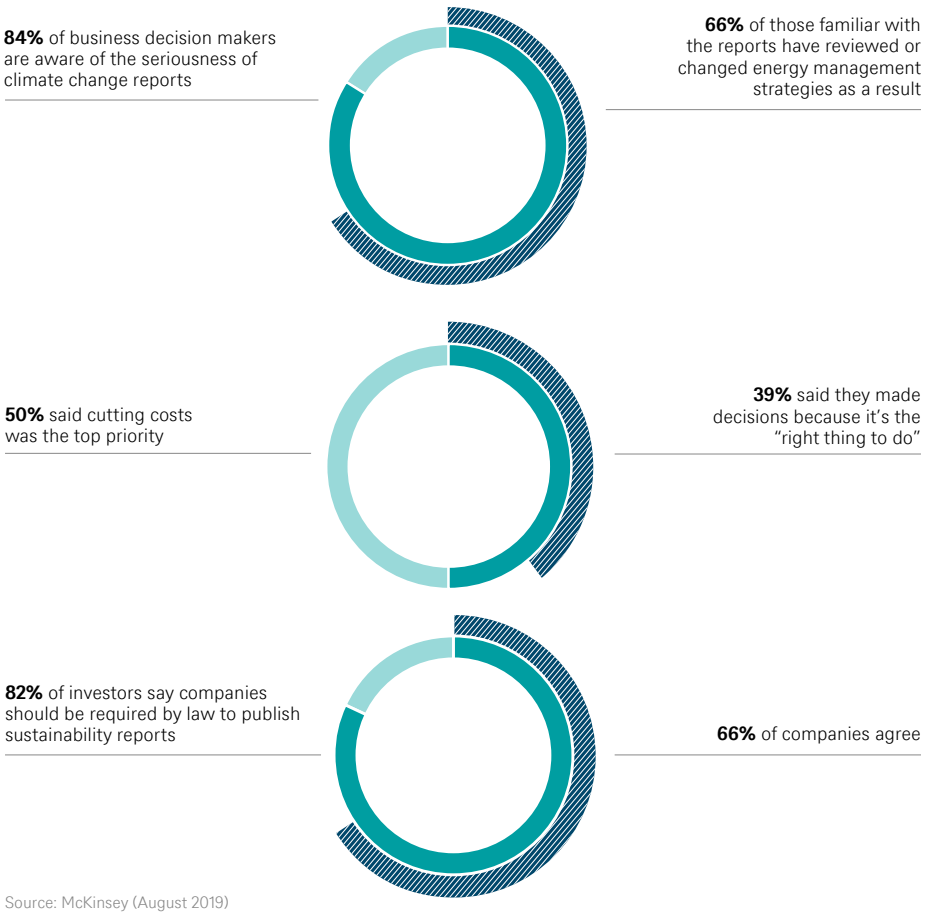
A survey of 600 business decision makers revealed that 84% of respondents said they were aware of grave climate change reports and 66% of those familiar with the reports have reviewed or changed their energy management strategies as a result. In addition to the potential cost savings, 225 of the world's 500 biggest companies say climate change could generate more than $2.1 trillion of potential new business, according to the Carbon Disclosure Project (CDP).[25]

The challenges of hedging

Understanding how companies and economies are exposed to looming disasters, such as frequent flooding, extreme tropical storms and increased pollution, is key to mitigating risk exposure.

It takes some digging to find the information needed to determine exposure, and U.S. companies aren't currently disclosing climate-related risks in any meaningful way. Companies don't disclose the physical location of every warehouse or office. They also don't reveal the percentage of revenues earned from customers in a hurricane zone.

WHAT BUSINESS LEADERS ARE SAYING



Source: McKinsey (August 2019)

[24] Reuters, BP Deepwater Horizon costs balloon to $65 billion, January 2018
[25] CDP, Major risk or rosy opportunity: Are companies ready for climate change?, 2019

Companies are adapting now

All sectors are impacted by climate change, but some have more risk than others. For now, the spotlight is on industries with more of a physical presence.

Manufacturing

Different industries have different environmental footprints and are facing more scrutiny around air, water and soil pollution.

Clothing and textile manufacturers, for example, use a considerable amount of water. Production of a single cotton T-shirt requires roughly 2,700 liters of water.[26] China, home to much of the world's clothing and textile manufacturing, has introduced stringent new guidelines requiring companies to reduce water consumption and water pollution. Companies that fail to meet those guidelines run the risk of hefty fines and public outcry.

Beverage companies located in areas vulnerable to drought need to be more careful about where to source clean water, plan to move facilities or face higher transport costs. Multinationals in India, for example, have been subjected to a variety of activism from local groups over their consumption of water, such as public litigation and protests.[27] Companies are trying different ways to offset carbon emissions by either reducing emissions or buying carbon credits, which enable them to put money toward carbon-reducing projects that 'offset' a specific amount of carbon the company is generating. Some manufacturers and airlines are buying up carbon credits in efforts to be carbon-neutral on paper.

Restaurants

Recycling is a major endeavor for the restaurant industry.

