Climate-Related Financial Disclosures
and Corporate Board Practices
Taking Stock of the TCFD Recommendations

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Climate-Related Financial Disclosures and Corporate Board Practices

Taking Stock of the TCFD Recommendations

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Table of Contents

Chapter 1. Introduction ........................................................................................................ 5
Chapter 2. Defining climate-related financial risks ............................................................... 9
Chapter 3. TCFD recommendations on governance ............................................................. 11
Chapter 4. Corporate board practices ................................................................................. 15
Chapter 5. Key takeaways and possible next steps ............................................................... 29
Bibliography ...................................................................................................................... 31

Tables

Table 4.1. Overview of companies included in the case studies .......................................... 16
Table 4.2. Company board and management level policies at a glance ............................... 17
Table 4.3. Bank of America ................................................................................................. 18
Table 4.4. Enel Spa ............................................................................................................. 19
Table 4.5. Royal Dutch Shell ............................................................................................. 20
Table 4.6. Canadian National Railway Company ................................................................. 21
Table 4.7. Singtel ................................................................................................................ 22
Table 4.8. SOMPO Holdings ............................................................................................. 23
Table 4.9. LG Electronics ................................................................................................. 24
Table 4.10. KERING ......................................................................................................... 25
Table 4.11. BHP ................................................................................................................ 27

Figures

Figure 3.1. AI Review: Company size (Annual revenue USD) ............................................. 13
Figure 3.2. AI Review: Disclosure by region ..................................................................... 14
Figure 4.1. LG Electronics management strategy .............................................................. 23

Boxes

Box 1.1. The TCFD Recommendations and Supporting Recommended Disclosures ........... 7
Box 1.2. Select frameworks for climate-risk disclosure ....................................................... 8
Box 3.1. The Carbon Disclosure Project ........................................................................... 12
Chapter 1. Introduction

Increasingly, how companies manage the challenges and opportunities associated with climate-related financial risks is a policy concern globally. In 2015, the G20 asked the Financial Stability Board (FSB) to convene public and private sector actors to review how the financial sector can take account of climate-related issues, considering the potential implication for financial markets. Climate change can expose companies and investors to material risk, which can have significant consequences for society and the economy. Indeed, the phenomena linked to the physical risks from climate change, such as global warming and the frequency of natural disasters as well as transition risks related to a lower-carbon economy, can materially affect company activities throughout the value chain. This incurs costs to the company as well as offers opportunities, and has implications for corporate performance and strategy.

Climate-related risks can have an impact on asset performance (e.g. the issue of stranded assets\(^1\)), financial stability\(^2\) and financial resilience (EBRD, 2018). As Mark Carney, FSB Chairman said in 2016, if financial markets are going to do what they do best: allocate capital to manage risks and seize new opportunities, investors need the right information. If not, market adjustments to climate change will be incomplete, late and potentially destabilising. But with the right information, financial markets can smooth the transition to a low carbon world and reduce risks to financial stability.

More and more investors\(^3\) and shareholders are aware of climate risks, relying on the company’s risk assessment and management procedures in order to estimate their portfolios’ and holdings’ exposure to risk. That is why examining corporate practices is important, as climate change risks not only impact investor preferences, but also consumer choices and behaviour. Including climate risks in the corporate strategy and practice would therefore favour a better capital allocation in the economy. The channels through which these risks influence investors, society and the economy need to be understood (SHARE, 2017).

As stated in the G20/OECD Principles of Corporate Governance\(^4\), a key function of the board of directors is to review and guide corporate strategy as well as oversee risk management policies.\(^5\) Given their duties and responsibilities, climate related financial risks are critical for the board to understand and measure. Yet some investors claim to be in the dark as to how effectively companies are responding to risk from climate change, which firms are well prepared, and which are taking tangible actions. With the mission to develop recommendations on voluntary climate-related financial disclosure for corporations and investors, in 2015 the FSB established an industry-led Task Force on Climate-related Financial Disclosures (TCFD). The aim was to promote alignment across existing disclosure regimes as well as enhance climate-related financial reporting in order to provide investors and other stakeholders with clear, comparable and consistent information about risks as well as the business opportunities presented by climate change.
Drawing upon the 2017 TCFD recommendations, this report explores recent practices of how boards of directors in select listed companies are assessing and communicating climate-related risks around the world. The purpose of this report is to raise awareness of the TCFD recommendations and to provide examples of the role of the board through nine corporate case studies selected across sectors and geographical diversity.\footnote{6}

The TCFD recommendations suggest that companies should disclose in their annual reports how they identify climate-related financial risk, evaluate its impact, assess and manage these risks under a four-pillar framework: governance, strategy, risk management and metrics/targets, as show in Box 1.1. Adoption of the TCFD recommendations is expected to help companies communicate material climate-related financial information to investors and show responsibility and foresight in their approach to climate-related risks. More broadly, implementation of the TCFD recommendations is expected to lead to smarter and more efficient capital allocation while supporting the transition to a more sustainable low-carbon economy.

