MAJOR RISK OR ROSY OPPORTUNITY

Are companies ready for climate change?

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KEY FINDINGS

This report analyzes responses from companies to CDP's questionnaire in 2018 and focuses on what companies are reporting about the risks and opportunities they may face from climate change and its potential financial implications. With 2017 and 2018 seeing significant losses from extreme weather incidents in parts of the world, as well as rapid technological shifts taking place in certain sectors as a result of the transition towards a low-carbon economy, financial regulators and investors are becoming increasingly focused on ensuring the private sector is ready for the risks and opportunities of climate change.

CDP's questionnaire is aligned with the recommendations of the Task Force on Climate-related Financial Disclosure – a body established in 2015 by G20 Finance Ministers and Central Bank Governors within the Financial Stability Board (FSB), and its chair at the time, Mark Carney. The group was concerned with the financial stability ramifications of climate change resulting from the potential mispricing of assets and misallocation of capital and so created the industry-led taskforce to assess the how the private sector could provide stakeholders in financial markets with decision-useful, climate-related information.

The analysis is based on two groups of companies: 1) all companies who disclosed to CDP's climate change questionnaire in 2018 (6,937 companies); and 2) the world's 500 biggest companies by market cap (G500), 366 of whom reported to CDP in 2018.[1]

The key findings from this analysis are:

- Companies are identifying significant risks but need to expand their analysis
- The biggest companies report major financial implications
- The opportunities are bigger than the risks
- Differences are striking across countries and regions
- The finance sector is seeing more implications than the real economy
- The wins far outweigh the costs of management
- Companies and investors need to learn lessons from the power sector

1. A full description of the samples can be found in the Appendix.

KEY FINDINGS

1 Companies are identifying significant risks but need to expand their analysis

- 53% of companies reporting to CDP identify inherent climate-related risks with the potential to have a substantive financial or strategic impact on their business, with almost double the number of transition risks versus physical risks reported overall. Those that identify transition risks focus on potential policy and legal changes, with the most frequently reported risk being the increased pricing of greenhouse gas (GHG) emissions. Given the growth of carbon pricing regulation globally, this is unsurprising.

- Approximately 25% of the companies who identified substantive transition risks only focused on potential policy and legal risks related to climate change and did not identify climate-related market, reputation, or technology risks as substantive. In addition, most companies are only identifying potential physical and transition risks that would impact their direct operations and not reporting risks impacting their supply chains and customers. This points to a very narrow focus on the risk types being explored, given changes in technology and market dynamics in certain sectors, as well as the impacts that climate change has already had in terms of disrupting supply chains. Due to the global complexity of supply chains today, a disruption in one part of the world can have significant impacts elsewhere. Investors and companies alike should take note of these dynamics and broaden their climate risk assessment practices if they are to remain profitable in the future.

2 The biggest companies report major financial implications

- For the first time in 2018, companies were directly asked to report the potential financial impact figures of the risks they disclosed as a key data point in our scoring methodology. CDP found that 2,185 companies provided at least one figure for the potential financial impact of risks and 1,958 for the potential financial impact of opportunities. These companies are leading the pack in this developing area of disclosure.

- The top two identified causes of financial impact are increased operating costs (e.g. higher compliance costs), often linked to GHG emissions pricing; and reduced revenue from decreased production capacity due to the physical impacts of climate change.

- The world's largest companies identify higher rates of risks and opportunities than others, reporting: 1) higher rates of board oversight of climate-related issues; 2) increasing stakeholder scrutiny on climate-related issues; and 3) higher rates of potential reputational risks.

- In an analysis of 500 of the world's biggest companies by market capitalization (G500) where 215 companies (representing US$16.95 trillion in market cap) provided estimations of the potential financial implications for a proportion of their reported risks, CDP found ***just under a trillion dollars (~US$970 billion) at risk***.[2] Over half of these risks were reported as 'likely / very likely / virtually certain' and are likely to materialize in the short- to medium-term (around five years or earlier). Approximately US$250 billion of this figure is linked to asset impairments or write-offs ('stranded assets') as a result of both transition and physical risks.

3 The opportunities are bigger than the risks

- 51% of all reporting companies identified potential opportunities that could have a substantive or strategic impact on their business. The majority of these opportunities are linked to new products and services affecting both the customer and direct operational parts of the supply chain. Resource efficiencies and alternative energy sources are the next most frequently identified money savers.

- ***225 of the world's 500 biggest companies reported climate-related opportunities represented potential financial impacts totalling over US$2.1 trillion dollars.*** The majority of this impact is driven by the potential increase in revenue due to demand for low emissions products and services, as well as the potential for a better competitive position against shifting consumer preferences. Almost all of these opportunities are reported to be likely, very likely or virtually certain, with the majority materializing in the short- to medium-term.

2. This is roughly 5-7% of their combined market cap.

KEY FINDINGS

4 Differences are striking across countries and regions

- Companies headquartered in the US, Brazil, Mexico, Argentina, and Chile are less likely than other regions to report substantive risks or opportunities. Analysis of the G500 companies highlights that those headquartered in the US are only reporting a potential financial impact of just over US$110 billion from climate risks, lower than expected given that US companies are the largest national group in the G500 sample yet this they represent just 10% of the financial risk reported to CDP.[3] It is particularly surprising to see lower figures of physical risks reported by US-headquartered companies given the significant losses incurred in 2017 in the country due to extreme weather and natural disasters. Investors and policymakers would do well to focus on driving improved climate-related risk assessments by companies headquartered in the country.

- At the same time, US headquartered companies in the G500 group do report a significant ~US$450 billion in potential opportunities, just under a quarter of the total US$2.1 trillion, this is however less than half of what EU headquartered companies are reporting. A clearer federal policy framework with a commitment to accelerate the transition would potentially unlock more opportunities for these companies.

- Companies headquartered in China are behind the average response rate in terms of identifying opportunities. Additionally, the proportion of companies who identify opportunities but are unable to realize them is higher in China than in other countries. Further analysis is needed in terms of why this is.

- Companies headquartered in South Africa are at the other end of the spectrum, with the highest proportion of companies identifying both substantive risks and opportunities. Japanese headquartered companies identify a higher than average number of risks and opportunities, with nearly all Japanese companies in the G500 identifying substantive opportunities.

- Approximately 60% of companies headquartered in Europe identify substantive risks and opportunities related to climate change. The vast majority of potential financial implications from both transition and physical risks in the G500 were reported by companies in Europe, at ~US$640 billion in total, with transition risks accounting for almost US$400 billion. This is nearly six times the amount reported by US companies. At the same time, over half of the reported opportunities come from companies in this region, at ~US$1.3 trillion, with an impressive US$1 trillion linked to 'Products and Services', as a large proportion of companies report the development or expansion of low emissions goods and services. These findings make sense in light of the increasing policy alignment with the Paris Agreement in this region and rapidly changing markets for low-carbon energy, products, and services.

5 The finance sector is seeing more implications than the real economy

- 80% of companies operating in the financial services, fossil fuels, and power industries identify substantive risks and opportunities - the highest proportion in comparison to other industries. Given the significant changes taking place in the energy sector as a result of climate-related policies, market dynamics, and technology shifts, it is unsurprising to see this level of substantive impact identified in fossil fuel and power companies. At the same time, the finance sector is providing capital to these sectors and experiencing an increasing focus on climate-related risks due to the work of the TCFD, central banks, supervisors, and financial regulators. This could explain the higher numbers of risks and opportunities being identified in this sector.

- The majority of financial implications reported are concentrated in the financial services industry – they are the biggest sector represented in the G500 and they are disclosing these risks more readily than others. However, if the finance sector is identifying more risks for their clients than the companies report themselves, regulators and investors should be asking to. At the same time, the finance sector is likely to be missing some risks – while they are prolific in identifying physical risks for their clients, they are potentially missing a significant number of transition risks in the real economy - which, as the report highlights, companies in the real economy are most focused on reporting. When the finance sector is asked about their own transition risks, they follow suit with other disclosing companies and report risk that is narrowly focused on the potential risks to their direct operations.

- On the other hand, over half of the total financial value from increasing opportunities is also identified by the finance sector, where reported opportunities total over US$1.2 trillion. The next highest potential financial returns of climate-related opportunities are reported by companies in the manufacturing (US$338 billion), services (US$149 billion), fossil fuels (US$141 billion) and the food, beverage & agriculture industries (US$106 billion).

KEY FINDINGS

- Only half of the fossil fuel companies in G500[4] reported any financial figures for the risks and opportunities they identified. Surprisingly, fossil fuel companies are reporting more opportunities than risks from climate change. On the one hand, these companies identify opportunities from the low-carbon transition in terms of new products and services they could bring to market, which range from renewables, hydrogen, and biofuels to carbon capture and storage and natural gas. At the same time, the majority of their reported risks are linked to increasing regulation, particularly GHG pricing. These companies do not report many significant risks as a result of the low-carbon transition which they instead highlight as an opportunity. This finding is significant as the low-carbon transition could result in reduced demand for their products due to regulation, market changes, consumer preferences (such as the switch towards electric vehicles, shifts in their costs of capital, or a gradual loss of their license to operate. As recent research suggests,[5] while the energy transition may take decades to complete, it impacts the energy markets on a much shorter time scale due to increasing uncertainties, changing risk preferences of fossil fuel investors, and the resulting changes in the economics of energy markets. Investors and stakeholders should be asking these companies to provide more information on their significant transition risks in addition to the transition opportunities they report.

6 The wins far outweigh the costs of management

- Of the 192 companies of the G500 who disclosed financial implication figures alongside the cost to manage these impacts, the majority report much lower costs to manage these risks than their potential implications. The exception to this is the Manufacturing, Power and Services industries. The financial services industry accounts for 72% of the total potential financial impact figure (US$677 billion) and dwarfs the cost to manage the same risks (US$2.2 billion).

- In almost all industries, the costs to realize the reported opportunities are significantly smaller than the total value of the opportunity. In total, the potential value of the opportunities are nearly seven times the costs companies estimate this will take to realize (~US$312 billion costs versus ~US$2.1 trillion in potential opportunities).

- These findings align with what economists have been highlighting for over a decade now, that the potential negative impacts of climate change outweigh the costs to mitigate them and that there are significant opportunities in this transition. The *Stern Review on the Economics of Climate Change* and the reports of the Global Commission on the Economy and Climate are two prominent examples amongst many.

- Given these findings investors and stakeholders should expect to see companies investing more heavily in the transition - and if not, should be asking why. CDP has been working on tracking this shift through changing business models, investment patterns and research and development and innovation through its ACT (Assessing the Low-Carbon Transition) project, together with the ADEME, the French Environment and Energy Management Agency. We will keep tracking this shift to assess if companies are truly transitioning in our future work.

7 Companies and investors need to learn lessons from the power sector

- Companies operating in the power sector are the only companies who report higher costs to manage risks and realize opportunities than the implications of the risks and opportunities themselves. The risks being reported were a mixture of physical risks - damage to assets as a result of climate impacts or lack of water resources in the future - as well as the transition risks associated with the low-carbon transition, including market and technology risks and not just pricing of GHG emissions. The assets in this sector are long-lived and require significant capital investment so the costs to manage these risks – whether it be investments in resilience, retiring assets early or investing in new assets – are proportionately higher than many other sectors. This has also been the sector that has seen the biggest change as a result of the low-carbon transition to date. Companies in this sector who did not cater for an early integration of these risks into their strategies are facing higher risks than initially planned for.[6] Other sectors should take note of this.

4. 10 out of 20
5. https://www.oxfordenergy.org/publications/energy-transition-uncertainty-implications-change-risk-preferences-fossil-fuels-investors/
6. For an illustration of how this can play out see https://www.unpri.org/credit-ratings/credit-risk-case-study-rwe/3260.article

INTRODUCTION

In 2015 at the request of the G20 Finance Ministers and Central Bank Governors, the Financial Stability Board (FSB) and its chair Mark Carney established the industry-led Task Force on Climate-related Financial Disclosures (TCFD). This was in response to increasing demands from investors, lenders, insurers, regulators, policy makers, and other stakeholders in the financial markets for decision-useful, climate-related information.

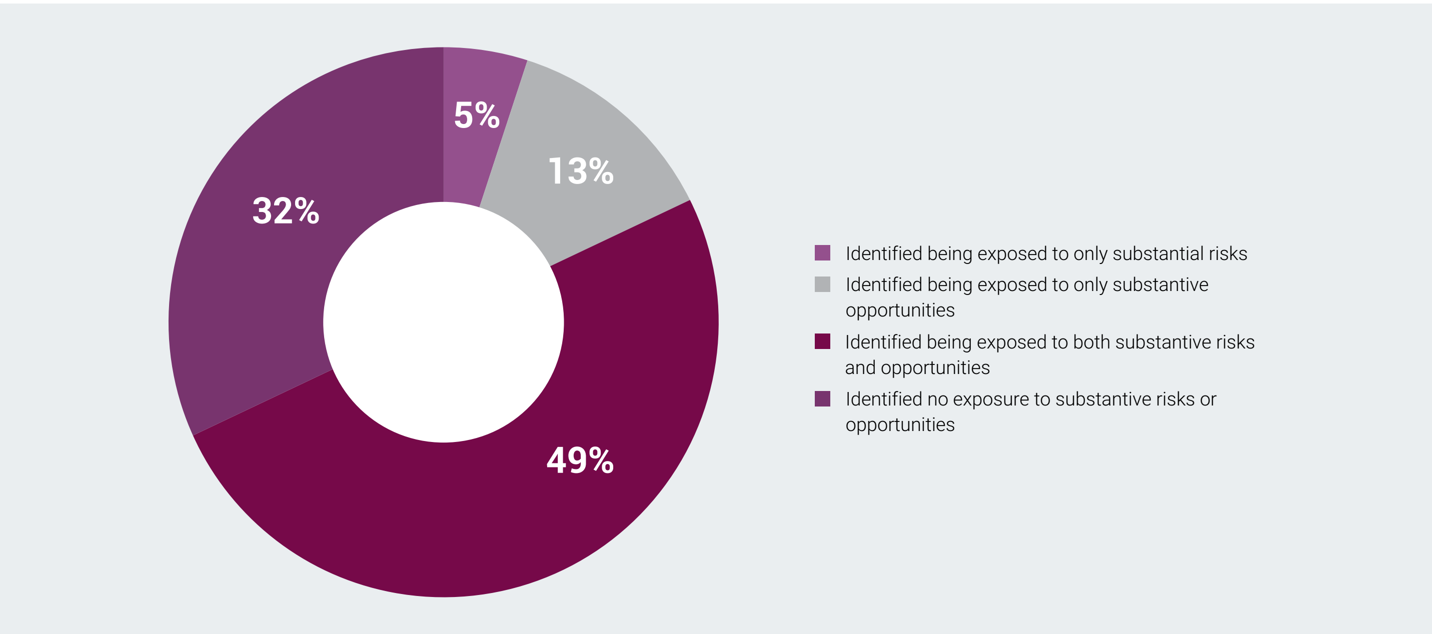
Inadequate information about risks can lead to mispricing of assets and misallocation of capital that can potentially lead to concerns about the stability of financial markets and their vulnerability to abrupt corrections.

CDP recognized the important role of the TCFD in mainstreaming climate-related information and advancing the availability of financially relevant information for global markets. The TCFD's recommendations help promote the integration of climate-related information into mainstream financial reports, providing transparency and a roadmap to meet the commitments of the Paris Agreement.

In recognition of the TCFD's recommendations, CDP has committed to align its information requests with the TCFD, alongside introducing a sectoral focus and adopting a forward-looking approach to climate-risk disclosure. This harmonization will help to drive the adoption of the TCFD recommendations by reporting companies, optimize the reporting burden and speed-up the generation of decision-useful information for data users. This means a greater emphasis on elements such as board oversight, the potential impacts of climate-related risks and opportunities on an organization's strategy, the use of forward-looking scenario analysis to determine the resilience of a company's strategy to climate risks, and the appropriate metrics and targets to manage these risks.

A total of 6,707 of the 6937 (97%) reporting to CDP in 2018 disclosed whether they consider their business to be exposed to substantive climate-related risks and opportunities. Almost half of these companies identified both risks and opportunities which could have a substantive impact on their business, while 32% of the companies reported that they did not identify risks or opportunities which would have a strategic impact on their business, and 14% of companies identified opportunities but no risks.