One global fast-food burger chain has set a goal to cut greenhouse gas emissions by one-third by 2029 and expects 100% of its consumer packaging to come from renewable or recycled sources by 2025.[28]

Another fast-food chain is diverting 50% of its restaurant waste from landfills by 2020 by composting, reducing the amount of plastic in its cutlery and testing recyclable and compostable cups and lids.[29]

[26] WWF The Impact of a Cotton T-Shirt, January, 2013
[27] The Economic Times, Coca-Cola, Pepsi face Tamil Nadu trader activism again, May 2019
[28] Restaurant Business, Restaurants Serve Food with a Side of Sustainability, June 2019
[29] Chipotle Mexican Grill, Chipotle Issues New Sustainability Report And Shares Progress On Waste Diversion Goal Of 50% By 2020, April 2019

Utilities

Utility companies are transitioning from natural gas or other carbon-based fuels to renewable energy. According to the Energy Information Administration (EIA), renewables accounted for 23% of the U.S. power generation mix in April 2019.[30]

According to researchers at Carnegie Mellon University, carbon emissions from the U.S. power sector fell by around 30% between 2005 and 2018. In May 2019, Utah announced an initiative to launch the world's largest renewable energy storage facility.[31] Bloomberg NEF data indicated in August 2018 that the world had attained the landmark figure of one terawatt of wind and solar generation capacity installed. It estimates that the second terawatt of wind and solar will arrive by mid-2023 and cost 46% less than the first.[32]

Real estate

Real estate may have one of the strongest links between ESG and financial performance – more than stocks or bonds. The building and construction sectors are responsible for 36% of global energy consumption and nearly 40% of total direct and indirect CO2 emissions.[33] Real estate in coastal areas such as Miami or Louisiana and parts of Texas face more severe storms and the threat of rising sea levels. A 2019 report found that 58% of U.S. metropolitan areas will suffer climate-related damages amounting to 1% or more of GDP by 2060-2080. That means that a good portion of municipal bond issuances will come from regions facing economic losses from climate change.

Developers are becoming increasingly aware of risks and making changes. Buildings with green certifications tend to fetch higher rents and have lower vacancy rates. Globally, the commercial real estate sector will need to invest at least EUR850 billion to reduce the energy use of their buildings over the next 15 years in order to play a role in implementing the Paris Agreement on climate change.

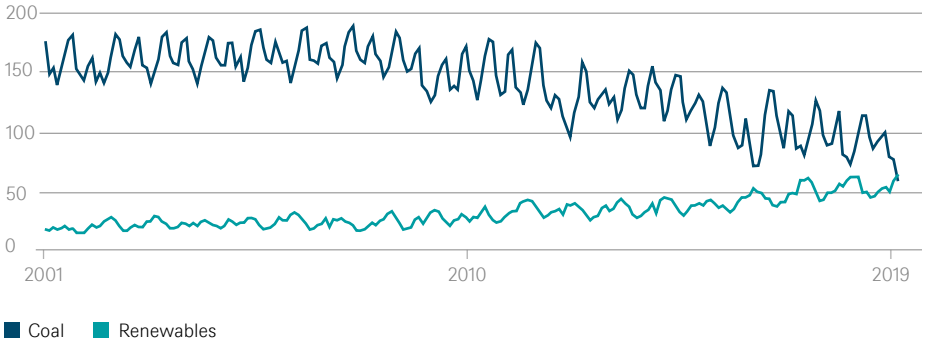
Insurance

Climate change is now the top concern for North American insurers, according to a new report by actuaries.[34] Insurance companies increasingly realize that historical data about risks is not enough to assess future risk from climate change. Weather changes such as altered rainfall patterns, increased flooding, heat waves, or wildfires will impact agriculture and agricultural insurance.

U.S. RENEWABLES ECLIPSE COAL

Energy generated from solar, wind and hydroelectric plants surpassed American coal in April 2019

U.S. monthly electricity generation from selected sources (Jan 2005-Apr 2019) in MWh (million megawatthours)



Source: Energy Information Administration

[30] US Energy Information Administration, U.S. electricity generation from renewables surpassed coal in April, June 2019
[31] BloombergNEF, World Reaches 1,000GW of Wind and Solar, Keeps Going, August 2018
[32] Business Wire, World's Largest Renewable Energy Storage Project Announced in Utah, May 2019
[33] Global Alliance for Buildings and Construction, 2019 Global Status Report for Buildings and Construction
[34] Society of Actuaries, 12th Annual Survey of Emerging Risks, 2019

ESG investing – focus on the future

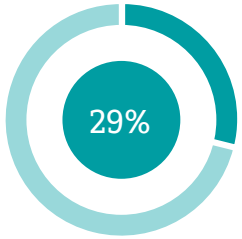
Institutional investors are increasingly factoring ESG into how they assess and choose their portfolios and asset managers.

While there's been a general uptick in ESG investing, surveys show stronger interest among younger investors. Almost all, or 93%, of millennials said social and environmental impact is important to investment decisions.[35] Overall, 78% of all institutional investors see ESG as being among the top five themes to consider when selecting asset managers.[36]

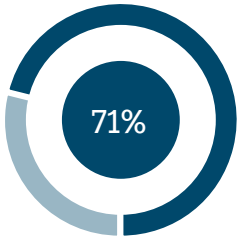
More ways to invest

Buoyed by increasing investor interest, the number and variety of sustainable investment products is growing.