In developing its recommendations, the Task Force drew from the work of existing voluntary and mandatory climate-related reporting frameworks, including those developed by the Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB), the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), Principles for Responsible Investment (PRI)\footnote{7}, and the International Integrated Reporting Council (IIRC)." Moreover, the TCFD report provides a list of specific existing disclosure requirements. The disclosure requirements are classified into policy frameworks from three different sources: Governments, Exchange Listing Requirements and Indices, and Non-Governmental Organizations – as displayed in Box 1.2. Information on the disclosure frameworks selected includes: the target reporter, the target audience, whether the disclosure is mandatory or voluntary; the materiality standard, the types of climate-related information, the disclosure location and external assurance required.\footnote{8}
Box 1.1. The TCFD Recommendations and Supporting Recommended Disclosures

**Governance**
- Disclose the organization’s governance around climate-related risks and opportunities.

**Strategy**
- Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material.

**Risk Management**
- Disclose how the organization identifies, assesses, and manages climate-related risks.

**Metrics and Targets**
- Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

**Recommended Disclosures**

**Governance**
- a) Describe the board’s oversight of climate-related risks and opportunities.
- b) Describe management’s role in assessing and managing climate-related risks and opportunities.
- c) Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

**Strategy**
- a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.
- b) Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning.
- c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.

**Risk Management**
- a) Describe the organization’s processes for identifying and assessing climate-related risks.
- b) Describe the organization’s processes for managing climate-related risks.
- c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

**Metrics and Targets**
- a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
- b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

Box 1.2. Select frameworks for climate-risk disclosure

Governments
- **Australia**: National Greenhouse and Energy Reporting Act (2007)
- **European Union (EU)**: EU Directive 2014/95 regarding disclosure of non-financial and diversity information
- **France**: Article 173, Energy Transition Law (2015)
- **India**: National Voluntary Guidelines on Social, Environmental, and Economic Responsibilities of Business (2011)
- **United Kingdom**: Companies Act 2006 (Strategic Report and Directors’ Report) Regulations 2013
- **United States**:
  - NAICs, 2010 Insurer Climate Risk Disclosure Survey
  - SEC Guidance Regarding Disclosure Related to Climate Change

Exchange Listing Requirements and Indices
- **Australia**: Australia Securities Exchange
  - Listing Requirement 4.10.3; Corporate Governance Principles and Recommendations (2014)
- **Brazil**: Stock Exchange (BM&F Bovespa)
  - Recommendation, comply or explain (2012)
- **China**: Shenzhen Stock Exchange
  - Social Responsibility Instructions to Listed Companies (2006)
- **Singapore**: Singapore Exchange
- **South Africa**: Johannesburg Stock Exchange
  - Listing Requirement Paragraph 8.63; King Code of Governance Principles (2009)
  - **World; regional and country-specific indices**:
    - S&P Dow Jones Indices
    - Sustainability Index

Non-Governmental Organisations
- **Asset Owners Disclosure Project**:
  - 2017 Global Climate Risk Survey
- **CDP**
  - Annual Questionnaire (2016)
- **CDSB**
  - CDSB Framework for Reporting Environmental Information & Natural Capital
  - Climate Change Reporting Framework Ed. 1.1 (2012)
- **GRESB**
  - Infrastructure Asset Assessment & Real Estate Assessment
- **GRI**
  - Sustainability Reporting Standards (2016)
- **IIGCC**
  - Oil & Gas (2010); Automotive (2009); Electric Utilities (2008)
- **IIRC**
- **IPIECA**
  - Oil and gas industry guidance on voluntary sustainability reporting
- **PRI**
  - Reporting Framework (2016)
- **SASB (US)**

*Note: This list is not exhaustive, it presents examples of disclosure frameworks. New frameworks have been produced/updated in the meantime.*

Chapter 2. Defining climate-related financial risks

Efforts to address climate-related financial risks are partly driven by the recent momentum created by pressure from international agreements, public policies, as well as concerns expressed by investors and executives. The TCFD distinguishes between two main categories of climate-related financial risks: transition risks and physical risks.¹

**Transition risks** include the various types of risks involved in the transition to a lower-carbon economy. The latter could lead to extensive policy, legal, technology and market changes that should be addressed through risk adaptation and mitigation. They are described as follows in the TCFD final report.²

- **Policy and legal risks:**
  - **Policy risks:** Policy actions around the world continue to evolve. Their objectives fall into two categories: policy actions that attempt to constrain actions that contribute to the adverse effects of climate change or policy actions that seek to promote adaptation to climate change. Examples include implementing carbon-pricing mechanisms to reduce GHG emissions, adopting energy-efficiency solutions, etc.,
  - **Litigation risk:** there has been an increase in climate-related litigation claims being brought before the courts by property owners, municipalities, states, etc. The reasons for such litigation include the failure of organizations to mitigate impacts of climate change, failure to adapt to climate change, and the insufficiency of disclosure around material financial risks. Litigation risk is expected to increase as the value of loss and damage arising from climate change grows.