Companies reporting exposure to climate-related risks and opportunities

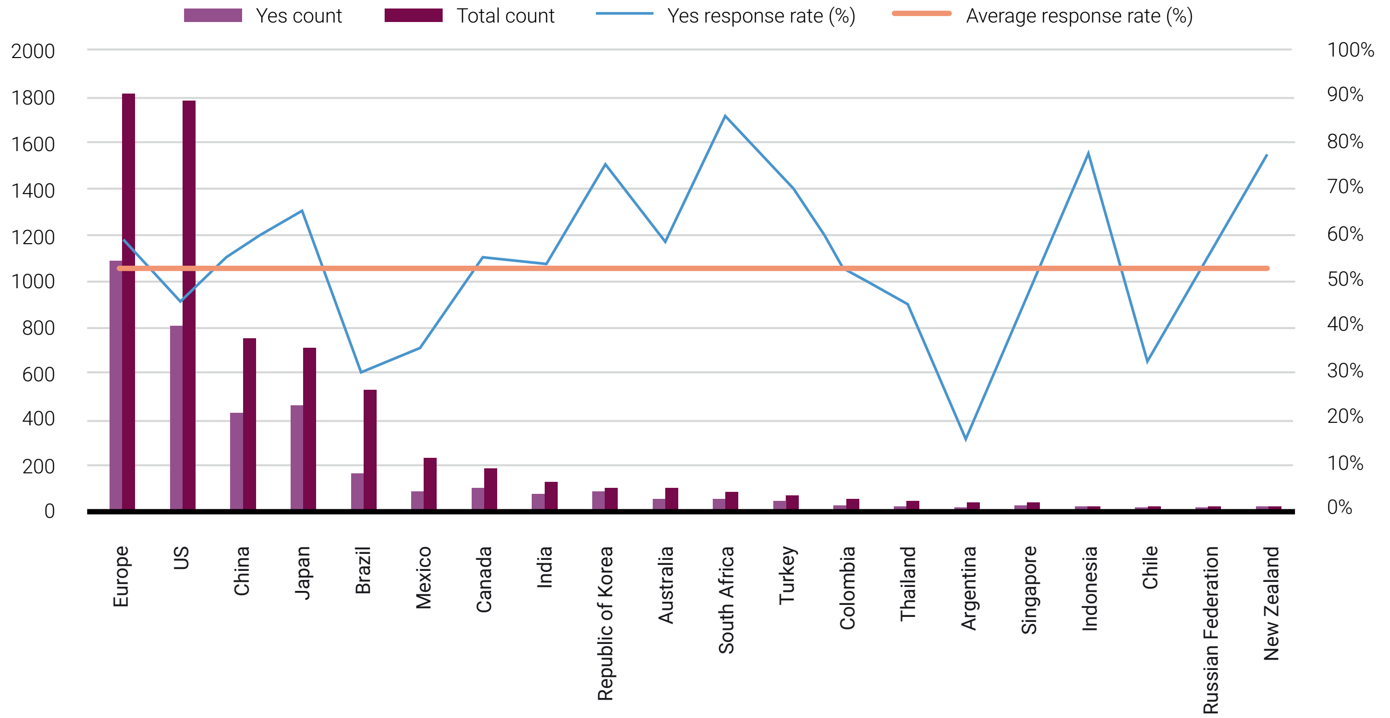


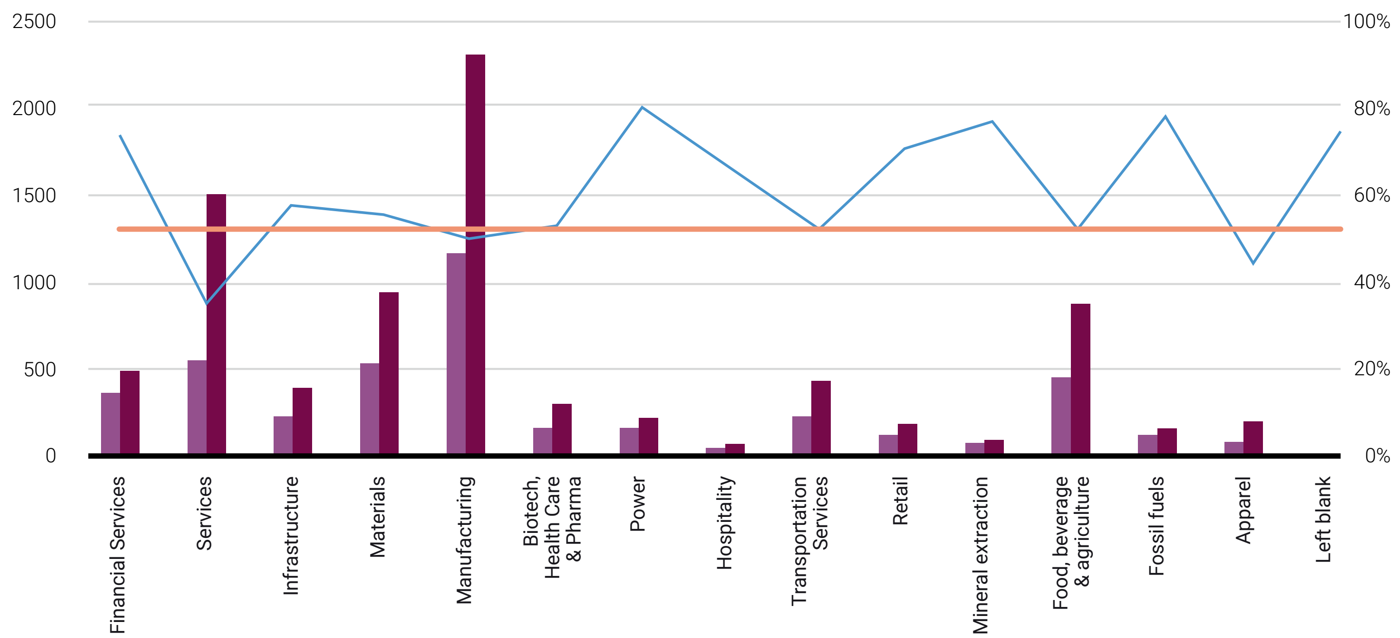
THE RISKS OF CLIMATE CHANGE

53% of companies reporting to CDP identify inherent climate-related risks with the potential to have a substantive financial or strategic impact on their business, with almost double the number of transition risks versus physical risks being reported overall.

Less than half of the companies with headquarters in the US, Brazil, Mexico, Thailand, Argentina and Chile reported risks that could have a substantive impact. At the other end of the spectrum, at least 75% of the companies headquartered in Turkey, Republic of Korea, Indonesia, New Zealand and South Africa identified these substantive risks.

Less than half of the companies operating in the apparel and services industries reported risks that could have a substantive impact, while companies in the power, retail, mineral extraction and fossil fuels industries have much higher proportion of companies identifying substantive risks, at nearly 80%.





THE RISKS OF CLIMATE CHANGE

Of the 44% (3050 companies) who reported that climate change did not pose a significant risk to their business, approximately half of them noted that they have identified risks but that they have assessed that these will not have a substantive or strategic risk to their business. The rest had not yet evaluated, were in the process of evaluation or noted their own specific reasons. We do not focus on these companies in this report, analysis will be published on this in a different briefing.

The TCFD highlights two main categories of risks: those relating to the transition to a low carbon economy, which may involve substantive changes in policy, legal, technology, reputation and market to address the demands for mitigation and adaptation, and risks related to the physical impacts of climate change, which can be event driven (acute), or longer term changes in weather patterns (chronic).

The majority of companies who identified these risks, identified both physical and transition risks (1922), with 815 companies identifying only transition risks, 758 only physical. This remains true across all industries. However, a high proportion of companies in the apparel, food, beverage & agriculture and infrastructure industries identified only physical risks, which is unsurprising given the impact extreme weather and unpredictable changes in the climate could have on assets and those whose supply chains depend on agriculture.

In addition, a high proportion of companies in the fossil fuel and materials sectors identified only transition risks, again unsurprising given their carbon intensive products and services. The majority of companies identified more transition risks than physical, apart from companies headquartered in the US, South Africa, Japan, Brazil, China and Mexico. Only in the latter two countries are the different numbers significant, with 10% or more of the companies headquartered in China and Mexico reporting more physical than transition risks. For the rest of the sample, more than 10% of the companies report more transition than physical risks.

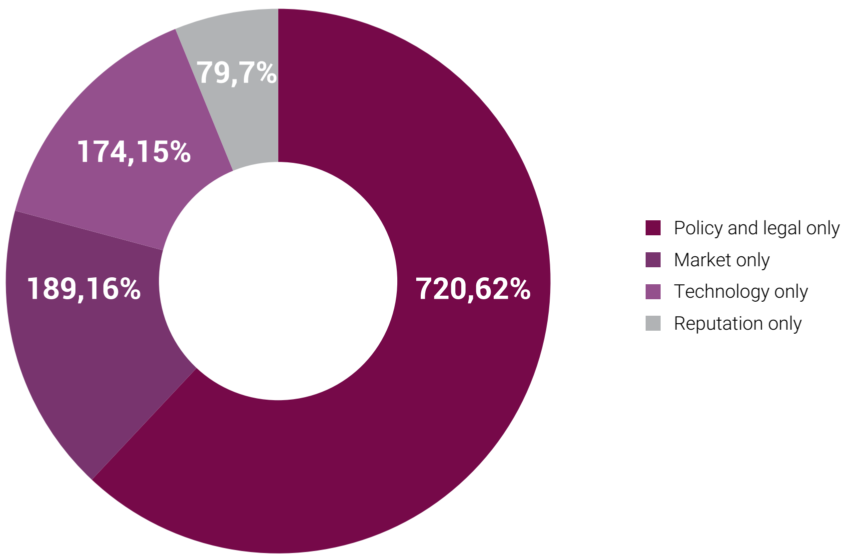
Transition Risks

39% of companies (2,737) reported at least one transition risk. By far the most reported transition risk is the increased pricing of GHG emissions. Given the growth of carbon pricing regulation globally, this is unsurprising. CDP will report on the disclosures of companies who are affected by these regulations and their increasing use of an internal carbon price to manage these risks in an upcoming report.

The top 4 transition risks reported are:

- Policy and legal: Increased pricing of GHG emissions (nearly half the companies - 1123 companies);
- Policy and legal: Mandates on and regulation of existing products and services (792 companies);
- Policy and legal: Enhanced emissions-reporting obligations (645); and
- Market: Changing customer behavior (627).

If a company is only identifying one transitional risk, where does it lie?



25% of the companies who identified substantive transition risks focused on potential policy and legal risks and did not identify market, reputation or technology risks as being substantive. While there are companies reporting market, technology or reputational risks, this does seem to highlight a very narrowly focused type of risk being explored, given the dynamic market changes that can currently be seen in certain sectors. Investors and companies alike should take note of these dynamics and broaden their focus areas if they are to remain profitable in the future.

THE RISKS OF CLIMATE CHANGE

Physical risks

The most commonly identified physical risks identified in both samples were related to:

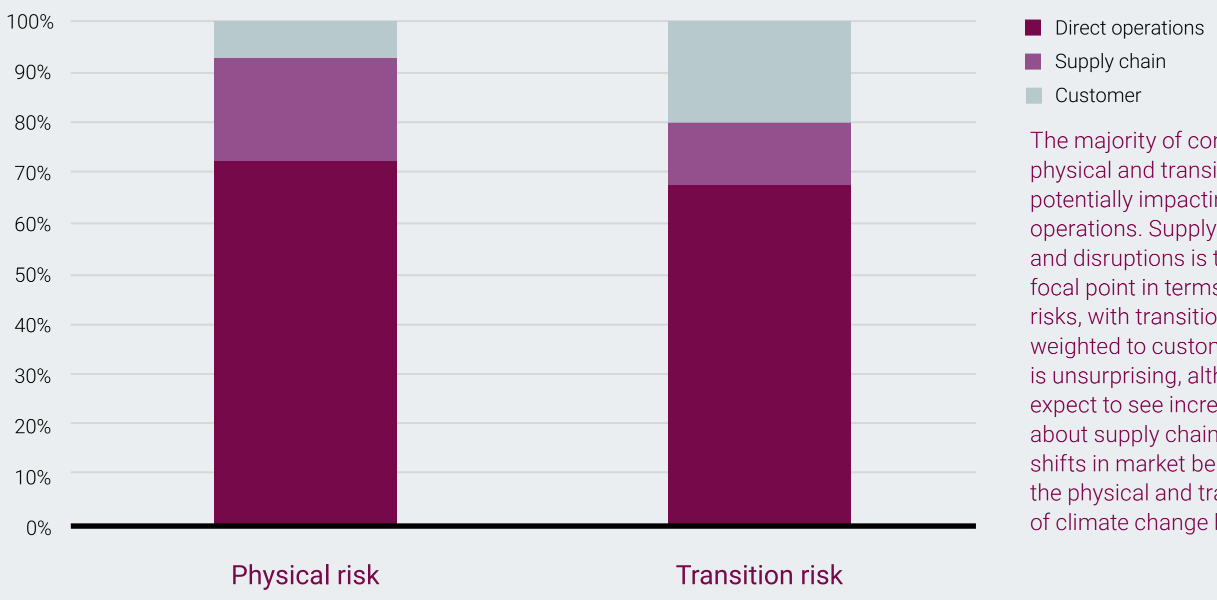
- The increased severity of extreme weather risks;
- Changes to precipitation and weather patterns; and
- Rising mean temperatures.

> The lack of water resources may jeopardize the maintenance of air quality in operations, a mandatory condition to operate. On the other hand, a heavy rainy season may impact the piles stability, railway operation and the quality of the product (high humidity in the ores)...... – **Vale**

> Changing precipitation patterns, droughts, flooding and tropical cyclones could potentially damage our manufacturing, research and development, and warehousing/distribution facilities and those of our key suppliers, especially in flood prone areas......In 2017, our operations in Mexico, US and Puerto Rico were hit by a string of devastating earthquakes and hurricanes. Our principal active ingredient manufacturing occurs at our US, Ireland, and Puerto Rico sites. Puerto Rico, where we employ 1,400, was devastated by Hurricane Maria in 2017, causing power outages, food and water shortages. – **Eli Lilly & Co.**

> Extreme events, which are increasing in both frequency and intensity, often attract more attention as their impacts are more apparent. However, the risks from incremental changes, which are already underway, should not be overlooked. Extreme events may only occur in specific locations (such as floodplains or tropical cyclone regions) and require banks to have the ability to assess the probability of their borrowers being impacted by these events. In contrast, incremental changes have the potential to gradually erode the financial performance of entire borrower segments – **UBS**

Where in the value chain does the risk occur?



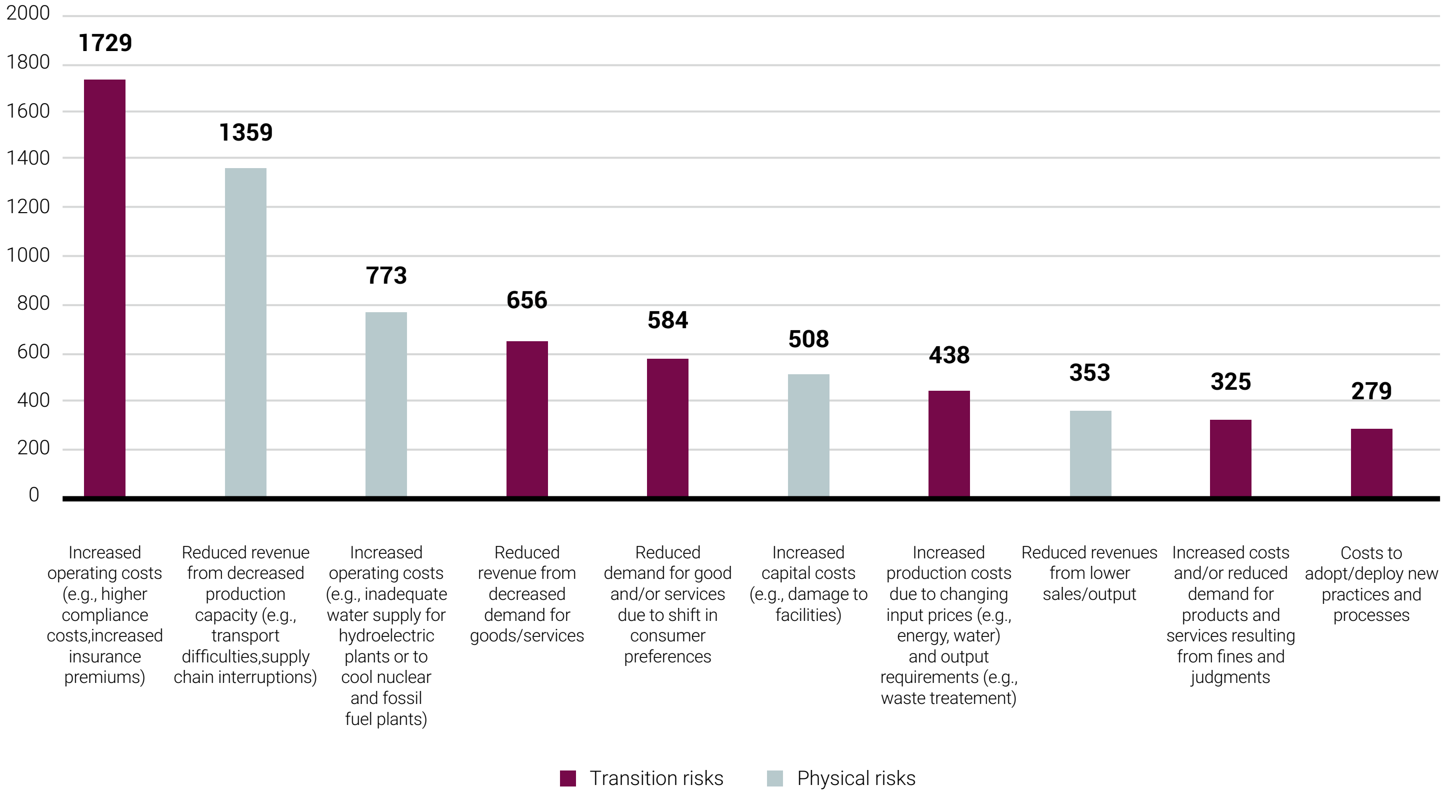
The majority of companies identify physical and transition risks potentially impacting their direct operations. Supply chain impacts and disruptions is the next biggest focal point in terms of physical risks, with transition risk more weighted to customer impacts. This is unsurprising, although we would expect to see increasing concerns about supply chain impacts and shifts in market behaviour as both the physical and transition impacts of climate change begin to ramp up.

THE RISKS OF CLIMATE CHANGE

Financial impact drivers

The top two identified financial impact drivers are: increased operating costs (e.g. higher compliance costs, increased insurance premiums), largely linked to GHG emissions pricing; and reduced revenue from decreased production capacity due to the physical impacts of climate change.

Top 10 financial impacts drivers - company count



What about stranded assets?

134 companies identify the potential for “write-offs and early retirement of existing assets (e.g., damage to property and assets in “high-risk” locations)” due to physical risks and 168 identify the potential “write-offs, asset impairment, and early retirement of existing assets” due to policy changes. The majority of these companies are in the financial services, manufacturing, power, services, materials and infrastructure industries.

Only eight and Fossil to fossil companies disclosed potential financial impact drivers associated with stranded assets (five transitional, three physical impacts), with the aggregated potential financial impact figure (from those who did disclose this) amounts to over US$11 billion. The likelihood of these impacts varies quite substantially from unlikely, to virtually certain.

In the world’s 500 largest companies, the amount reported to CDP which are linked to stranded to assets totals US$252 billion.

THE OPPORTUNITIES RELATED TO CLIMATE CHANGE

Just over half of the reporting companies identified potential opportunities that could have a substantive or strategic impact on their business. Over 35% disclosed that they did not foresee such opportunities,[7] with ~10% noting that they have identified opportunities but are unable to realize them. The remaining 3% did not answer the question.

European headquartered companies identified the highest number of opportunities, while US headquartered companies has roughly the same number of companies report opportunities as those who did not.

Why do you not consider your organization to have climate - related opportunities?