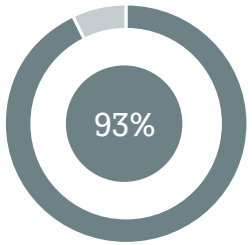
THERE'S MORE INTEREST IN SUSTAINABILITY



Only 29% of investors are currently incorporating ESG criteria



but the majority of the remaining 71% are open to the opportunity



93% of millennials said social and environmental impact is important to investment decisions

Source: DWS/Greenwich Associates ESG Investing Study 2018 North America p.5

[35] U.S. Trust Insights On Wealth And Worth Survey, 2016
[36] UBS, Long-term value creation: Sustainable investing for Institutional Investors, 2017

Integrating ESG into investing

Institutional investors are looking for ways to insulate their portfolios from risks associated with climate change, accounting fraud, data privacy violations and other ESG themes by over-weighting companies with ESG ratings and under-weighting or excluding companies with poor ratings.

This focus on ESG in investments is expected to continue for the long term. Current ESG investors have not yet fully integrated ESG into all of their portfolios, so there is room for growth. Most investors not yet investing in ESG are considering doing so, in the next three years. Almost half of investors are planning to increase their level of ESG activity in the near future.[37]

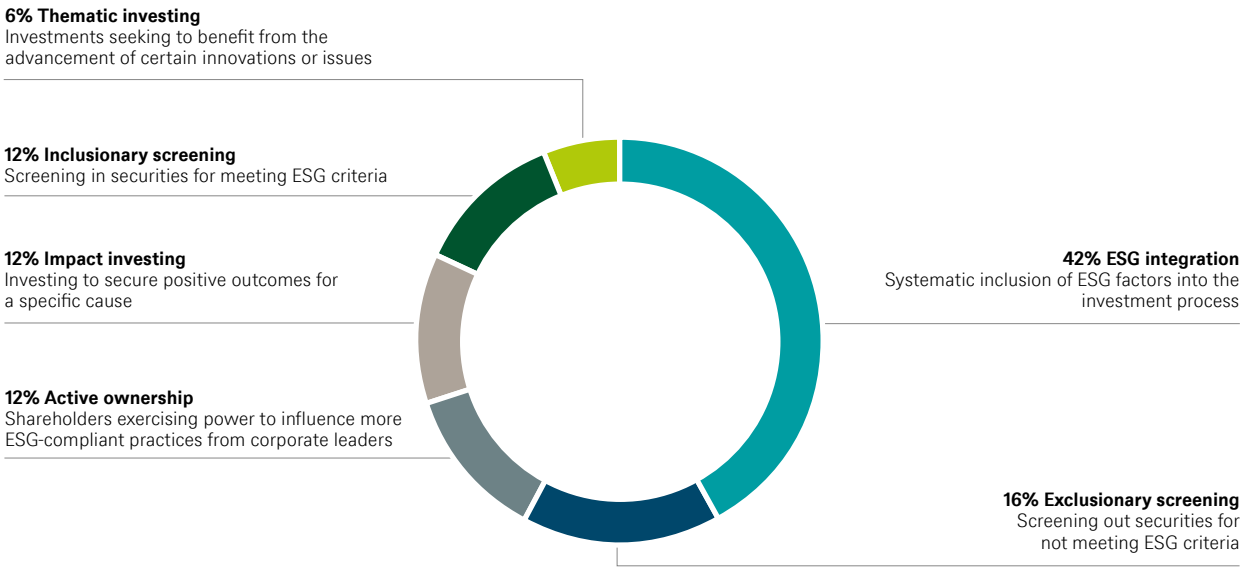
Establishing metrics

We see climate change as one of the most important ESG risks and investment opportunities. Some investors are excluding high-carbon-emitting companies or companies that have large fossil fuel reserves from the balance sheet.

For the most part, investors are applying ESG principles to domestic and some foreign equities, plus corporate investment-grade credit. It's our view that investors and companies all have an important role to play in making markets and the economy more sustainable.

APPROACHES TO ESG IMPLEMENTATION

Investors prefer a more advanced investment approach that includes ESG factors as an integral part of the investment process



Source: DWS-Greenwich Associates ESG Investing Study 2018 North America p.8

[37] Greenwich Associates ESG Investing Study, 2018

Important Information

The comments, opinions and estimates contained herein are based on or derived from publicly available information from sources that we believe to be reliable. We do not guarantee their accuracy. This material is for informational purposes only and sets forth our views as of this date. The underlying assumptions and these views are subject to change without notice.

This information is intended for informational purposes only and does not constitute investment advice, a recommendation, an offer or solicitation.

Investing in securities that meet ESG criteria may result in the fund forgoing otherwise attractive opportunities, which may result in underperformance when compared to funds that do not consider ESG factors.

All investments involve risk, including the potential loss of principal.

Investment products: No bank guarantee / Not FDIC insured / May lose value

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