- **Technology risk:** Technological improvements or innovations that support the transition to lower-carbon, energy-efficient economic systems can have a significant impact on organizations. The use of emerging technologies (e.g. renewable energies, battery storage, etc.) will affect the competitiveness of certain organizations and ultimately the demand for their products and services from end users. The disruption caused by the displacement of old systems by new technology entails winners and losers from this “creative destruction” process.

- **Market Risk:** One of the major ways in which markets can be affected by climate change is through shifts in supply and demand for certain commodities, products and services as climate-related risks and opportunities are increasingly taken into account.

- **Reputational risk:** Climate change has been identified as a potential source of reputational risks tied to changing customer or community perceptions of an organization’s contribution to or detraction from the transition to a lower-carbon economy.

**Physical risks:** Physical risks resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns. Physical risks may have financial implications for organizations, such as direct damage to assets and indirect impacts from supply chain disruption. Organizations’ financial performance may also be affected by
changes in water availability, sourcing, and quality, food security, and extreme temperature changes affecting organizations’ premises, operations, supply chain, transport needs, and employee safety.

- **Acute risk**: Refers to those risks that are event-driven, including increased severity of extreme weather events, such as cyclones, hurricanes, or floods.

- **Chronic risk**: Refers to longer-term shifts in climate patterns (e.g., sustained higher temperatures) that may cause sea level rise or chronic heat waves.
Chapter 3. TCFD recommendations on governance

The TCFD provides guidance on how organisations can disclose their governance around climate-related financial risks and opportunities. For example, it focuses on describing the board’s oversight with a discussion on the following:

- Processes and frequency by which the board and/or board committees are informed about climate-related issues,
- Whether the board and/or board committees consider climate-rated matters when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans as well as setting the company’s objectives, monitoring implementation and performance, and overseeing major capital expenditures, and
- How the board monitors and oversees progress against goals and targets for addressing climate-related issues.

Further, the TCFD guidance calls for describing management’s role in assessing and managing climate-related risks and opportunities, including information on the following:

- Whether the company has clearly assigned responsibility to management or committees, and if so whether these persons report to the board or a committee of the board as well as whether those responsibilities include assessing and/or managing climate-related risks, and
- Processes by which management is informed about climate-related issues and how management monitors climate-related issues.

The assessment of climate-related risks by companies is becoming common practice in several sectors, especially those most exposed such as energy and mining. However, even within the same sector of activity, companies are at different stages of awareness and advancement in terms of assessing climate-related risks, putting practices in place, the methodologies used and the types of risks identified. While some firms just started mentioning climate-related risks in their annual reports or board discussions, others are actively engaged in producing detailed analysis and internal models.
The Carbon Disclosure Project (CDP), a non-profit organization based in the UK, manages a global disclosure database involving various actors (e.g. investors, companies, cities, states and regions) assessing and managing their environmental impact through an annual questionnaire. The information disclosed includes risk management procedures relating to climate change risks and opportunities, energy use and Green House Gas (GHG) emissions. Together with the Climate Disclosure Standards Board (CDSB), which produces reporting frameworks for climate-related information, the CDP offers a global reporting infrastructure and provides policy-makers with technical expertise to evaluate and improve national reporting standards.

As a global climate disclosure platform for more than 6,000 companies, and on behalf of more than 800 institutional investors, the CDP integrated 25 questions relating to the TCFD recommendations in their 2018 climate change questionnaires. The corporate climate disclosures made through the CDP platform will include all the information required for TCFD compliant disclosure starting in 2018.

The CDP’s work with companies is based on a voluntary implementation mechanism, and directed at investors mainly. It is based on three programs: Climate Change, Forests, and Water. The evaluation for each company (or other actors) includes the following scores: A, A-, B, B-, C, C-, D, D-, F means that the company refuses to respond to the CDP questionnaire. Following some investors’ and companies’ requests, the CDP established a list of the 120 best performing firms with respect to climate change risks (scored A after studying the response to the CDP questionnaire). Being part of the CDP A List means that, relative to other respondents, the company demonstrated an advanced understanding of climate change risks, and implemented strategies and risks management processes in order to mitigate those risks.

Sources: CDP Website; FSB-TCFD, 2017

The 2018 CDSB-CDP report “Are companies prepared for the TCFD recommendations?” provides a first assessment of board oversight and management accountability over climate-related risks. The results are based on a sample of 1681 companies, across countries and sectors, which responded to the 2017 CDP climate programme questionnaire (CDSB, CDP, 2018).