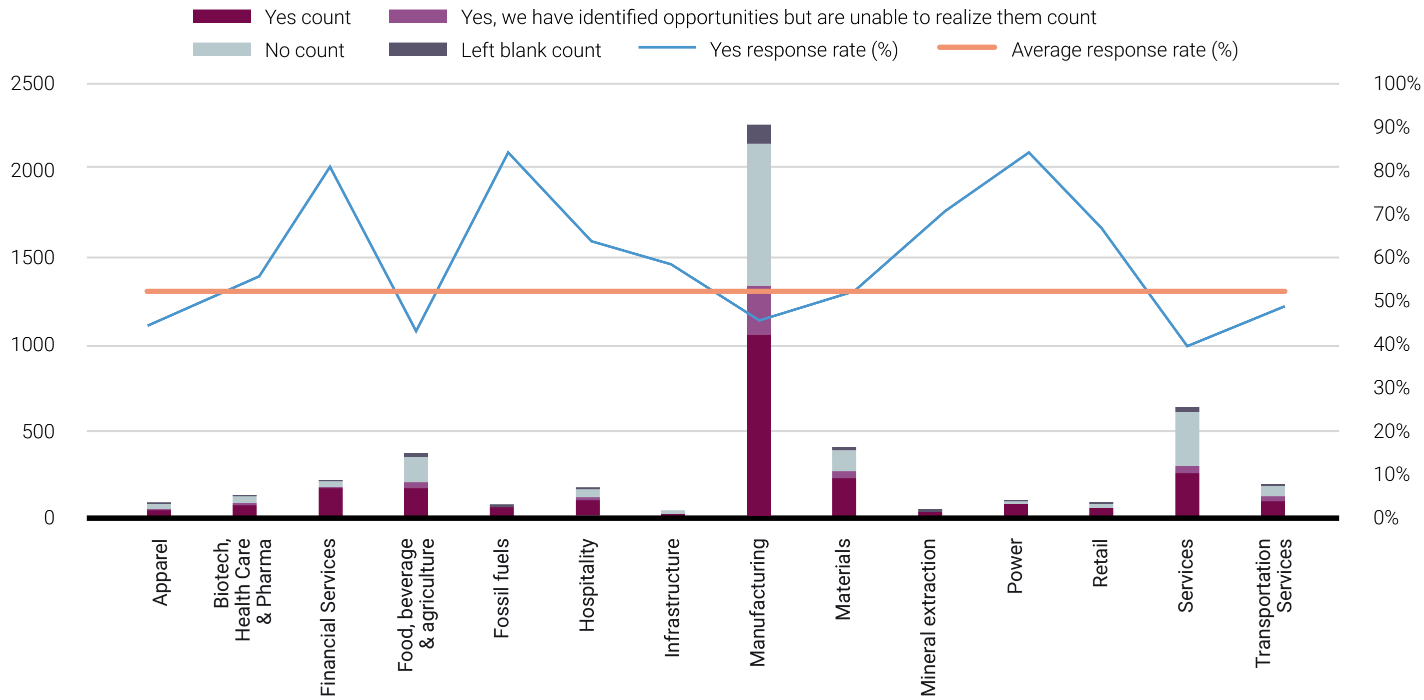
Over 50% of companies headquartered in almost all the major countries in the disclosing sample identified opportunities, apart from the US, China, Brazil, Argentina and Chile. South African headquartered companies identified a much higher rate of opportunities with ~85% of companies reporting opportunities.

Full sample (top 20) - Have you identified any climate - related opportunities with the potential to have a substantive financial or strategic impact on your business?

7. 906 report that they have not evaluated it yet; 870 report that opportunities exist but none with the potential to have a substantive impact to their business; 594 report that their evaluation is still in progress and 220 report that opportunities exist, but they are unable to realize them

THE OPPORTUNITIES RELATED TO CLIMATE CHANGE

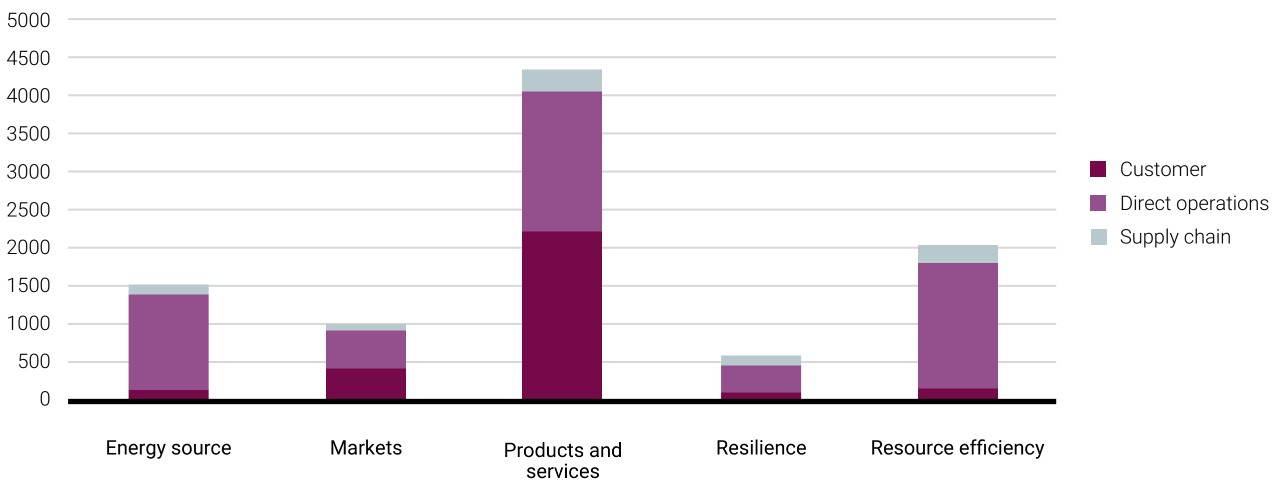
Full sample - Have you identified any climate - related opportunities with the potential to have a substantive financial or strategic impact on your business?



Those operating in the apparel; food, beverage & agriculture; manufacturing, services and transportation services sectors all report fewer substantive opportunities than the average, while those in the financial services, fossil fuels and power industries report much higher rates, at nearly 80% of companies.

The majority of these opportunities are linked to new products and services, affecting both the customer and direct operational parts of the supply chain. Resource efficiency and energy source drivers affecting direction operations are the next highest identified.

Full samples - opportunity drivers vs. value chain



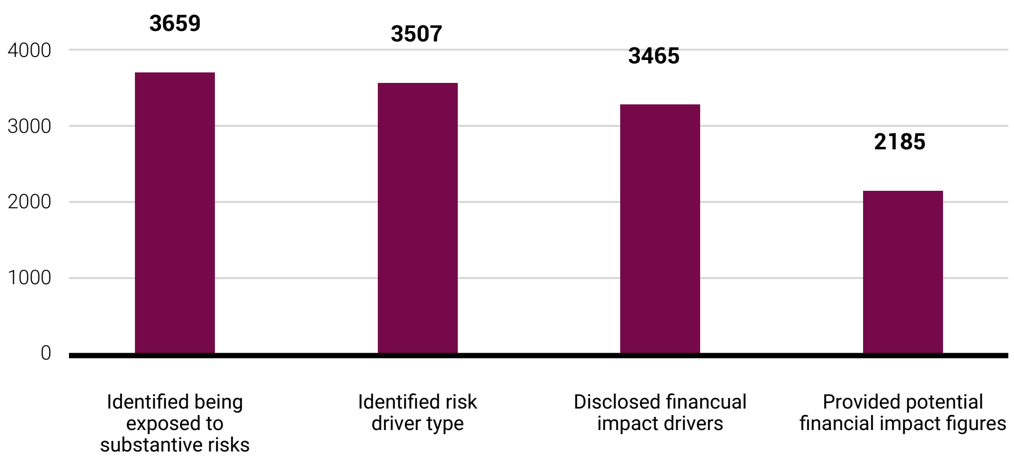
FINANCIAL IMPLICATIONS OF THESE RISKS AND OPPORTUNITIES

Companies were asked to report for the first time in 2018, on the potential financial implications of these risks.

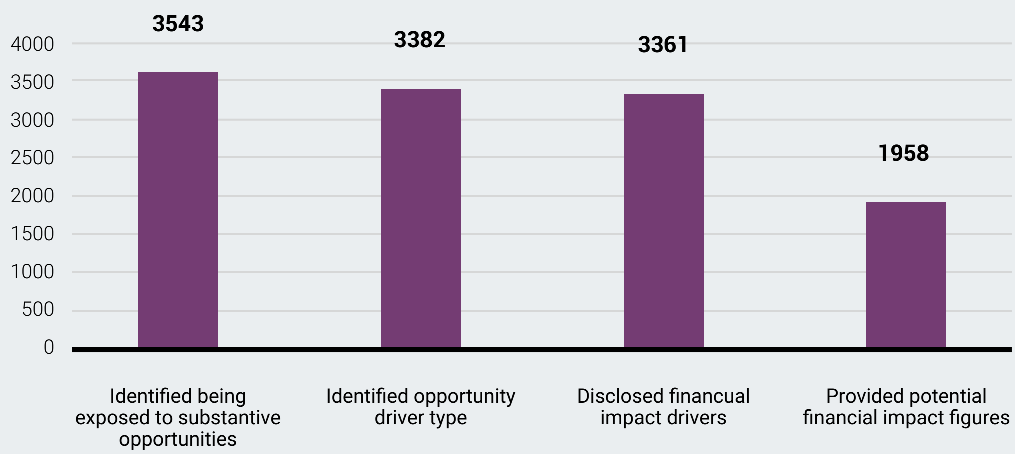
While the TCFD recommendations highlight the need for companies to report on how these risks are integrated into their financial planning, the 2018 'TCFD Status Report' highlighted that "*….Users of disclosure have expressed the need for more quantitative information on the actual or potential climate-related financial impacts on a company. Many companies with material climate-related issues could improve their disclosures by describing the actual or potential financial implications of climate change.*"

CDP found that 2,185 companies provided at least a figure for the potential financial impact of the risks and 1,958 for the opportunities – these companies are leading the pack in this developing area of disclosure.

Full sample - Companies providing details on substantive risks



Full sample - Companies providing details on substantive opportunities



FINANCIAL IMPLICATIONS OF THESE RISKS AND OPPORTUNITIES

The world's 500 biggest companies (G500)

A smaller subset of the reporting sample was created for the purposes of analysing these financial implications, focusing on the 500 largest companies by market cap. In 2018, 366 of these companies reported to CDP. A much higher proportion of the responding G500 companies identified inherent climate-related risks with the potential to have a substantive financial or strategic impact on their business than the full sample of companies reporting to CDP, with 300 companies identifying substantive risks (82%). An even higher number of transition risks are reported by these companies and while increased pricing of GHG emissions is again a major focus, the list of the top four risks in this sample do not include market risks but instead have reputation risks "increased stakeholder concern or negative stakeholder feedback".

> Not only does a company need to speak to the efforts they're making, they also need to show through their actions that they are making improvements or taking mitigation measures. Not addressing climate change risks and impacts head on could result in a reduced demand for our goods and services because of negative reputation impact – **Alphabet**

> BASF has a significant corporate carbon footprint….As a global industry leader, BASF is expected to act proactively on the challenges of climate change. If major investors (e.g. BlackRock, the largest single shareholder of BASF who is becoming increasingly outspoken about the risk of climate change for the financial market) perceive BASF business activities to be misaligned with the growing global momentum to act against climate change this will pose a reputational risk to the company. 7 % of BASF shares (64 million, value around €5,600 million at year-average stock price 2017) are held by shareholders who describe socially responsible investment (SRI) being at the core of their investment strategy. In case of a major reputational loss this group may divest a significant number of shares which will reduce BASF's market value. Moreover, there is potential risk of exclusion from thematic (climate) funds. – **BASF**

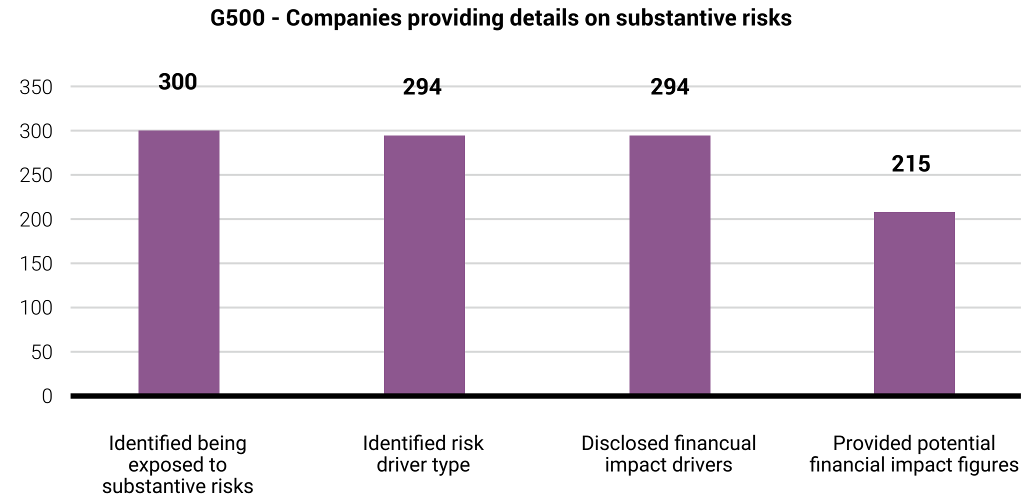
Similarly, a much higher proportion of the world's largest companies identify opportunities - nearly 90%. A much higher proportion of US headquartered companies report opportunities in this sample, while Chinese and Indian companies are below the average response rate in terms of identifying opportunities, although the latter is a smaller sample. Nearly all the companies headquartered in Japan, Australia and Brazil identify opportunities.

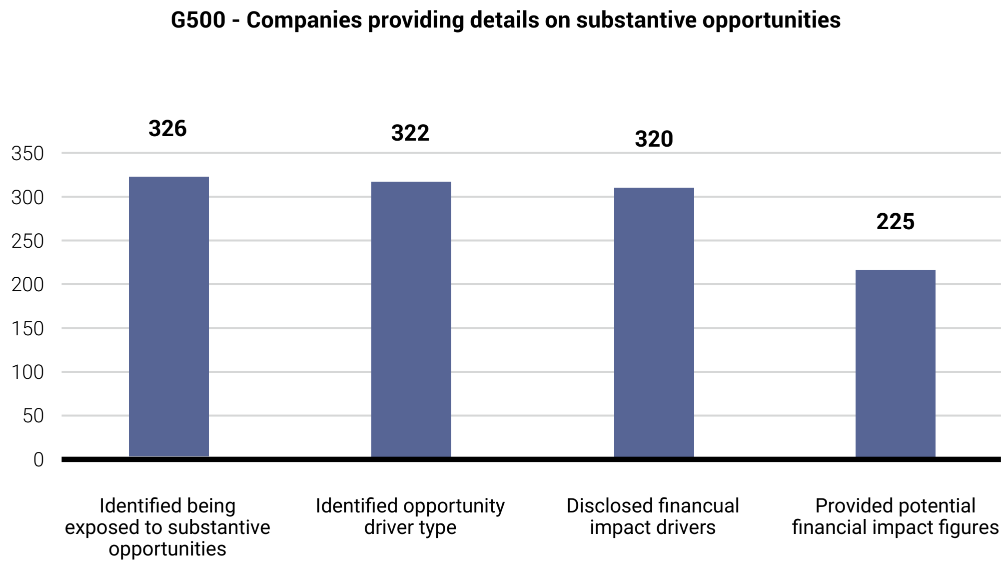
215 of the 300 companies identifying substantive risks disclosed financial figures for at least one risk. 81 of the 123 US based companies who reported substantive potential risks provided quantitative financial implication details, which means that 34% did not, in contrast to European-headquartered companies, where 74 of the 87 did.

225 of the 326 companies identifying substantive opportunities provided supporting potential financial impact figures. Chinese companies did particularly poorly, with only 35% (6 of 17) identifying opportunities and providing potential financial impact figures. European and Japanese companies fell just short of 80%, whilst only 65% (89 of 136) of US companies (representing the largest proportion of the sample) identified opportunities and disclosed supporting potential financial impact figures.

The analysis which follows is based on the disclosure of the companies reporting risks and opportunities with potential financial impact figures (215 and 225 companies respectively).

FINANCIAL IMPLICATIONS OF THESE RISKS AND OPPORTUNITIES

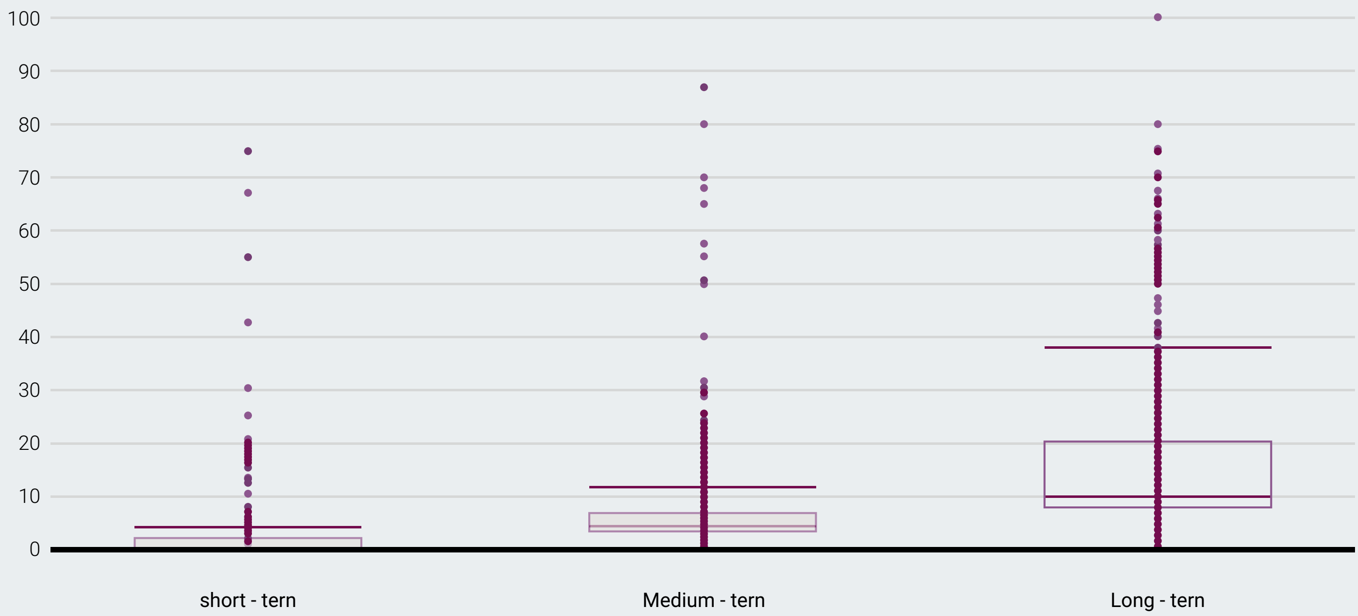




FINANCIAL IMPLICATIONS OF THESE RISKS AND OPPORTUNITIES

Time horizons

Companies define their time horizons differently, in this sample, companies define their time horizons in the following ways:



Companies have very different definitions of what the medium or long-term means – a rough approximation of an average across the sample would be ~5 years for the medium-term and ~10 years for the long-term, although this latter ranges up to 100 years. These time horizons are important when it comes to planning for risk – to put them in context, in terms of potential market changes, over the past eight years, the levelized cost of electricity of onshore wind and utility-scale solar PV have, respectively, fallen by 67% and 86%,[8] causing major shifts in energy markets. Looking ahead, the latest science is telling us we need to, over the next 10 years, achieve an almost 50% reduction in emissions globally if we are to avoid some of the worst impacts of climate change.[9] Whether planning for the transition or for the increasing physical impacts, companies need to take this potentially extraordinary rate of change into account.

8. https://www2.deloitte.com/insights/us/en/industry/power-and-utilities/global-renewable-energy-trends.html#endnote-sup-10
9. IPCC SR15

POTENTIAL FINANCIAL IMPACTS

Risks

1 The 215 companies report a significant potential financial impact to their business, totalling over **US$970 billion.**

2 The disclosed potential financial impact figures of transition risks outweigh physical risks by a ratio of 60:40.

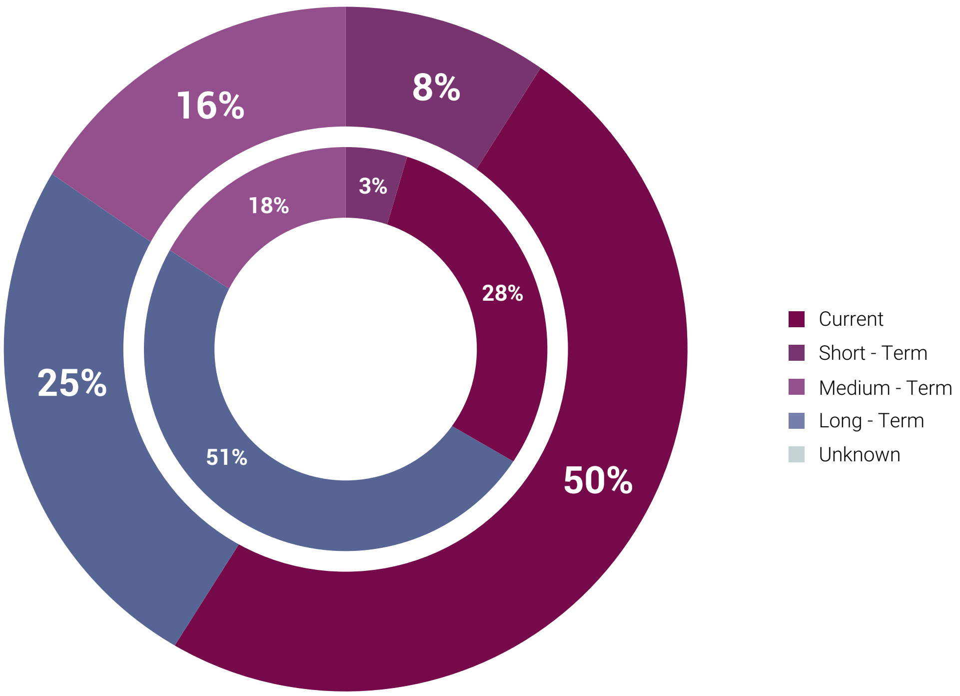
3 Top four drivers of potential financial impact:

- Increased operating costs (due to higher compliance costs, increased insurance premiums etc.) at ~US$179 billion;
- The write-off of assets or their early retirements because of potential damage to them / being in high-risk locations at ~US$170 billion;
- Reduced demand for goods and / services due to a shift in consumer preferences totalling US$102 billion; and
- Changes in policy leading to write-offs, asset impairment and early retirement of existing assets totalling ~US$73 billion.

4 Companies are asked to rate the likelihood of these risks materializing – the likely, very likely or virtually certain certain figures accounting for half of the potential implications (~US$490 billion) and the majority of the rest being reported as about as likely as not (US$339 billion).

5 The total financial impacts from risk could materialize over different time horizons – with the majority of the physical and transition risks materializing in the short to medium-term (~US$747 billion).

Risk type vs. time horizon - outer pie = transition risk, inner pie = physical risk



POTENTIAL FINANCIAL IMPACTS

Opportunities

225 companies reported potential financial impact figures for disclosed climate-related opportunities, totalling over US$2.1 trillion.

1 The disclosed potential financial impact figures are largely focussed in the products and services type, accounting for over US$1.7 trillion (80%), of which the financial services industry accounts for over half of the potential financial figures disclosed for against product and services as an opportunity (US$964 billion).

2 Top four drivers for potential financial impact:

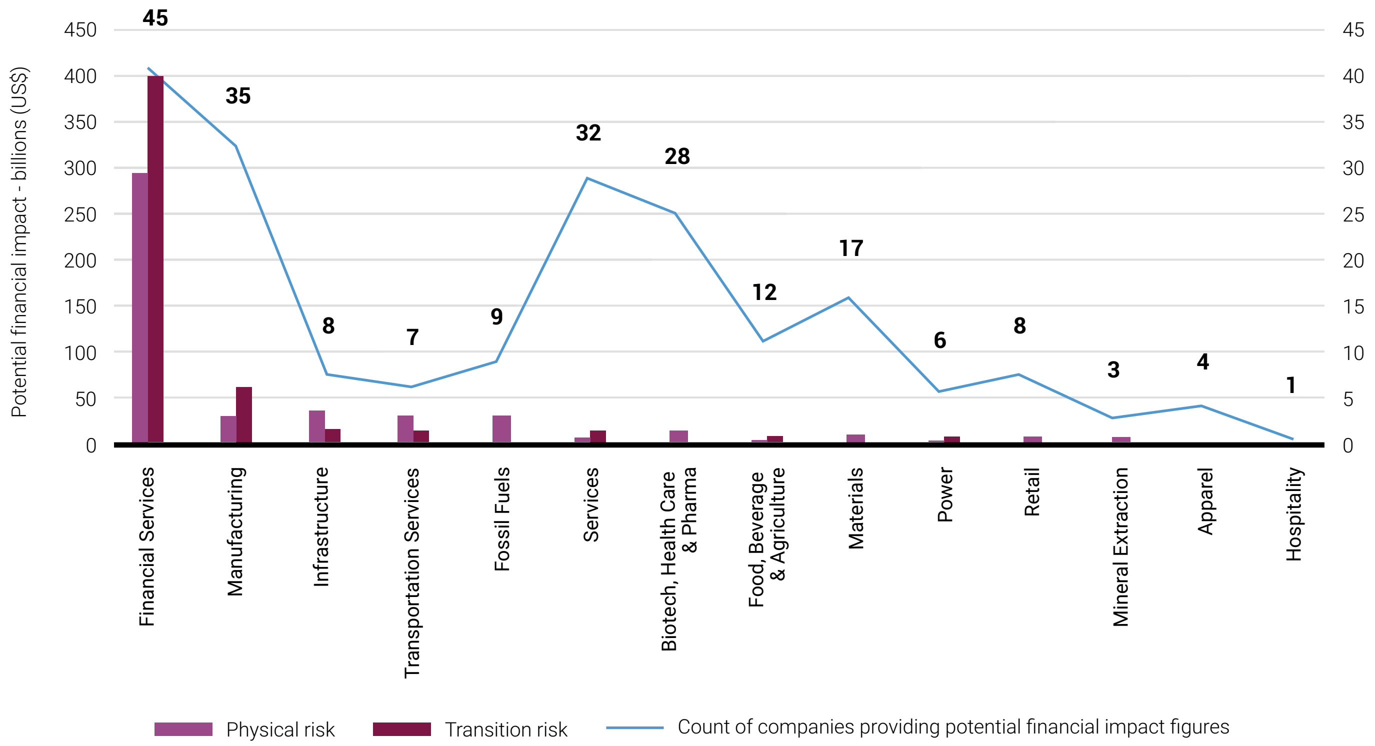
- Increased revenue through demand for low emissions products and services - US$970 billion;
- Better competitive position to reflect shifting consumer preferences - US$487 billion;
- Increased revenue through new solutions to adaptation needs - US$236 billion;
- Increased capital availability (as more investors favour low-emissions producers) - US$198 billion.

3 The vast majority of the potential financial opportunities are reported to be likely, very likely or virtually certain, totalling over US$2 trillion, half of the potential implications (~US$490 billion) and the majority of the rest being reported as about as likely as not (US$339 billion).

These opportunities could be realized over different time horizons – with US$471 billion recognizable now, but with a majority (US$1.34 trillion, or 62%) materializing in the short- to medium-term.

Risks – by industry

G500: Potential financial impact by risk type



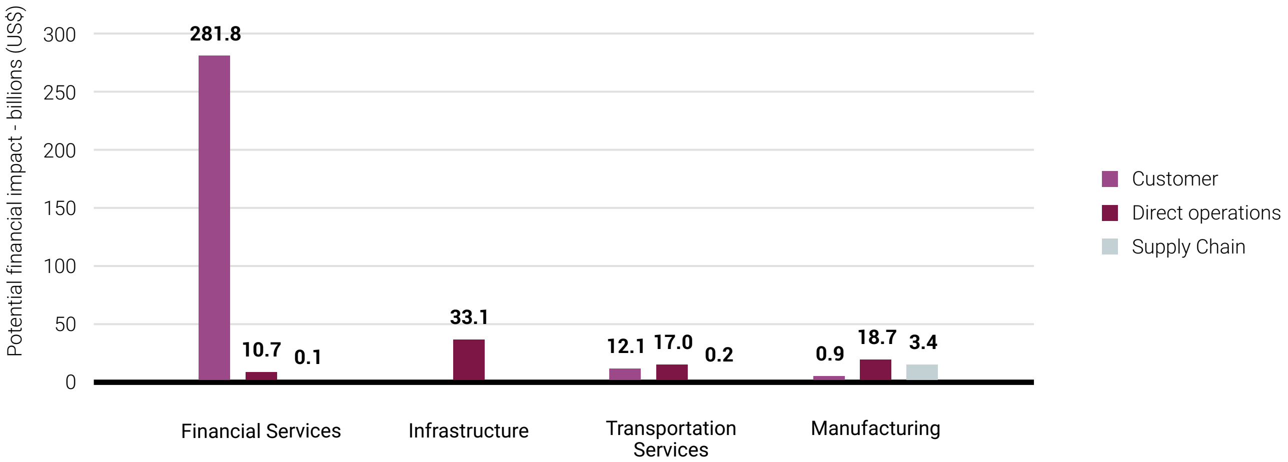
POTENTIAL FINANCIAL IMPACTS

Physical risks – financial implications

The highest amounts were reported by the financial services, manufacturing and services industries, with more than 80% of the total potential physical risks coming from the financial services industry (US$292 billion). After this the highest values are reported in infrastructure (US$33 billion), transportation services (US$29 billion) and manufacturing (US$22 billion).

In the financial services industry, companies report a large proportion of these potential risks hitting their customers, while infrastructure, transport services and manufacturing companies all highlight that the large proportion of these potential financial impacts will be felt in their direct operations.

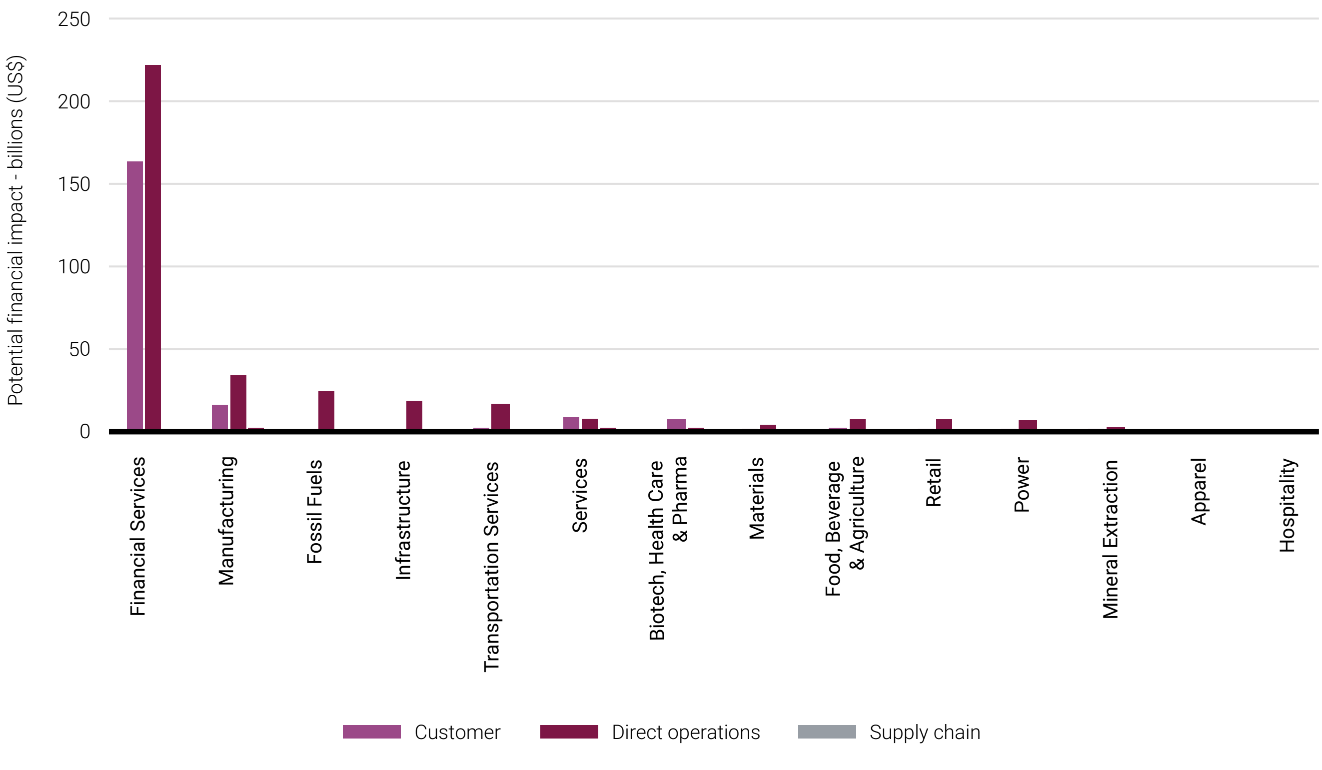
Physical risks vs. where in the value chain



Transition risk implications

Almost 70% of the potential financial impacts due to transition risks are reported by the financial services sector, although surprisingly just over half of these are linked to their direct operations - US$214 billion in total - as opposed to potential losses due to impacts on their clients (total value: US$186 billion).

Potential financial impacts of transition risks

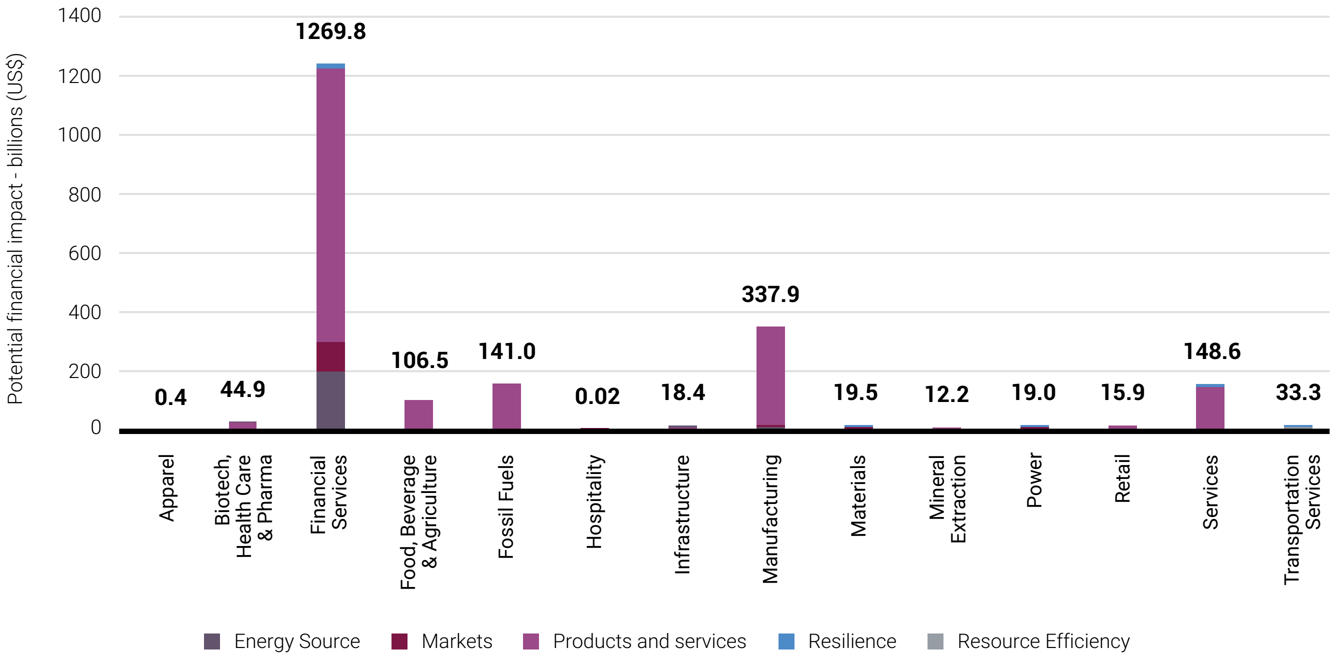


POTENTIAL FINANCIAL IMPACTS

Opportunities – financial implications by industry

Over half of the total financial value reported is identified by the financial services industry, totalling over US$1.2 trillion. The next highest amounts were reported by companies in the manufacturing (US$338 billion), services (US$149 billion), fossil fuels (US$141 billion) and the food, beverage & agriculture industries (US$106 billion).

Opportunity type vs. potential financial impacts



Risks and opportunities – by country / region

In the reporting countries and regions, the vast majority of the potential financial implications being reported are by companies headquartered in Europe, with the US, Japan, Brazil, Australia and China after them.

The overwhelming majority of potential financial implications from both transition and physical risks were reported by companies in Europe, at ~US$640 billion in total, with transition risks accounting for almost US$400 billion. This is unsurprising given the increasing policy alignment with the Paris Agreement in this region and changing market dynamics. It is however surprising though that companies headquartered in the United States are only reporting a potential financial impact of just over $110 billion, given that this represents the analysis of 81 companies who make up the highest proportion of companies in the sample.[10] Investors and policymakers would do well to focus on driving up better risk management by companies headquartered in the country.

It is particularly surprising to see lower figures being reported by US-headquartered companies in terms of physical risks. According to MunichRe, 2017 had the highest disaster related insured losses on record at US$135 billion, with the US share of losses in 2017 even larger than usual: 50% as compared to the long-term average of 32%.[11] In 2018, according to a report by Aon, 64% of global insured losses from natural disasters came from the United States.[12] The years 2017 and 2018 were the costliest back-to-back years for weather disasters on record globally, with an economic impact of US$653 billion.[13] Stakeholders should expect to see higher numbers being reported by US-headquartered companies in future and should be ask questions if this does not happen.