Many large companies have communicated their commitment in 2017 to limiting the effects of climate change and a number of shareholder resolutions have been passed to support this. The 2017 PwC Annual Corporate Directors Survey shows that 18% of directors said that climate change will have a major impact on the company’s strategy. Amongst the 886 directors of US listed companies surveyed, 42% state that environmental concerns won’t have an impact within the three next years and 40% say that climate change “should not be taken into account at all in the company’s strategy”.

With regards to chief executive officers (CEOs), climate change is the 9th top risk that CEOs are concerned about in 2018 while it was not even mentioned as part of the top 10 risks in 2017, according to PwC’s 21st CEO Survey. However, only 5% of global CEOs or 1344 CEOs in 68 countries that were surveyed - think that sustainability and climate change will impact their business, industry or society over the next 10 years (PwC, 2018). This shows
that despite highlighting environmental issues and climate-related risks as important, a significant portion of CEOs don’t appear to consider these issues as part of setting company strategy and their potential impact on their business.

The 2018 Status Report by the Task Force on Climate-related Financial Disclosures released in September provides a useful overview of current disclosure practices related to the core elements of the TCFD recommendations to support implementation. As climate-related financial disclosures are still in early stages, the report does not assess the level of adoption of the recommendations nor if the disclosures fully meet TCFD recommendations. Some key observations include:

- Most companies disclosed information aligned with at least one recommended disclosure, especially in sustainability reports
- Few companies disclose the financial impact of climate change on the company
- Few companies describe the resilience of their strategies under different climate-related scenarios
- In terms of regional differences, more companies in Europe disclosed information aligned with the recommendations
- More non-financial firms reported on metrics and targets compared to financial firms while more financial firms highlighted their risk management processes included climate-related risks
- Information is provided in multiple reports (e.g. financial filings, annual reports and sustainability reports).

As of September 2018, the TCFD announced that the number of firms supporting their recommendations has grown to over 500, with market capitalisation of over 7.9 trillion USD, and including financial firms responsible for assets of nearly 100 trillion USD.

**Figure 3.1. AI Review: Company size (Annual revenue USD)**

<table>
<thead>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Large (&gt;$10b)</td>
<td>Several</td>
<td>Several</td>
<td>Majority</td>
<td>Majority</td>
<td>Few</td>
<td>Several</td>
<td>Several</td>
<td>Some</td>
<td>Majority</td>
<td>Majority</td>
<td>Majority</td>
</tr>
<tr>
<td>Medium ($4b-$10b)</td>
<td>Some</td>
<td>Some</td>
<td>Several</td>
<td>Several</td>
<td>Few</td>
<td>Some</td>
<td>Some</td>
<td>Some</td>
<td>Several</td>
<td>Several</td>
<td>Several</td>
</tr>
</tbody>
</table>

*Legend:* Few, Some, Several, Majority, Most

*Note:* The Task Force applied AI to nearly 1,750 large companies’ publically available reports to determine alignment with its 11 recommended disclosures.

*Source:* 2018 Status Report: Task Force on Climate-related Financial Disclosures
### Figure 3.2. AI Review: Disclosure by region

<table>
<thead>
<tr>
<th>Region</th>
<th>Governance</th>
<th>Strategy</th>
<th>Risk Management</th>
<th>Metrics and Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a)</td>
<td>b)</td>
<td>a)</td>
<td>b)</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>Few</td>
<td>Some</td>
<td>Some</td>
<td>Few</td>
</tr>
<tr>
<td>Europe</td>
<td>Several</td>
<td>Several</td>
<td>Majority</td>
<td>Few</td>
</tr>
<tr>
<td>Middle East and Africa</td>
<td>Few</td>
<td>Some</td>
<td>Few</td>
<td>Some</td>
</tr>
<tr>
<td>North America</td>
<td>Some</td>
<td>Few</td>
<td>Several</td>
<td>Few</td>
</tr>
<tr>
<td>South America</td>
<td>Some</td>
<td>Several</td>
<td>Several</td>
<td>Few</td>
</tr>
</tbody>
</table>

**Legend**

- Few
- Some
- Several
- Majority
- Most

*Source: 2018 Status Report: Task Force on Climate-related Financial Disclosures*
Chapter 4. Corporate board practices

Whereas corporate boards are beginning to develop policies and initiatives aimed at implementing the TCFD recommendations, there is still progress to be made defining board competencies in respect to climate-specific skills and considering board composition. While not exhaustive, the case studies below may still provide a useful representative cross-sample, illustrating good practices across industries and countries.