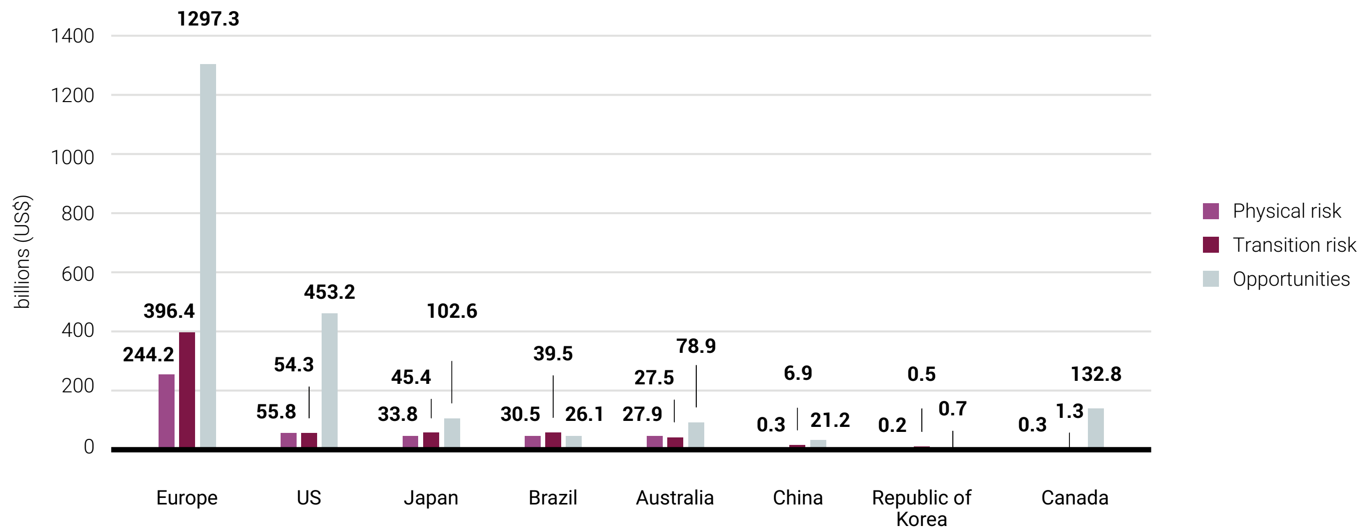
In terms of opportunities, it is interesting to note how European headquartered companies reported an impressive US$1 trillion of potential opportunities linked to 'Products and Services', with a large proportion of which in the development or expansion of low emissions goods and services. European companies also identified particularly higher opportunities then other countries for 'Energy Sources', placing particular emphasis on the use of lower-emissions sources of energy. The policy environment, including the EU Emissions Trading System and the Renewable Energy targets, again playing a significant role in driving this systematic change by providing a conducive environment for private sector investment in the transition.

10. 81 companies provided financial impact figures, of the 123 that identified being exposed to risks, of a full sample of 161 US companies that responded in 2018 within the G500
11. https://www.munichre.com/en/media-relations/publications/press-releases/2018/2018-01-04-press-release/index.html
12 - 13 http://thoughtleadership.aonbenfield.com/Documents/20190122-ab-if-annual-weather-climate-report-2018.pdf

POTENTIAL FINANCIAL IMPACTS

> Linde continuously works on products which offer offering environmental benefits...50% of annual Research and Development projects at Linde are focused on products/applications with an environmental benefit. 112 million EUR have been spent in Research and Development cost in 2017 in this area. – **Linde Plc**

Potential financial impacts - risks vs. opportunities

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FINANCIAL SERVICES

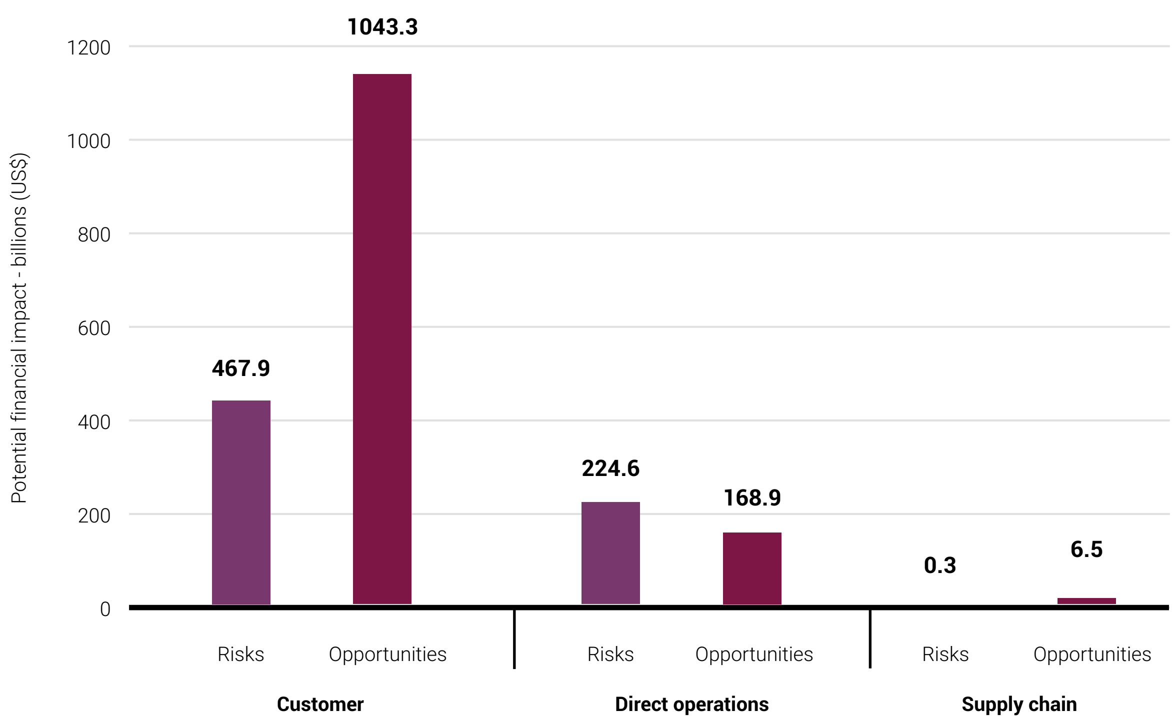
Focus on the financial services – what are they reporting about the implications for their customers?

The vast majority of the financial implications are concentrated in the financial services industry – these companies form the largest sector represented in the G500 and they are disclosing these risks more readily than others. However, if the finance sector is identifying more risks for their clients than the companies themselves, regulators and investors should be asking questions as to who is actually managing these risks. At the same time, finance sector sectors are likely to be missing some risks – while they are identifying more physical risks for their clients, they are potentially missing a significant number of transition risks in the real economy as their disclosures are hyper-focused on the transition risks to their direct operations.

More specifically, they identified a range of potential risks, but recurring themes centred around: acute and chronic physical impacts of climate change reducing revenue; changes in regulations impacting particular industries and companies more than others, disturbing the status quo; and the increasing potential of stranded assets.

More specifically, they identified a range of potential risks, but recurring themes centred around: acute and chronic physical impacts of climate change reducing revenue; changes in regulations impacting particular industries and companies more than others, disturbing the status quo; and, the increasing potential of stranded assets.

Financial services industry - Potential financial impacts vs. value chain



INDUSTRIES UNDER THE MICROSCOPE

Risk excerpts

NGOs and campaign groups continue to scrutinise and highlight the actions of financial institutions in financing sectors that contribute to climate change through their operations and products. To a lesser extent, Barclays' own emissions performance is also assessed. Negative campaigns may impact Barclays reputation and brand which may reduce trust in the firm's integrity and competency by clients, counterparties, investors, regulators, employees or the public. This may subsequently result in an impact on profit from changes in use of Barclays' services by customers and clients sensitive to environmental issues. – **Barclays**

Recent changes in climate conditions in Brazil, especially in the southeastern region, have increased our clients' concern regarding severe droughts. That may represent a risk for the Bank as our clients' activities may be impacted by water shortage. In addition, repeated droughts could even lead to changes in regulation and Santander Brazil's clients could experience increases in water taxation and costs (including fines if they do not comply to future water saving targets). These situations can affect clients' financial performance and consequently increase the credit risk of Santander Brazil's loan portfolio". – **Banco Santander Brasil**

Climate change may bring about changes in consumer behavior as consumers become more aware of their impact on the environment. Discerning consumers may choose not to engage with organisations (including banks) which are not perceived to be proactive in managing climate risk through their operations or through the financial products they introduce – **DBS Group Holdings**

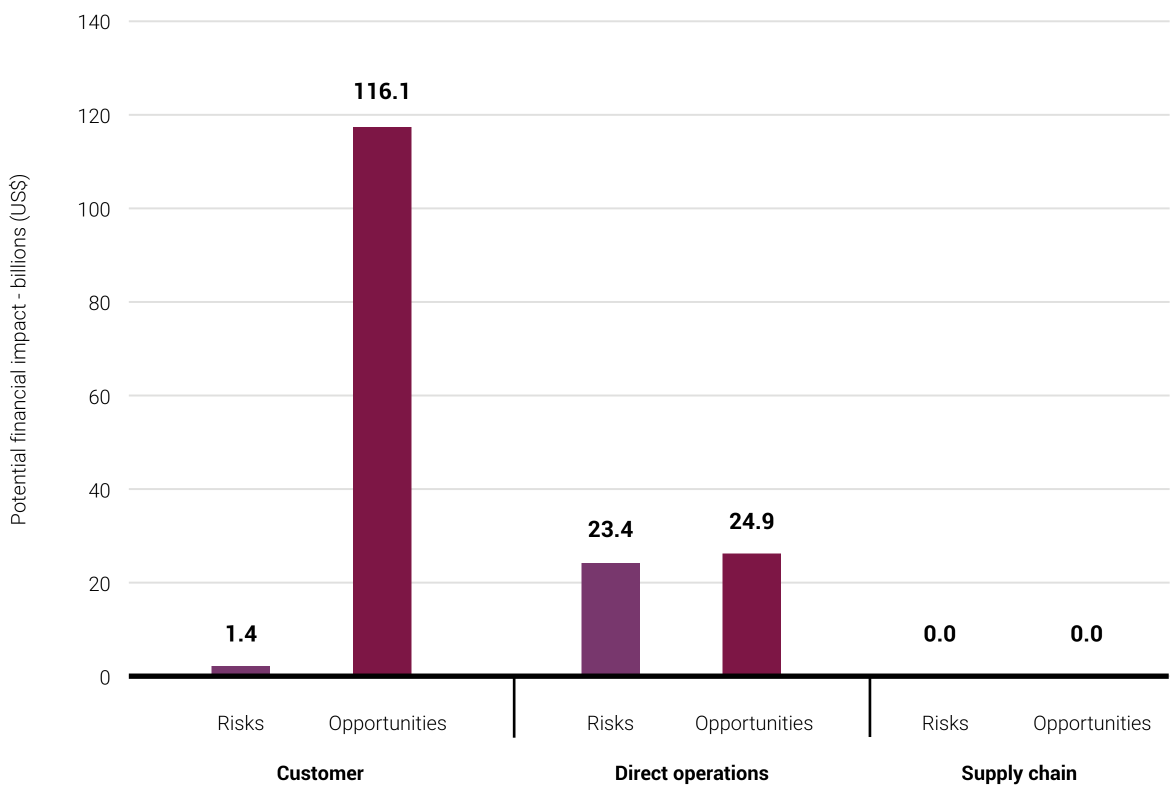
Opportunities excerpts

Climate change presents many challenges but also massive opportunities as the energy transition and shift to the appropriate level of energy efficiency in our built environment and industrial process is estimated to require more than $30 trillion in investments. As banks play a major role in lending to businesses, the opportunities are vast. For this reason, ING has set in place several dedicated Sustainability teams with the aim of doubling our Climate Finance portfolio by 2022. We have also put together an innovation team to develop a methodology for measuring the overall climate impact of our key climate-relevant portfolios. With this methodology, we believe the banking sector can steer portfolios towards the 2 degree goal of the Paris Agreement, identifying opportunities for clients to get there. – **ING Group**

Our Corporate Banking team is working with academia to explore scope for 'green loans' to support Solar PV applications for the growing agriculture sector (specifically where there is an energy demand off-grid). – **Qatar National Bank**

FOSSIL FUELS

Fossil fuels industry - Potential financial impacts vs. value chain



Only half of the fossil fuel companies in the reported G500 provided any financial figures for the risks and opportunities they identified. Based on these numbers, fossil fuel companies are reporting more opportunities than risks from climate change, which is surprising. On the one hand these companies identify opportunities from the low-carbon transition in terms of new products and services they could bring to market (these range from renewables, hydrogen and biofuels to carbon capture and storage and natural gas). At the same time, the vast majority of the risks they report are linked to increasing policy, particularly GHG pricing. They do not report many significant risks as a result of this low-carbon transition, which they highlight as an opportunity, even though it could result in reduced demand for their products from market changes or consumer preferences, such as the switch towards electric vehicles; increasing reputational risks; as well as potential shifts in their costs of capital. As recent research suggests, while the energy transition may take decades to complete, it impacts the energy markets on a much shorter time scale due to increasing uncertainties, changing risk preferences of fossil fuel investors and the changes in the economics of energy markets as a result. Investors and stakeholders should be asking deep questions of these companies.

- Across all the 20 companies in the G500, 16 fossil fuel companies identified substantive risks, the vast majority linking them to their direct operations. 15 identified increased operating costs such as higher compliance costs or increased insurance premiums. Beyond this there was a wider spread across potential impacts, but there are strong links to decreasing production capacity and increased operating costs due to physical impacts of climate change and increasing water scarcity; and reputational risks.

- Companies clearly identify many opportunities, particularly focused on the customer side of the supply chain. However, just four companies disclosed potential financial figures linked to customers - totaling US$116 billion. This was linked to increased revenue through demand for low carbon products and services, and better competitive position to reflect shifting consumer preferences. Of the opportunities linked to direct operations, they were concentrated around reduced operating costs through efficiency gains and cost reductions; increased revenue through demand for low emissions products and services; and, better competitive position to reflect shifting consumer preferences.

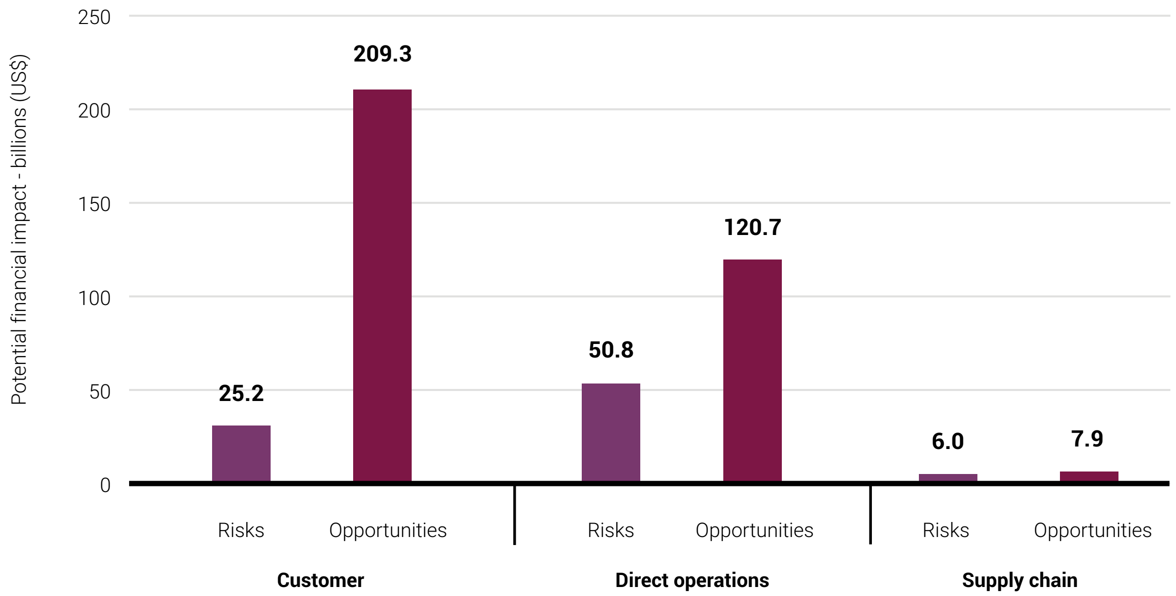
INDUSTRIES UNDER THE MICROSCOPE

Some investors may divest from Total if they consider that some of our assets are stranded. For instance those with high carbon inentsities (coal, oil sands,etc.)Indeed, the UNFCCC Paris Agreement has set a clear 2°C objective for the world, and has engaged countries to take action in order to reach this objective. If the world is to have a chance of not exceeding global warming of 2°C, a carbon budget should not be exceeded. This has led some analysts to consider that coal, oil and gas reserves of publicly listed companies are 'unburnable' – the so-called stranded assets. – **Total**

Occidental has several facilities located near the U.S. Gulf Coast (Texas and Louisiana) that have been in the path of hurricanes, which have at times resulted in the interruption of some operations. Significant changes in weather or climate could, unless the impacts of such changes were mitigated, affect access to or operation of these or other facilities. However, Occidental is not aware of credible projections that natural disasters, whether or not driven by changes in climate could result in immitigable impacts are probable within the anticipated operating life of its facilities.
– **Occidental Petroleum Corporation**

MANUFACTURERS

Manufacturing industry - Potential financial impacts vs. value chain



- In the manufacturing industry, 47 companies identified potentially substantive risks, with a relatively even split between physical and transition risks (39 and 44 companies respectively).
- Of the 39 companies identifying substantive physical risks, 29 identify acute physical risks, and 14 chronic risks. Across both physical risk types, they followed a similar trend, with a large majority of companies identifying the potential reduced revenue from decreased production capacity, and a smaller sample identifying an increase in capital costs due to physical damage to facilities or suppliers.
- Substantive transition risks for the manufacturing industry were grouped into increased costs (due to policy and regulatory changes); reduced demand for goods and/or services due to shifts in consumer preferences and also the reputational risks associated with this shift.
- 56 manufacturing companies identified potential opportunities. 39 (70 of these companies) identified opportunities relating to increased revenue through demand for low emissions products and services. Beyond this, manufacturing companies also focused on reduced operating costs through increased efficiency and cost reductions; better competitive position to reflect shifting consumer preferences; and increased revenue through new solutions to adaptation needs.

INDUSTRIES UNDER THE MICROSCOPE

Disasters caused by large typhoons and increased rainfall will affect Hitachi's production sites and suppliers. In particular, Hitachi has several production bases in Southeast Asia where flood damage is likely to occur, and in the event of a disaster, there is a possibility that operation stoppage and employees' lives will be in trouble, and supply of parts from suppliers may be disrupted, and recovery costs and delivery time delay will be risks of management cost increase and sales decrease. At Hitachi's factory that manufactures industrial equipment, actual damage occurred in the flood in Thailand in 2011.When we judge countermeasures to be required, we install bulkhead partitions or place essential amenities on the second floor—including at existing plants. We check upstream water levels every month and set up flood task forces when levels reach a dangerous level, sharing such information with our suppliers.
– **Hitachi Ltd.**

Manufacturing opportunity:

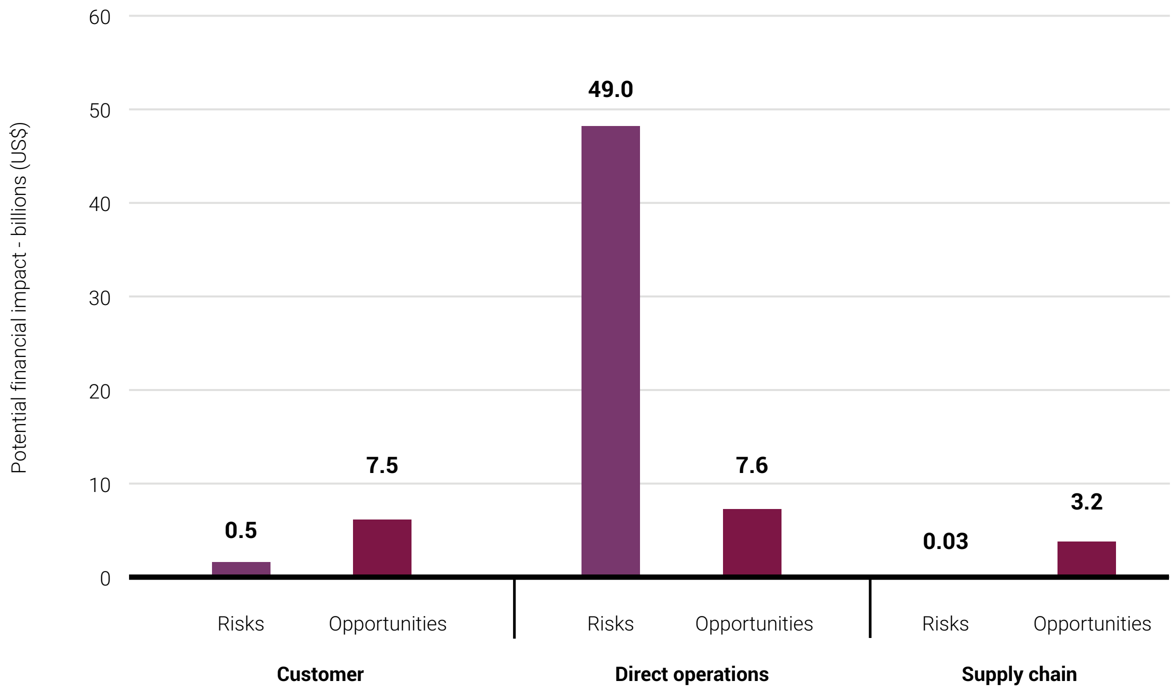
The majority of Canon's Scope 2 CO2 emissions come from purchased energy. Consequently, promoting energy-saving activities at production sites raises energy efficiencies and cuts costs.
– **Canon Inc.**

Ericsson future-proof hardware with lower power consumption and smaller footprint and energy-efficient software features in the customer radio network contribute to our customer environmental goals and cost reduction – **Ericsson**

INDUSTRIES UNDER THE MICROSCOPE

INFRASTRUCTURE

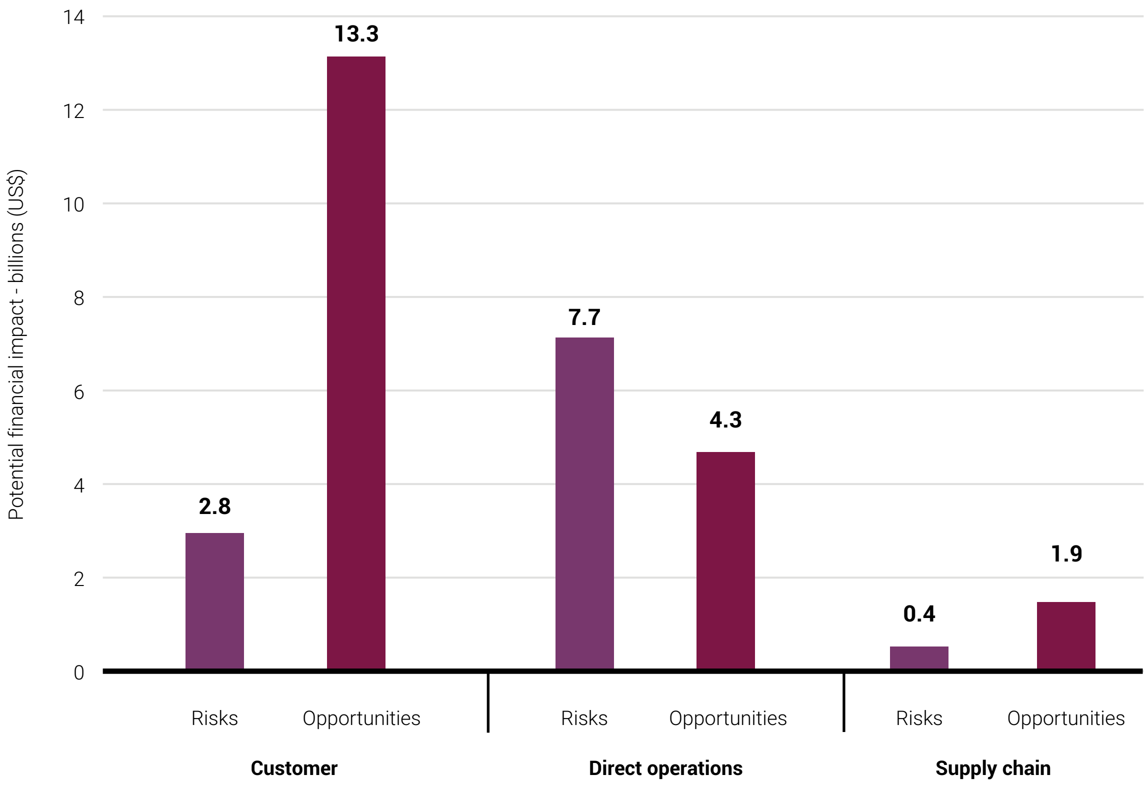
Infrastructure industry - Potential financial impacts vs. value chain



- Ten of the 13 infrastructure companies in the G500 sample identified both risks and opportunities, and nine provided potential financial impact figures.
- All ten companies identified potential risk impacts on their direct operations for the infrastructure industry, particularly around; increased operating costs (such as inadequate water supply for hydroelectric plans or to cool nuclear and fossil fuel plants, and higher compliance costs due to changes in policy and regulations); increased capital costs due to damage to facilities (which accounted for US$32 billion of the disclosed potential impact figures); shifts in consumer preferences leading to reduced demand for goods and services; and increased technological costs to adapt and deploy new practices and processes.
- Nine companies identified opportunities centred around increased revenue through demand for lower emissions products and services, split between customers (US$3.6 billion) and direct operations (US$6.9 billion) in their value chains. Other areas of focus were around; reduced exposure to GHG emissions and therefore less sensitivity to changes in costs of carbon; reduced operating costs through increases in efficiency and cost reductions, which also accounted for US$2.5 billion in customer-related opportunities; and returns on investment in low-emissions technology.

MATERIALS

Materials industry - Potential financial impacts vs. value chain

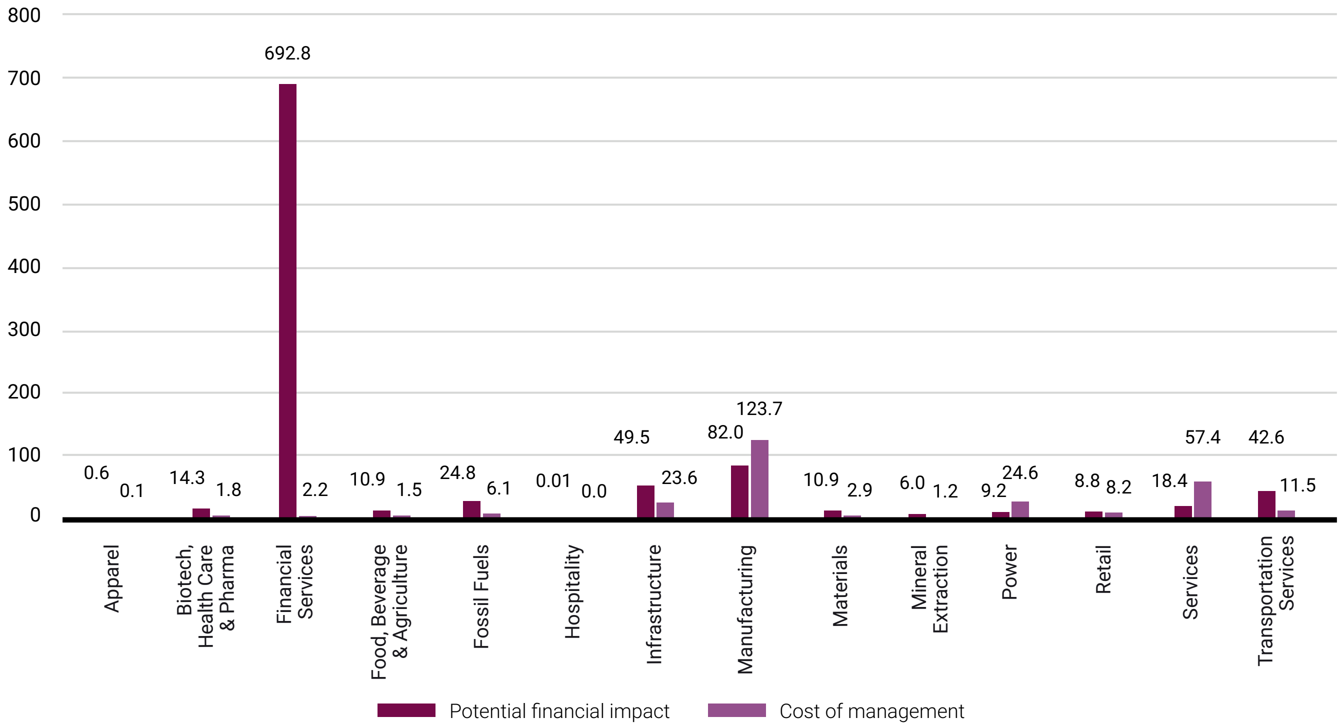


- 21 companies in the materials industry identified potential risks in their direct operations. 18 of these companies identified potential risks relating to increased operating costs from policy or regulatory changes and largely focusing on increasing emissions compliance costs. 16 companies also identified physical impacts of climate change potentially reducing production capacity and increasing capital or operating costs.
- 22 materials companies identified opportunities, with 18 identifying opportunities relating to both their customers and in their direct operations. In relation to customers, companies disclosed the potential for increased revenue due to demand for low emissions products and services, and a better competitive position to reflect shifting consumer preferences. Opportunities in the company's direct operations were overwhelmingly focused on reduced operating costs through efficiency gains and cost reductions.

COST OF MANAGEMENT

Only 192 companies disclosed both the financial implications of these risks alongside the costs to manage these impacts. Of companies disclosing both, there are huge variations between industries (see graphs below).

Potential financial impact of risks vs. Cost to cost



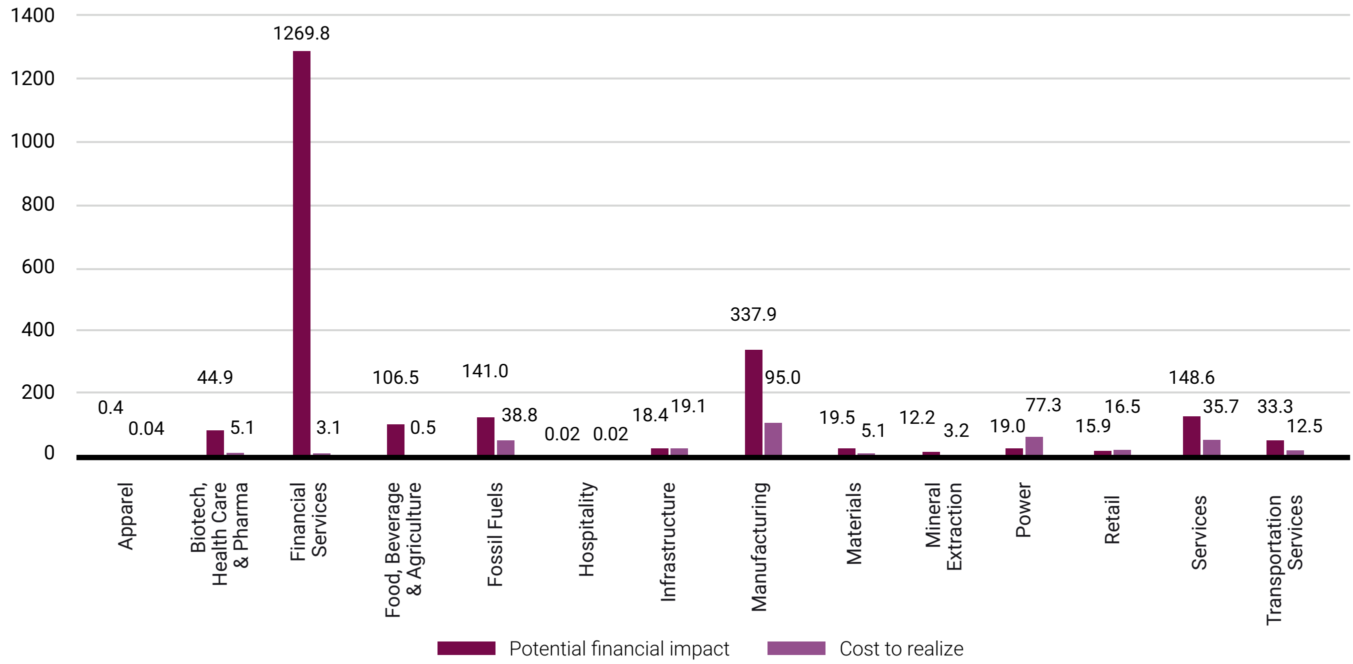
The financial services industry accounts for 72% of the total potential financial impact figure (US$677 billion) a figure which dwarfs the cost to manage (US$2.2 billion) for this sector. The disclosed potential financial impacts is largely greater than the cost to manage, except for in three notable industries; manufacturing, power and services.

Opportunities: Potential financial impact vs cost to realize

Companies are asked to report on the total cost they estimate it will take to realize these opportunities – in almost all industries, these costs are significantly smaller than the total value of the opportunity. In total, the potential value of the opportunities are nearly seven times the costs companies estimate this will take to realize (US$311 billion costs versus US$2.16 trillion in potential opportunities).

Given this, investors and stakeholders should expect to see a significant increase in climate-friendly products and services from the world's largest companies and holding them to account.

Potential financial impact of opportunities vs. Cost to cost



The power sector

Companies operating in the power sector are the only companies who report higher costs to manage risks **and** realize opportunities than the implications of the risks and opportunities themselves. The risks being reported were a mixture of physical risks (damage to assets as a result of climate impacts or lack of water resources in the future), as well as the transition risks associated with the low-carbon transition (these included market and technology risks and were not overly focused on the pricing of GHG emissions alone). The assets in this sector are long-lived and require significant capital investment so the costs to manage these risks – whether it be investments in resilience; retiring assets early or investing in new assets – are proportionately higher than other sectors. In order to realize the opportunities, these companies have also had to undergo business model changes to align with the structural shifts in the energy system overall – investments in R&D and other innovation has therefore had to increase.

This has been the sector that has seen the biggest change as a result of the low-carbon transition – companies in this sector who did not integrate these risks into their strategies early will be facing higher risks than initially planned for. Other sectors should take note of this.

Appendices

APPENDIX: EXPLANATION OF SAMPLES

For this report, CDP has selected 2 separate samples; a sample of all 6,937 companies that responded to CDP's climate change questionnaire in 2018; and a global 500 sample based on market cap.

Full, 6,937 sample:

For this report, we have also provided some high-level analysis of the full 6,937 companies that responded to CDP's climate change questionnaire, and covers companies responding to investor, and supply chain member requests. This was done to provide a more holistic view of CDP's reporting population and identify key trends at an industry or geographic level.

Country/region breakdown:

Country/region	Responder count
Europe	1813
United States of America	1784
China	750
Japan	710
Brazil	527
Mexico	233
Canada	180
India	125
Republic of Korea	100
Australia	96
South Africa	82
Turkey	66
Colombia	50
Thailand	42
Argentina	39
Singapore	36
Did not specify	23
Indonesia	22
Chile	21
Russian Federation	20
New Zealand	18
Costa Rica	17
Ecuador	17
Israel	15
Malaysia	12
United Arab Emirates	12
Uruguay	11
Guatemala	11
Philippines	11
Nigeria	10
Peru	9
Pakistan	7
Panama	6
Egypt	6
Dominican Republic	6
Bermuda	5
Tuvalu	4
Saudi Arabia	4
Puerto Rico	3
Kenya	3
Uganda	2
Venezuela (Bolivarian Republic of)	2
Jordan	2

Country/region	Responder count
Guyana	2
Viet Nam	2
Belarus	2
Trinidad and Tobago	2
Bangladesh	2
Belize	1
Cayman Islands	1
United States Minor Outlying Islands	1
Sri Lanka	1
Kazakhstan	1
Zimbabwe	1
United Republic of Tanzania	1
Honduras	1
El Salvador	1
Jamaica	1
Fiji	1
Mauritius	1
Haiti	1
Qatar	1
Paraguay	1
Grand Total	**6937**

Sector breakdown:

Primary industry	Responder count
Apparel	146
Biotech, Health Care & Pharma	234
Financial Services	395
Food, beverage & agriculture	689
Fossil fuels	118
Hospitality	51
Infrastructure	309
Did not specify	4
Manufacturing	2312
Materials	760
Mineral extraction	66
Power	168
Retail	145
Services	1193
Transportation services	347
Grand Total	**6937**

Global 500 sample:

For this report, we have also provided some high-level analysis of the full 6,937 companies that responded to CDP's climate change questionnaire, and covers companies responding to investor, and supply chain member requests. This was done to provide a more holistic view of CDP's reporting population and identify key trends at an industry or geographic level.