The information on climate-related board practices is disclosed in different documents depending on the company. Some cover it in more depth in their annual, periodic and/or financial reports (e.g. sustainability reports, climate change reports, financial statements), while others only mention it briefly or omit to do so. The CDP climate programme questionnaire incorporates a section on “Management”, which provides relevant information on how companies are managing climate change risks from the perspective of corporate governance.

4.1. Board competency

The TCFD recommendations on governance address how companies deal with climate-related risks, such as board oversight and whether the board has the appropriate competencies. Given the increasing importance of climate-related risks to long-term corporate strategy, the climate competency of directors is being actively discussed not only by boards themselves but especially investors and academics. Climate competency can be defined as the “degree to which board members bring to the table a demonstrated understanding of the climate change risks and opportunities their companies face, and how this may affect their company’s strategic orientation” (Murphy, 2017). A 2017 report by the Shareholder Association for Research and Education (SHARE), found that the evaluation or measuring of a board’s climate competency was a challenging issue for investors; only a few companies mention it in annual reports when disclosing their directors’ set of skills and knowledge.

Based on a sample of 42 listed Canadian companies in the energy and utilities industries, SHARE found that even though 85% of them published a matrix of desired experience and skills in 2015, those matrices do not include climate change as a desired area of board competency. Further, only 6% of those companies disclose the director’s expertise or experience with climate change and none of the companies have a board committee or mandate that explicitly references climate risk. This shows that there is a persisting gap as more companies assess risk but few disclose board competencies.

Some companies are engaged in developing their board’s climate-related knowledge and qualifications. This is done by reaching out to experts or organizations focused on climate change as part of the sustainability committee (very common), under the board’s oversight. For example, Citi engages with external stakeholders (e.g. investors, government and regulators, suppliers, NGOs, etc.) and with its employees in the process of assessing material climate-related risk and environmental concerns (Citi, 2017). Furthermore, the
Australian mining firm BHP Billiton has reported that its board members have the diverse sectorial skills and experience needed to address and manage climate-related risks. Meanwhile, BHP seeks to strengthen its board’s climate competency throughout the decision-making process by involving external experts and independent advice as well as management-level inputs (BHP, 2017). Nonetheless, the appointment of a board member on the basis of their climate expertise or the creation of climate change committees are still sensitive issues on which no consensus has been reached, amongst directors and academics (Elson, Goossen, 2017).

4.2. Board and management level policies: Company practices

As mentioned earlier, the CDP questionnaire incorporates a whole section on climate risk management which covers, amongst other topics, the questions related to Governance. Four questions request information on the highest level of direct responsibility over climate change risks in the company, the responsible individual/committee, and the existence (and identification) of climate-related incentives aimed at managing climate related issues. With the aim of identifying governance practices regarding climate-related financial risks, select company cases across different sectors and countries are presented below.

By way of introduction to the more detailed case studies below, Table 4.1 provides an overview of each company’s sector of operation, primary listing location, CDP climate score and frequency with which the term “climate change” appears in their latest annual report. Table 4.2 then provides a synthesis overview of board and management level policies concerning climate-related financial risk disclosure and management. These company practices are further detailed in the sub-sections that follow.

<table>
<thead>
<tr>
<th>Company name</th>
<th>Sector and industry</th>
<th>Primary listing</th>
<th>CDP climate score</th>
<th>Occurrence of the term “climate change” in the annual report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America</td>
<td>Financial – Banking</td>
<td>New York Stock Exchange</td>
<td>A²</td>
<td>1</td>
</tr>
<tr>
<td>Enel Spa</td>
<td>Energy – Electricity</td>
<td>Borsa Italian</td>
<td>A</td>
<td>21</td>
</tr>
<tr>
<td>Royal Dutch Shell</td>
<td>Energy – Oil and Gas</td>
<td>London Stock Exchange</td>
<td>B</td>
<td>55</td>
</tr>
<tr>
<td>Canadian National Railway Company</td>
<td>Transportation – Rail Transport</td>
<td>Toronto Stock Exchange</td>
<td>A</td>
<td>8</td>
</tr>
<tr>
<td>Singtel</td>
<td>Telecommunication Services</td>
<td>Singapore Exchange</td>
<td>A-</td>
<td>12</td>
</tr>
<tr>
<td>SOMPO Holdings</td>
<td>Financial – Insurance</td>
<td>Tokyo Exchange</td>
<td>A</td>
<td>13</td>
</tr>
<tr>
<td>LG Electronics</td>
<td>Manufacturing – Consumer Electronics</td>
<td>Korea Stock Exchange</td>
<td>A</td>
<td>-</td>
</tr>
<tr>
<td>Kering</td>
<td>Consumer Discretionary – Textile, Apparel and Luxury Goods</td>
<td>Euronext (Paris)</td>
<td>A</td>
<td>19</td>
</tr>
<tr>
<td>BHP</td>
<td>Materials – Metals and Mining</td>
<td>London Stock Exchange and Australian Securities Exchange</td>
<td>B</td>
<td>74</td>
</tr>
</tbody>
</table>