Country/region breakdown:

Row Labels	Responder count
United States of America	161
Europe	100
Japan	34
China	21
Canada	15
Australia	8
Brazil	7
India	5
Singapore	4
Russian Federation	3
Republic of Korea	2
Mexico	2
Saudi Arabia	1
United Arab Emirates	1
Qatar	1
Thailand	1
Grand Total	**366**

Industry breakdown:

Row Labels	Responder count
Apparel	5
Biotech, Health Care & Pharma	40
Financial Services	87
Food, Beverage & Agriculture	17
Fossil Fuels	20
Hospitality	7
Infrastructure	13
Manufacturing	59
Materials	23
Mineral Extraction	4
Power	10
Retail	15
Services	52
Transportation Services	14
Grand Total	**366**

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Microsoft Corporation	United States of America	Services	Submitted	820.1
Apple Inc.	United States of America	Manufacturing	Submitted	805.8
Amazon.com Inc	United States of America	Retail	Not submitted	804.6
Alphabet, Inc.	United States of America	Services	Submitted	781.6
Berkshire Hathaway	United States of America	Financial Services	Not submitted	507.7
Facebook	United States of America	Services	Not submitted	471
Alibaba Group Holding Ltd	China	Retail	Not submitted	437.3
Tencent Holdings	China	Services	Not submitted	426.3
Johnson & Johnson	United States of America	Biotech, Health Care & Pharma	Submitted	359.8
JPMorgan Chase & Co.	United States of America	Financial Services	Submitted	341.2
Exxon Mobil Corporation	United States of America	Fossil Fuels	Not submitted	319.2
Industrial And Commercial Bank Of China Limited	China	Financial Services	Not submitted	291.1
Visa	United States of America	Financial Services	Submitted	285
Wal-Mart Stores, Inc.	United States of America	Retail	Submitted	281.7
Bank of America	United States of America	Financial Services	Submitted	277.4
Nestlé	Europe	Food, Beverage & Agriculture	Submitted	262.8
Royal Dutch Shell	Europe	Fossil Fuels	Submitted	259.3
UnitedHealth Group Inc	United States of America	Biotech, Health Care & Pharma	Submitted	252.8
Procter & Gamble Company	United States of America	Materials	Submitted	248.3
Samsung Electronics	Republic of Korea	Manufacturing	Submitted	245
Pfizer Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	242
Roche Holding AG	Europe	Biotech, Health Care & Pharma	Submitted	232.8
Boeing Company	United States of America	Manufacturing	Submitted	232.1
Chevron Corporation	United States of America	Fossil Fuels	Not submitted	226.8
Novartis	Europe	Biotech, Health Care & Pharma	Submitted	226.1
MasterCard Incorporated	United States of America	Services	Submitted	225.7
Intel Corporation	United States of America	Manufacturing	Submitted	224.9
Verizon Communications Inc.	United States of America	Services	Submitted	224.9
Wells Fargo & Company	United States of America	Financial Services	Submitted	224.7
China Construction Bank	China	Financial Services	Submitted	222.6
AT&T Inc.	United States of America	Services	Submitted	217.1
Cisco Systems, Inc.	United States of America	Manufacturing	Submitted	215.3
China Mobile	China	Services	Submitted	215.2
The Coca-Cola Company	United States of America	Food, Beverage & Agriculture	Submitted	211.4
The Home Depot, Inc.	United States of America	Retail	Submitted	209.5
Merck & Co., Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	204.2
Toyota Motor Corporation	Japan	Manufacturing	Submitted	194.6
Taiwan Semiconductor Manufacturing	China	Manufacturing	Submitted	193.5
PETROCHINA Company Limited	China	Fossil Fuels	Submitted	190.4
Agricultural Bank of China Ltd	China	Financial Services	Not submitted	189.7
Oracle Corporation	United States of America	Services	Submitted	183.8
Ping An Insurance Group Company of China Ltd	China	Financial Services	Not submitted	176.3
HSBC Holdings plc	Europe	Financial Services	Submitted	168.9
Comcast Corporation	United States of America	Services	Submitted	168.5
LVMH	Europe	Apparel	Not submitted	168.5
Walt Disney Company	United States of America	Services	Submitted	162.8
PepsiCo, Inc.	United States of America	Food, Beverage & Agriculture	Submitted	160.6
Unilever plc	Europe	Materials	Submitted	159.6
Netflix, Inc.	United States of America	Services	Not submitted	157.2
Anheuser Busch InBev	Europe	Food, Beverage & Agriculture	Submitted	154.3
Citigroup Inc.	United States of America	Financial Services	Submitted	153
Bank of China	China	Financial Services	Not submitted	152.8
Total	Europe	Fossil Fuels	Submitted	145.7
BP	Europe	Fossil Fuels	Not submitted	142.5
L'Oréal	Europe	Materials	Submitted	142.3
McDonald's Corporation	United States of America	Hospitality	Submitted	134.1
Kweichow Moutai	China	Food, Beverage & Agriculture	Not submitted	133.4
NIKE Inc.	United States of America	Apparel	Submitted	133.3
Abbott Laboratories	United States of America	Biotech, Health Care & Pharma	Submitted	131.8
SAP SE	Europe	Services	Submitted	128.6
Adobe, Inc.	United States of America	Services	Submitted	127.5
Eli Lilly & Co.	United States of America	Biotech, Health Care & Pharma	Submitted	126.6
Philip Morris International	United States of America	Food, Beverage & Agriculture	Submitted	125.3

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
salesforce.com	United States of America	Services	Submitted	124.5
International Business Machines (IBM)	United States of America	Services	Submitted	123.6
BHP	Europe	Mineral Extraction	Submitted	123.2
Medtronic PLC	Europe	Biotech, Health Care & Pharma	Submitted	121.2
Union Pacific Corporation	United States of America	Transportation Services	Submitted	120.8
Novo Nordisk A/S	Europe	Biotech, Health Care & Pharma	Submitted	120.7
DowDuPont	United States of America	Materials	Submitted	120.3
AbbVie Inc	United States of America	Biotech, Health Care & Pharma	Submitted	120.2
3M Company	United States of America	Materials	Submitted	118.9
Amgen, Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	118.7
Broadcom Limited	Singapore	Manufacturing	Not submitted	113.8
Reliance Industries	India	Fossil Fuels	Not submitted	112.4
AIA Group Ltd.	China	Financial Services	Submitted - privately	112.3
PayPal Holdings Inc	United States of America	Financial Services	Not submitted	110.7
Tata Consultancy Services	India	Services	Submitted	109.7
Honeywell International Inc.	United States of America	Manufacturing	Submitted	109.6
Royal Bank of Canada	Canada	Financial Services	Submitted	109.4
China Merchants Bank	China	Financial Services	Not submitted	109.1
SANOFI	Europe	Biotech, Health Care & Pharma	Submitted	107.1
United Technologies Corporation	United States of America	Manufacturing	Submitted	106.8
TD Bank Group	Canada	Financial Services	Submitted	103.6
Texas Instruments Incorporated	United States of America	Manufacturing	Submitted	102.2
SoftBank Group Corp	Japan	Services	Submitted	102
China Petroleum & Chemical Corporation	China	Fossil Fuels	Submitted - privately	101.5
Accenture	Europe	Services	Submitted	100
Thermo Fisher Scientific Inc.	United States of America	Biotech, Health Care & Pharma	Submitted - privately	100
GlaxoSmithKline	Europe	Biotech, Health Care & Pharma	Submitted	99
Petróleo Brasileiro SA - Petrobras	Brazil	Fossil Fuels	Submitted	98.9
SABIC	Saudi Arabia	Materials	Submitted - privately	98.5
Naspers	South Africa	Services	Not submitted	97.9
UPS	United States of America	Transportation Services	Submitted	94.9
Rio Tinto	Europe	Mineral Extraction	Submitted - privately	94.8
AstraZeneca	Europe	Biotech, Health Care & Pharma	Submitted	93.5
Costco Wholesale Corporation	United States of America	Retail	Submitted	93.3
Diageo Plc	Europe	Food, Beverage & Agriculture	Submitted	93.1
Altria Group, Inc.	United States of America	Food, Beverage & Agriculture	Submitted	93.1
Itaú Unibanco Holding S.A.	Brazil	Financial Services	Submitted	92.8
Commonwealth Bank of Australia	Australia	Financial Services	Submitted	92.4
NVIDIA Corporation	United States of America	Manufacturing	Submitted	92.2
Twenty-First Century Fox	United States of America	Services	Submitted	91.8
Linde PLC	Europe	Materials	Submitted	91.5
American Express	United States of America	Financial Services	Submitted	90.6
Airbus	Europe	Manufacturing	Submitted	90.3
Allianz SE	Europe	Financial Services	Submitted	89
Siemens AG	Europe	Manufacturing	Submitted	88.7
Inditex	Europe	Retail	Submitted	88
China Life Insurance (Taiwan)	China	Financial Services	Not submitted	88
Booking Holdings	United States of America	Services	Not submitted	87.8
NextEra Energy, Inc.	United States of America	Power	Not submitted	87.6
NTT DOCOMO, INC.	Japan	Services	Submitted	87.5
General Electric Company	United States of America	Manufacturing	Submitted	86.8
Starbucks Corporation	United States of America	Hospitality	Submitted	86.7
CVS Health	United States of America	Biotech, Health Care & Pharma	Submitted	86.7
Lockheed Martin Corporation	United States of America	Manufacturing	Submitted	85.9
Charter Communications Inc	United States of America	Services	Not submitted	85.5
Gilead Sciences, Inc.	United States of America	Biotech, Health Care & Pharma	Not submitted	83.8
Volkswagen AG	Europe	Manufacturing	Submitted	82.7
HDFC Bank Ltd	India	Financial Services	Not submitted	82.4
U.S. Bancorp	United States of America	Financial Services	Submitted	82.3
British American Tobacco	Europe	Food, Beverage & Agriculture	Submitted - privately	81.3
Bristol-Myers Squibb	United States of America	Biotech, Health Care & Pharma	Submitted	81.1
Nippon Telegraph & Telephone Corporation (NTT)	Japan	Services	Submitted	81
Lowe’s Companies, Inc.	United States of America	Retail	Submitted	79.9

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Anthem Inc	United States of America	Biotech, Health Care & Pharma	Submitted	79.3
AmBev S.A	Brazil	Food, Beverage & Agriculture	See another[14]	79.1
Caterpillar Inc.	United States of America	Manufacturing	Not submitted	78.3
Christian Dior	Europe	Apparel	Not submitted	77.9
ConocoPhillips	United States of America	Fossil Fuels	Submitted	77.7
Danaher Corporation	United States of America	Biotech, Health Care & Pharma	Submitted - privately	77.6
Banco Bradesco S/A	Brazil	Financial Services	Submitted	77.5
ASML Holding	Europe	Manufacturing	Submitted	77.3
Equinor	Europe	Fossil Fuels	Submitted	76.5
Deutsche Telekom AG	Europe	Services	Submitted	76.3
American Tower Corp.	United States of America	Infrastructure	Not submitted	76
Goldman Sachs Group Inc.	United States of America	Financial Services	Submitted	75.2
CNOOC	China	Fossil Fuels	Not submitted	74.4
Banco Santander	Europe	Financial Services	Submitted	73.6
Enbridge Inc.	Canada	Fossil Fuels	Submitted	72.2
Sberbank Rossii	Russian Federation	Financial Services	Not submitted	72
Mitsubishi UFJ Financial Group, Inc.	Japan	Financial Services	Submitted	71.7
Bayer AG	Europe	Biotech, Health Care & Pharma	Submitted	71.2
Cigna	United States of America	Biotech, Health Care & Pharma	Submitted	70.5
Morgan Stanley	United States of America	Financial Services	Submitted	70
Bank of Nova Scotia (Scotiabank)	Canada	Financial Services	Submitted	69.2
Stryker Corporation	United States of America	Biotech, Health Care & Pharma	Submitted	69.2
Mondelez International Inc	United States of America	Food, Beverage & Agriculture	Submitted	68.7
Keyence Corporation	Japan	Manufacturing	Not submitted	68
VMware, Inc	United States of America	Services	Submitted	67.8
BASF SE	Europe	Materials	Submitted	67.6
BlackRock	United States of America	Financial Services	Submitted	67.5
Walgreens Boots Alliance	United States of America	Retail	Submitted	67.5
Rosneft Oil Company	Russian Federation	Fossil Fuels	Submitted - privately	66.9
Kering	Europe	Apparel	Submitted	66.5
Becton, Dickinson and Co.	United States of America	Biotech, Health Care & Pharma	Submitted	66.3
Automatic Data Processing, Inc.	United States of America	Financial Services	Submitted	65.1
Bank of Communications	China	Financial Services	Submitted - privately	64.7
Hermes International	Europe	Apparel	Not submitted	64.6
Duke Energy Corporation	United States of America	Power	Submitted	64.3
Westpac Banking Corporation	Australia	Financial Services	Submitted	64.3
CME Group Inc.	United States of America	Financial Services	Not submitted	64
Vale	Brazil	Mineral Extraction	Submitted	63.1
Biogen Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	62.8
QUALCOMM Inc.	United States of America	Manufacturing	Submitted	62.5
CSL	Australia	Biotech, Health Care & Pharma	Submitted	62.4
Celgene Corporation	United States of America	Biotech, Health Care & Pharma	Submitted	62.4
Lukoil OAO	Russian Federation	Fossil Fuels	Submitted	62.1
Charles Schwab Corporation	United States of America	Financial Services	Submitted	62
Intuitive Surgical Inc.	United States of America	Biotech, Health Care & Pharma	Not submitted	61.8
Takeda Pharmaceutical Company Limited	Japan	Biotech, Health Care & Pharma	Submitted	61.4
TJX Companies, Inc.	United States of America	Retail	Submitted	61.3
KDDI Corporation	Japan	Services	Submitted	61.1
Schlumberger Limited	United States of America	Fossil Fuels	Submitted - privately	60.9
Chubb Limited	Europe	Financial Services	Submitted	60.7
Enterprise Products Partners L.P.	United States of America	Fossil Fuels	Not submitted	60.7
Eni SpA	Europe	Fossil Fuels	Submitted	60.7
Daimler AG	Europe	Manufacturing	Submitted	59.9
ENEL SpA	Europe	Infrastructure	Submitted	59.8
Intuit Inc.	United States of America	Services	Submitted	59.4
Baidu Inc	China	Services	Not submitted	59.3
Canadian National Railway Company	Canada	Transportation Services	Submitted	59.2
T Mobile USA inc	United States of America	Services	Submitted	59.2
Dominion Energy	United States of America	Power	Submitted	59.2
PJSC Gazprom	Russian Federation	Infrastructure	Submitted	59
The Kraft Heinz Company	United States of America	Food, Beverage & Agriculture	Submitted	58.7
CSX Corporation	United States of America	Transportation Services	Submitted	58

14. AmBev S.A. submitted using "see another", and their response is covered by the parent company Anheuser-Busch InBev S.A. For this analysis we omitted AmBev to avoid double counting.

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
BNP Paribas	Europe	Financial Services	Submitted	58
China Shenhua Energy	China	Fossil Fuels	Not submitted	57.4
Colgate Palmolive Company	United States of America	Materials	Submitted	57.3
Simon Property Group	United States of America	Financial Services	Submitted	57
PNC Financial Services Group, Inc.	United States of America	Financial Services	Submitted	56.3
Safran	Europe	Manufacturing	Submitted	56
AXA Group	Europe	Financial Services	Submitted	55.8
Sony Corporation	Japan	Manufacturing	Submitted	55.7
EOG Resources, Inc.	United States of America	Fossil Fuels	Submitted	55.5
Boston Scientific Corporation	United States of America	Biotech, Health Care & Pharma	Submitted - privately	55.4
Hindustan Unilever	India	Materials	Not submitted	55.3
Estee Lauder Companies Inc.	United States of America	Materials	Submitted	55.2
General Motors Company	United States of America	Manufacturing	Submitted	55
Reckitt Benckiser	Europe	Materials	Submitted	54.8
Australia and New Zealand Banking Group	Australia	Financial Services	Submitted	53.8
Japan Post Holdings	Japan	Financial Services	Submitted - privately	53.7
Iberdrola SA	Europe	Power	Submitted	53.6
Tesla Motors, Inc.	United States of America	Manufacturing	Not submitted	53.5
Lloyds Banking Group	Europe	Financial Services	Submitted	53.2
China Yangtze Power Co., Ltd.	China	Power	Not submitted	53.2
Saudi Telecom Co	Saudi Arabia		Not submitted	53.1
Heineken NV	Europe	Food, Beverage & Agriculture	Submitted	53
Vinci	Europe	Infrastructure	Submitted	52.9
Deere & Company	United States of America	Manufacturing	Submitted	52.8
Glencore plc	Europe	Fossil Fuels	Not submitted	52.4
Essilor International	Europe	Biotech, Health Care & Pharma	Submitted	52.3
America Movil	Mexico	Services	Submitted - privately	51.9
Novatek OAO	Russian Federation	Fossil Fuels	Not submitted	51.8
BMW AG	Europe	Manufacturing	Submitted	51.6
Raytheon Company	United States of America	Manufacturing	Submitted	51.5
Air Liquide	Europe	Materials	Submitted	51.5
Suncor Energy Inc.	Canada	Fossil Fuels	Submitted	51.5
Japan Post Bank	Japan	Financial Services	Not submitted	51.4
General Dynamics Corporation	United States of America	Manufacturing	Submitted - privately	51.2
Prudential plc	Europe	Financial Services	Submitted	50.8
BNY Mellon	United States of America	Financial Services	Submitted	50.7
Jardine Matheson	China	Retail	Not submitted	50.3
Danone	Europe	Food, Beverage & Agriculture	Submitted	50.2
Industrial Bank	China	Financial Services	Not submitted	50.2
The Southern Company	United States of America	Power	Submitted	50.1
Sumitomo Mitsui Financial Group	Japan	Financial Services	Submitted	49.8
Japan Tobacco Inc.	Japan	Food, Beverage & Agriculture	Submitted	49.7
Occidental Petroleum Corporation	United States of America	Fossil Fuels	Submitted	49.6
Banco Santander Brasil	Brazil	Financial Services	Submitted	49.6
UBS	Europe	Financial Services	Submitted	49.3
EDF	Europe	Power	Submitted	49.3
SK Hynix	Republic of Korea	Manufacturing	Submitted	49.2
S&P Global	United States of America	Services	Submitted	49
Sun Hung Kai Properties	China	Infrastructure	Not submitted	48.8
Crown Castle International Corp	United States of America	Infrastructure	Submitted - privately	48.7
FedEx Corporation	United States of America	Transportation Services	Submitted	48.4
Norfolk Southern Corp.	United States of America	Transportation Services	Submitted	48.3
HCA	United States of America	Biotech, Health Care & Pharma	Not submitted	48.3
Honda Motor Company	Japan	Manufacturing	Submitted	48.3
Northrop Grumman Corp	United States of America	Manufacturing	Submitted	48.2
Vodafone Group	Europe	Services	Submitted	48.1
ITC Limited	India	Food, Beverage & Agriculture	Not submitted	48
Zurich Insurance Group	Europe	Financial Services	Submitted	48
ING Group	Europe	Financial Services	Submitted	48
Bank Central Asia	Indonesia	Financial Services	Not submitted	47.9
National Australia Bank	Australia	Financial Services	Submitted	47.8
Housing Development Finance Corporation	India	Financial Services	Not submitted	47.4

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Postal Savings Bank Of China (H)	China	Financial Services	Submitted	47.3
Bank of Montreal	Canada	Financial Services	Submitted	47.3
Infosys Limited	India	Services	Submitted	47.2
Fast Retailing Co., Ltd.	Japan	Retail	Submitted	47.1
Las Vegas Sands Corporation	United States of America	Hospitality	Submitted	47.1
Vertex Pharmaceuticals Inc	United States of America	Biotech, Health Care & Pharma	Not submitted	47
Ecolab Inc.	United States of America	Services	Submitted	46.9
Allergan plc	United States of America	Biotech, Health Care & Pharma	Submitted	46.8
Shanghai Pudong Development Bank	China	Financial Services	Not submitted	46.5
Merck KGaA	Europe	Materials	Submitted	46.4
Saic Motor Corporation	China	Manufacturing	Not submitted	46.3
Exelon Corporation	United States of America	Power	Submitted	46.3
Illinois Tool Works Inc.	United States of America	Manufacturing	Submitted	46
DBS Group Holdings	Singapore	Financial Services	Submitted - privately	45.9
Marsh & McLennan Companies, Inc.	United States of America	Financial Services	Submitted	45.8
Qatar National Bank	Qatar	Financial Services	Submitted	45.7
adidas AG	Europe	Apparel	Submitted	45.6
Regeneron Pharmaceuticals, Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	45.5
Recruit Holdings Co.,Ltd.	Japan	Services	Submitted - privately	45.3
Micron Technology, Inc.	United States of America	Manufacturing	Submitted	45.3
Midea Group Co Ltd	China	Manufacturing	Submitted - privately	45.2
Mitsubishi Corporation	Japan	Services	Submitted	44.8
Hangzhou Hikvision Digital Technology Co Ltd	China	Manufacturing	Not submitted	44.6
Central Japan Railway Company	Japan	Transportation Services	Submitted - privately	44.6
First Abu Dhabi Bank PJSC	United Arab Emirates	Financial Services	Submitted	44.4
Prologis	United States of America	Financial Services	Submitted	44.4
Pernod Ricard	Europe	Food, Beverage & Agriculture	Submitted	44.4
China Vanke	China	Infrastructure	Submitted - privately	44.4
Kinderhook Bank Corp	United States of America		Not submitted	44.3
Hang Seng Bank	China	Financial Services	Submitted - privately	44.2
Al Rajhi Bank	Saudi Arabia		Not submitted	44.2
Wal Mart de Mexico	Mexico	Retail	Submitted	44
China Telecom	China	Services	Submitted	44
PTT	Thailand	Fossil Fuels	Submitted	44
RELX Group Plc	Europe	Services	Submitted	43.7
National Commercial Bank	Saudi Arabia		Not submitted	43.6
Jardine Strategic	China	Retail	Not submitted	43.6
Phillips 66	United States of America	Fossil Fuels	Not submitted	43.3
Intercontinental Exchange Inc	United States of America	Financial Services	Submitted - privately	43.3
Telefonica	Europe	Services	Submitted	43.2
Brookfield Asset Management Inc.	Canada	Financial Services	Not submitted	43.1
CITIC Limited	China	Financial Services	Not submitted	43
Illumina Inc	United States of America	Biotech, Health Care & Pharma	Submitted - privately	43
Marathon Petroleum	United States of America	Fossil Fuels	Not submitted	42.7
MetLife, Inc.	United States of America	Financial Services	Submitted	42.5
Cognizant Technology Solutions Corp.	United States of America	Services	Submitted - privately	42.4
ServiceNow Inc	United States of America	Services	Submitted - privately	42.1
Waste Management, Inc.	United States of America	Infrastructure	Submitted	42.1
Zoetis Inc	United States of America	Biotech, Health Care & Pharma	Not submitted	42
Meituan Dianping	China		Not submitted	41.9
Emerson Electric Co.	United States of America	Manufacturing	Submitted	41.8
Kinder Morgan Inc.	United States of America	Fossil Fuels	Not submitted	41.8
Altaba Inc	United States of America		Not submitted	41.7
Schneider Electric	Europe	Manufacturing	Submitted	41.4
Blackstone Group	United States of America		Not submitted	41.4
Workday, Inc	United States of America	Services	Not submitted	41.3
ABB	Europe	Manufacturing	Submitted	41.3
Aon plc	Europe	Financial Services	Submitted	41.3
Banco do Brasil S/A	Brazil	Financial Services	Submitted	41.2
China Evergrande Group	China	Infrastructure	Not submitted	41.1
Sherwin-Williams Company	United States of America	Materials	Submitted	40.9
Henkel AG & Co. KGaA	Europe	Materials	Submitted	40.9
Progressive Corporation	United States of America	Financial Services	Not submitted	40.4

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Humana Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	40.2
Etisalat	United Arab Emirates	Services	Not submitted	40.2
Hong Kong Exchanges and Clearing Limited	China	Financial Services	Submitted - privately	40.2
BOC Hong Kong	China	Financial Services	Not submitted	40.1
China Overseas Land & Investment	China	Infrastructure	Not submitted	40
Kimberly-Clark Corporation	United States of America	Materials	Submitted	40
Compagnie Financière Richemont SA	Europe	Apparel	Submitted	39.9
Orange	Europe	Services	Submitted	39.8
Mizuho Financial Group, Inc.	Japan	Financial Services	Submitted	39.8
Intesa Sanpaolo S.p.A	Europe	Financial Services	Submitted	39.7
American Electric Power Company, Inc.	United States of America	Power	Submitted	39.6
Siemens Healthineers AG	Europe		Not submitted	39.5
Keurig Dr Pepper	United States of America	Food, Beverage & Agriculture	Submitted	39.3
Oriental Land Co Ltd.	Japan	Hospitality	Not submitted	39.3
BBVA	Europe	Financial Services	Submitted	39.2
Marriott International, Inc.	United States of America	Hospitality	Submitted	39.1
Sands China LTD	China	Hospitality	Not submitted	39.1
CK Hutchison Holdings Ltd	China	Retail	Not submitted	39
China Pacific Insurance Group	China	Financial Services	Not submitted	39
Carnival Corporation	United States of America	Transportation Services	Submitted	38.9
BCE Inc.	Canada	Services	Submitted	38.8
Applied Materials Inc.	United States of America	Manufacturing	Submitted	38.8
BB&T Corporation	United States of America	Financial Services	Not submitted	38.8
American International Group, Inc. (AIG)	United States of America	Financial Services	Submitted	38.8
Seven & I Holdings Co., Ltd.	Japan	Retail	Submitted	38.8
Audi AG	Europe	Manufacturing	Not submitted	38.7
Baxter International Inc.	United States of America	Biotech, Health Care & Pharma	Submitted	38.6
Prudential Financial, Inc.	United States of America	Financial Services	Submitted	38.6
Dell Technologies	United States of America	Services	Submitted	38.5
Gree Electric Appliances	China		Not submitted	38.5
Analog Devices, Inc.	United States of America	Manufacturing	Submitted	38.4
TransCanada Corporation	Canada	Fossil Fuels	Submitted	38.4
ENGIE	Europe	Power	Submitted	38.4
China Tower Corp Ltd	China		Not submitted	38.3
China State Construction International Holdings Ltd	China	Infrastructure	Submitted	38.3
Canon Inc.	Japan	Manufacturing	Submitted	38.2
Energy Transfer	United States of America	Fossil Fuels	Not submitted	38.1
China Citic Bank	China	Financial Services	Submitted	38
Air Products & Chemicals, Inc.	United States of America	Materials	Submitted	37.6
Canadian Imperial Bank of Commerce (CIBC)	Canada	Financial Services	Submitted	37.6
Dassault Systemes	Europe	Services	Not submitted	37.4
Nintendo Co., Ltd.	Japan	Services	Not submitted	37.4
Royal Bank of Scotland Group	Europe	Financial Services	Submitted	37.3
Capital One Financial	United States of America	Financial Services	Submitted	37.3
China Minsheng Banking	China	Financial Services	Not submitted	37.3
Ecopetrol Sa	Colombia	Fossil Fuels	Not submitted	37.3
National Grid PLC	Europe	Infrastructure	Submitted	37.2
Wuliangye Yibin Co Ltd-A	China	Food, Beverage & Agriculture	Not submitted	37.2
Edwards Lifesciences Corp	United States of America	Biotech, Health Care & Pharma	Submitted	37.1
AFLAC Incorporated	United States of America	Financial Services	Submitted	37
Target Corporation	United States of America	Retail	Submitted	36.7
Nordea Bank Abp	Europe	Financial Services	Submitted	36.7
Foxconn Industrial Internet Co.	China		Not submitted	36.5
Singtel	Singapore	Services	Submitted	36.5
Deutsche Post DHL Group	Europe	Transportation Services	Submitted	36.5
HP Inc	United States of America	Manufacturing	Submitted	36.3
Public Storage	United States of America	Financial Services	Not submitted	36.2
Murata Mfg. Co.	Japan	Manufacturing	Submitted	36.1
Oversea-Chinese Banking	Singapore	Financial Services	Submitted - privately	36
Koninklijke Philips NV	Europe	Biotech, Health Care & Pharma	Submitted	35.9
CRRC Corporation Limited	China	Manufacturing	Not submitted	35.8
Nidec Corporation	Japan	Manufacturing	Submitted	35.8

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Shin-Etsu Chemical Co., Ltd.	Japan	Materials	Submitted	35.8
JD.com Inc	China	Retail	Not submitted	35.7
Compass	Europe	Hospitality	Submitted	35.7
Nissan Motor Co., Ltd.	Japan	Manufacturing	Submitted	35.5
KAO Corporation	Japan	Materials	Submitted	35.5
State Bank of India	India	Financial Services	Submitted	35.4
China Unicom	China	Services	Not submitted	35.2
Kotak Mahindra Bank	India	Financial Services	Submitted	35.1
Chugai Pharmaceutical Co., Ltd.	Japan	Biotech, Health Care & Pharma	Submitted - privately	35.1
Ross Stores Inc	United States of America	Retail	Not submitted	35.1
East Japan Railway Company	Japan	Transportation Services	Submitted	35
Autodesk, Inc.	United States of America	Services	Submitted	34.9
Valero Energy Corporation	United States of America	Fossil Fuels	Not submitted	34.9
Barclays	Europe	Financial Services	Submitted	34.9
Fidelity National Information Services	United States of America	Financial Services	Not submitted	34.9
Hong Kong & China Gas Company Limited	China	Infrastructure	Submitted - privately	34.9
Tokio Marine Holdings, Inc.	Japan	Financial Services	Submitted	34.8
Fanuc Corporation	Japan	Manufacturing	Submitted - privately	34.7
Nokia Group	Europe	Manufacturing	Submitted	34.7
Jiangsu Hengrui Medicine Co Ltd	China	Biotech, Health Care & Pharma	Not submitted	34.6
Sysco Corporation	United States of America	Services	Submitted	34.4
VF Corporation	United States of America	Apparel	Submitted	34.3
MTR Corporation	China	Transportation Services	Submitted	34.3
Delta Air Lines	United States of America	Transportation Services	Submitted	34.2
Munich Re	Europe	Financial Services	Not submitted	34.1
Bank Rakyat Indonesia	Indonesia	Financial Services	Not submitted	33.8
People's Insurance Co Group of China Ltd	China	Financial Services	Submitted - privately	33.7
Formosa Petrochemical	China	Fossil Fuels	Submitted - privately	33.7
Ford Motor Company	United States of America	Manufacturing	Submitted	33.7
Denso Corporation	Japan	Manufacturing	Submitted - privately	33.6
Fiserv, Inc.	United States of America	Financial Services	Submitted	33.6
Investor AB	Europe	Financial Services	Submitted	33.6
The Travelers Companies, Inc.	United States of America	Financial Services	Submitted	33.5
Eaton Corporation	United States of America	Manufacturing	Submitted	33.2
MMC Norilsk Nickel OSJC	Russian Federation	Mineral Extraction	Not submitted	33.2
Vivendi SA	Europe	Services	Submitted - privately	33.2
eBay Inc.	United States of America	Retail	Submitted	33.1
Nutrien Ltd.	Canada	Materials	Not submitted	33
Constellation Brands, Inc.	United States of America	Food, Beverage & Agriculture	Submitted	32.7
Amadeus IT Group, S.A.	Europe	Services	Submitted	32.7
Citic Securities	China	Financial Services	Not submitted	32.6
Monster Beverage Corporation	United States of America	Food, Beverage & Agriculture	Not submitted	32.6
Swiss Re	Europe	Financial Services	Submitted	32.5
Canadian Natural Resources Limited	Canada	Fossil Fuels	Submitted	32.4
Hon Hai Precision Industry	China	Manufacturing	Submitted	32.4
Williams Companies, Inc.	United States of America	Fossil Fuels	Not submitted	32.4
Itausa Investimentos Itau S.A.	Brazil	Financial Services	Submitted	32.3
Xiaomi Corp	China		Not submitted	32.3
LyondellBasell Industries N.V.	United States of America	Materials	Submitted	32.1
NetEase Inc.	China	Services	Not submitted	32.1
EQUINIX, INC.	United States of America	Infrastructure	Submitted	32
ICICI Bank Limited	India	Financial Services	Not submitted	31.9
Southwest Airlines Co.	United States of America	Transportation Services	Submitted	31.9
Roper Industries Inc	United States of America	Biotech, Health Care & Pharma	Not submitted	31.9
Imperial Brands	Europe	Food, Beverage & Agriculture	Submitted	31.8
Activision Blizzard	United States of America	Services	Not submitted	31.8
Credit Agricole	Europe	Financial Services	Submitted	31.8
Anglo American	Europe	Mineral Extraction	Submitted	31.7
Red Hat Inc	United States of America	Services	Submitted - privately	31.7
Atlas Copco	Europe	Manufacturing	Submitted	31.7
Johnson Controls International PLC	United States of America	Manufacturing	Submitted	31.6
Manulife Financial Corp.	Canada	Financial Services	Submitted	31.5
Alimentation Couche-Tard Inc.	Canada	Retail	Not submitted	31.4

Organization	Country/regions grouping	Primary industry	2018 CDP climate change response status	Market cap - Billion (US$)
Pinduoduo Inc	China		Not submitted	31.3
Moody's Corporation	United States of America	Services	Submitted	31.3
Daikin Industries, Ltd.	Japan	Manufacturing	Submitted	31.3
Square Inc	United States of America		Not submitted	31.3
Sempra Energy	United States of America	Infrastructure	Submitted	31.2
TD Ameritrade	United States of America	Financial Services	Not submitted	31.2
United Overseas Bank	Singapore	Financial Services	Submitted - privately	31.1
Hanjaya Mandala Sampoerna	Indonesia	Food, Beverage & Agriculture	Not submitted	31.1
Ahold Delhaize	Europe	Retail	Submitted	31.1
Airports of Thailand Plc	Thailand	Transportation Services	Not submitted	31
Dollar General Corporation	United States of America	Retail	Not submitted	31
Femsa - Fomento Economico Mexicano	Mexico	Food, Beverage & Agriculture	Not submitted	30.9
Allstate Insurance Company	United States of America	Financial Services	Submitted	30.8
Maruti Suzuki India	India	Manufacturing	Submitted - privately	30.7
Electronic Arts Inc.	United States of America	Services	Not submitted	30.7
CK Asset Holdings	Cayman Islands	Infrastructure	Not submitted	30.6
Country Garden Holdings Co	China	Infrastructure	Not submitted	30.6
Ørsted	Europe	Infrastructure	Submitted	30.4
Volvo	Europe	Manufacturing	Not submitted	30.4
Credit Suisse	Europe	Financial Services	Submitted	30.3
Continental AG	Europe	Materials	Submitted	30.3
Galaxy Entertainment Group	China	Hospitality	Not submitted	30.2
Macquarie Group	Australia	Financial Services	Submitted	30.2
Foshan Haitian Flavouring	China		Not submitted	30.1
Ericsson	Europe	Manufacturing	Submitted	30.1
Xilinx Inc	United States of America	Manufacturing	Submitted	29.9
O'Reilly Automotive	United States of America	Retail	Not submitted	29.9
Astellas Pharma Inc.	Japan	Biotech, Health Care & Pharma	Submitted	29.9
Hitachi, Ltd.	Japan	Manufacturing	Submitted	29.9
Fresenius SE & Co. KGaA	Europe	Biotech, Health Care & Pharma	Submitted - privately	29.9
China Everbright Bank Co Ltd	China	Financial Services	Not submitted	29.8
CLP Holdings Limited	China	Power	Submitted	29.6
DNB ASA	Europe	Financial Services	Submitted	29.6
Restaurant Brands International	Canada	Hospitality	Submitted - privately	29.4
SunTrust Banks, Inc.	United States of America	Financial Services	Not submitted	29.3
BT Group	Europe	Services	Submitted	29.2
Welltower Inc.	United States of America	Financial Services	Submitted	28.8
Yum! Brands, Inc.	United States of America	Hospitality	Submitted	28.8
Sirius XM Radio Inc	United States of America	Services	Not submitted	28.8
ITOCHU Corporation	Japan	Services	Submitted - privately	28.6
LafargeHolcim Ltd	Europe	Materials	Submitted	28.5
Bridgestone Corporation	Japan	Materials	Submitted	28.5
KBC Group	Europe	Financial Services	Submitted	28.5
Woolworths Limited	Australia	Retail	Submitted - privately	28.5
Ping An Bank	China	Financial Services	Not submitted	28.4
Luxottica Group	Europe	Retail	Not submitted	28.4
Public Service Enterprise Group Inc.	United States of America	Infrastructure	Submitted	28.3
Tesco	Europe	Retail	Submitted	28.2
Canadian Pacific Railway	Canada	Transportation Services	Submitted	28.1
Xcel Energy Inc.	United States of America	Power	Submitted	28
Rogers Communications Inc.	Canada	Services	Submitted	27.9
Alexion Pharmaceuticals	United States of America	Biotech, Health Care & Pharma	Not submitted	27.8
Telenor Group	Europe	Services	Submitted	27.8
TE Connectivity	Europe	Manufacturing	Submitted	27.6
Amphenol Corporation	United States of America	Manufacturing	Submitted - privately	27.6
NXP Semiconductors	Europe	Manufacturing	Submitted - privately	27.5
Naturgy Energy Group SA	Europe	Fossil Fuels	Submitted	27.5
Lam Research Corp.	United States of America	Manufacturing	Submitted	27.4
Telstra Corporation	Australia	Services	Submitted	27.3
Worldpay Inc	United States of America	Financial Services	Submitted	27.3
Tatneft OAO	Russian Federation	Fossil Fuels	Not submitted	27.3
Halliburton Company	United States of America	Services	Submitted	27

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