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography.
Table 4.2. Company board and management level policies at a glance

<table>
<thead>
<tr>
<th>Company name</th>
<th>Who holds ultimate responsibility for climate change</th>
<th>How the board oversees climate risks in relation to management</th>
<th>Incentives provided for managing climate-related risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America</td>
<td>Board (Corporate Governance Committee)</td>
<td>A senior executive committee (Global ESG Committee) supervises company initiatives and reports to the board</td>
<td>Yes, to senior executives (monetary and non-monetary)</td>
</tr>
<tr>
<td>Enel Spa</td>
<td>Board (Corporate Governance and Sustainability Committee)</td>
<td>Through the work and cooperation of both the Corporate Governance and Sustainability Committee and the Control and Risk Committee</td>
<td>Yes, to CEO and senior executives (monetary)</td>
</tr>
<tr>
<td>Royal Dutch Shell</td>
<td>CEO and Executive Committee</td>
<td>Through the assistance of three board committees, including the Corporate and Social Responsibility Committee</td>
<td>Yes, to senior executives (monetary)</td>
</tr>
<tr>
<td>Canadian National Railway Company</td>
<td>Board (Environmental, Safety and Security Committee)</td>
<td>ESS Committee oversees strategic climate-related issues; the executive team reports regularly to the executive leadership team and CEO on strategic environmental initiatives; a cross-functional sustainability committee meets quarterly</td>
<td>Yes, to senior executives (monetary and non-monetary)</td>
</tr>
<tr>
<td>Singtel</td>
<td>Board</td>
<td>Through Singtel Management Committee and Risk Management Committee</td>
<td>Yes, to middle-management (monetary)</td>
</tr>
<tr>
<td>SOMPO Holdings</td>
<td>Board (Council for CSR Promotion)</td>
<td>The Board’s Council for CSR Promotion meets at least 3 times a year; Risk Management Division meets annually with CEO and other board members to monitor progress</td>
<td>Yes, to board members, executive board members and other employees (monetary)</td>
</tr>
<tr>
<td>LG Electronics</td>
<td>CEO</td>
<td>CEO is in charge of setting annual emissions reduction target; state of advancement is overseen by the Business Support Office and the Executive Vice President, who reports to the CEO; significant climate-related risks are reported to the board of directors</td>
<td>Yes, to senior executives and other management (monetary)</td>
</tr>
</tbody>
</table>

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography

4.2.1. Bank of America Corporation

The case of Bank of America is interesting as its 2017 annual report mentions “climate change” only once. No specific part of the report or section is dedicated to climate change, and the sections covering financial information as well as risk management procedures (e.g. strategic, operational, compliance or reputational risk management) do not mention climate change risks. The annual report discusses Environmental Social Governance (ESG) issues from a rather general perspective.

However, despite not covering climate-related risks per se, Bank of America remains a pioneer company in terms of climate-related action. Evidence suggests that it has made it to the 2017 CDP A List, which includes the world’s 120 leading firms on environmental performance. The American company has established an environmental and social risk policy framework in which it briefly expresses its critical role as a financial institution in providing the necessary capital for activities ensuring energy transition: “renewable energy, energy efficiency and other low-carbon related financing”.

Bank of America’s board of directors is comprised of 15 directors (2017 Annual Report), all but one are independent. Board committees hold the responsibility of company-wide oversight over risk management activities. The board and its committees can also delegate authority to management-level committees which are provided with an effective Risk Framework.

Therefore, the bulk of Bank of America’s climate–related risk assessment is done through the company’s CDP response to the Climate Change programme questionnaire in 2017, when it received the highest score of A.
4. CORPORATE BOARD PRACTICES

Table 4.3. Bank of America

<table>
<thead>
<tr>
<th>Who holds ultimate responsibility for climate change risks</th>
<th>The Corporate Governance (CG) Committee of the Board of Directors holds the ultimate responsibility for climate-related risks. The CG Committee is responsible for supervising ESG issues, which are material to the company, on a periodic basis. The CG Committee is kept updated by the executive committee (i.e. Global ESG Committee) in charge of significant ESG activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does the board oversee climate risks in relation with the management</td>
<td>The Global ESG Committee, comprised of senior executives, is accountable to the CEO. It meets at least three times a year and reports to the CG Committee on a regular basis. Further, the Global Committee makes sure that the company's top decision-makers review and manage emerging ESG issues and incorporates them into major business decisions. The Global ESG committee supervises different working and operational groups which track and develop strategies to achieve environmental goals (e.g. GHG emission reduction), for example. The company also has a specialized team working full-time on environmental initiatives, the Global Environmental Group (GEG), which is accountable for the environmental goals of the company. The GEG's tasks include the identification of emerging climate risks (from a business and operational angle) and providing risk management proposals.</td>
</tr>
<tr>
<td>Incentives provided for the management of climate-related risks</td>
<td>Bank of America proposes monetary and non-monetary rewards for management, but none targeted at the Board of Directors. The incentives concern the executive team, business units and sustainability managers, as well as some individual-level incentives (e.g. volunteer service, use of lower carbon vehicles). The performance indicators for managers include mainly: emissions reduction targets, supply chain engagement, and reporting of climate change activities.</td>
</tr>
</tbody>
</table>

Source: CDP 2017 questionnaire supplemented with OECD research, details in bibliography.

4.2.2. Enel SpA

Enel SpA could be considered as one of the most engaged companies in dealing with climate-related risks. It is amongst the TCFD signatories, and succeeded in being included in the CDP A list showing good practice with respect to assessing and managing climate-related risks. Further, the company also engaged in other governance initiatives dealing with sustainability issues such as the UN Global Compact Board Programme.

As of 2017, the Board of Directors of Enel includes 10 members, of which eight are independent. The Chairman of the Board, Maria Patrizia Grieco, was appointed Chairman of the Italian Corporate Governance Committee. In its sustainability report, Enel presents the overall background & qualifications of its Board of Directors. Law and Strategy and Finance backgrounds are the most common. Few (including the CEO) have a scientific/engineering background and experience in the energy sector.

The Corporate Governance and Sustainability (CG&S) Committee is chaired by Ms. Maria Patrizia Grieco, Chairman of the Board. The CG&S committee is comprised of three independent board members with a legal background and some experience in the energy sectors; one has a hydrocarbon business graduate degree and extensive experience in the energy sector.

Moreover, the company’s CEO and General Manager represent Enel’s Group in various initiatives addressing climate-related issues including: We Mean Business, UN SE4ALL initiative, the UN Global Compact Caring for Climate, the World’s Bank Carbon Pricing Leadership Coalition, etc. Enel’s CEO is the first Italian business representative to be appointed as member of the Board of the UN Global Compact.

The different sustainability projects and initiatives launched by Enel, as well as performance, are presented in the company’s sustainability report. The reliability of the information displayed is verified by an external audit firm, the CG&S and the Control and Risk Committees. The Board of Directors approves those documents and presents them at the AGM.
Table 3.4 summarises some information displayed in the Enel’s CDP response, annual and sustainability reports.

### Table 4.4. Enel Spa

<table>
<thead>
<tr>
<th>Who holds ultimate responsibility for climate change risks</th>
<th>The highest level of responsibility lies within the CG&amp;S Committee of the Board of Directors. This Committee assists the Board in the assessment and decision-making linked to sustainability issues, including climate change risks, and in relation with the company’s activities and its interactions with the different stakeholders.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does the board oversee climate risks in relation with the management</td>
<td>The board oversees climate-related risks through the work and cooperation of both the CG&amp;S Committee and the Control and Risk Committee (consisting of 4 independent directors). Regarding ESG related risks, the two Committees review the main corporate rules and procedures, related to the internal control and risk management system that are relevant for stakeholders. As for other risks, climate-related risks are addressed in the strategic planning reflecting on provisions of the Group’s Strategic Plan. The frequency of monitoring, bi-annually or more frequently, is the same as for the Strategic Plan management process. Further, a long-term horizon is assumed in assessing climate-related risks.</td>
</tr>
<tr>
<td>Incentives provided for the management of climate-related risks</td>
<td>Enel provides incentives for the management of climate-related issues including the attainment of targets through monetary rewards. The main incentivized performance indicators are the emissions reduction and energy saving targets. For example, advancing the company’s Strategic Plan goals, which includes climate-related targets (e.g. decarbonisation), impacts shareholder returns and the return on average capital employed (ROACE) upon which the CEO’s long-term variable remuneration is based. Also, the Executive Directors of the Innovation &amp; Sustainability Department, who reports to the CEO, receive an annual bonus linked to sustainability commitments including climate-related risks. Environment/Sustainability managers have similar incentive mechanisms as well.</td>
</tr>
</tbody>
</table>

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography

### 4.2.3. Royal Dutch Shell

The British-Dutch oil and gas company covers climate change risks in the strategic report section of the 2017 annual report. This section includes two relevant parts: Risk factors and Climate change and energy transition.

**Risk factors:** Shell has identified a couple of climate-related risks (Policy and legal risks, market and financial risk) that are mainly transition risks. Shell states that these climate related risks may incur additional costs for the company (e.g. compliance costs, reduced production, financial penalties, etc.) entailing a material adverse effect on earnings, cash flows and financial conditions.

Besides the upstream and downstream businesses, Royal Dutch Shell created the New Energies business in 2015, which invests in low-carbon sources and energy solutions. They include biofuels, hydrogen, charging for battery-electric vehicles and wind and solar power. The company also invested a multi-billion-dollars in its joint venture, Raizen, illustrating Shell’s commitment to low-carbon biofuels.

**Climate change and energy transition:** Shell discloses the way it deals with climate-related risks from the perspective of governance & management, portfolio management, strategy and performance.

Shell is amongst the signatories of the TCFD recommendations. According to the company, this guides its reporting in the 2017 Annual Report and 2017 Sustainability Report as well as the Shell Energy Transition Report.

As of 2017, the company’s board of directors was comprised of 12 board members, amongst which nine are independent. Shell’s Corporate and Social Responsibility Committee (CSRC) included five independent board members. Regarding the
4.2.4. Canadian National Railway Company

The company belongs to the 2017 CDP exclusive A List. Also, it had been consistently listed on the Dow Jones Sustainability World Index and ranked as one of the best 50 Corporate Citizens in Canada by Corporate Knights.

The Board of Directors of CN includes 12 members, amongst which 11 are independent (as of March 6, 2018). Climate-related risks are incorporated in the enterprise-wide risk management (ERM) process. CN considers climate-related risks as a business risk that entails physical and regulatory risks (e.g. carbon pricing obligation by the government, and could be a factor for commodity price risk (e.g. fuel costs) as well. The ERM process results are reported to the Board on an annual basis.

The Environment, Safety and Security Committee (ESS) of the Board comprises seven members, all but one (the CEO) are independent. It is responsible for the oversight of the company’s environmental activities: ensuring compliance, identifying environmental issues inside the company, and managing them following CN’s environmental policy.

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**Table 4.5. Royal Dutch Shell**

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who holds ultimate responsibility for climate change risks</td>
<td>The overall accountability for climate change within Shell lies with the CEO and the Executive Committee (EC – CEO, CFO and main business and functional Directors). Besides the CEO and the EC, the most senior individual with direct responsibility for climate-related risks is the Executive Vice President (EVP) Safety and Environment (S&amp;E) who has direct access to the CEO.</td>
</tr>
<tr>
<td>How does the board oversee climate risks in relation with the management</td>
<td>The company’s board has oversight over all areas of risk, including climate change. In the energy sector’s changing context (e.g. global energy market, energy transition, climate change), the Board held strategy sessions considering the risks and opportunities faced by Shell’s portfolio for different time-horizons. Energy transition and the implementation of Shell’s strategy for the New Energies business are amongst the top priorities identified for 2018. In its oversight of climate risks, the Board of Royal Dutch Shell is assisted by three board committees. The Corporate and Social Responsibility Committee (CSRC) plays an important role as an advisor to the board. It reviews the management of environmental and social impacts of projects and operations (e.g. energy transition). Royal Dutch Shell provides monetary rewards to its executive team. Their annual bonuses are aligned with performance against climate-related indicators. Thus, sustainable development accounts for 20% of the scorecard, 10% of which are linked to the environmental component. Based on the recommendations of the CSRC, the Remuneration Committee focuses the environment component on GHG emissions in three specific business areas: refining, chemical plants and flaring in upstream assets.</td>
</tr>
</tbody>
</table>

*Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography*
CORPORATE BOARD PRACTICES

Table 4.6. Canadian National Railway Company

| Who holds ultimate responsibility for climate change | The ESS Board Committee has the highest level of responsibility over climate-related issues. At the executive level, it is the Assistant Vice-President of Environment and Sustainability that has direct responsibility for climate change within the company. The latter reports to the Vice-President, Safety and Sustainability, who in turn reports to the Executive Vice-President and Chief Operating Office. |
| How does the board oversee climate risks in relation with the management | The Board’s ESS Committee oversees strategic climate-related issues and reviews progress on the company’s carbon strategy, management and performance. The executive team reports regularly to the Executive Leadership Team and CEO on strategic environmental initiatives, including related to CN’s emissions and energy efficiency strategy. A cross-functional sustainability committee with senior representation from CN’s departments reports to the Assistance Vice-President for Sustainability. This committee meets quarterly, in order to define and align CN’s sustainability and climate change priorities with the business strategy, and monitor and communicate performance as identified in CN’s sustainability action plan. |
| Incentives provided for the management of climate-related risks | CN offers different kinds of incentives as well (monetary rewards and recognition). The company’s president and CEO included sustainability in his personal objectives. Promoting environmental benefits of shipping rail amongst policy makers, customers and the public at large is amongst his goals. The Executive Vice President and Chief Operating Officer included in his Employee Performance Scorecard (EPS), the energy efficiency strategy. His performance is evaluated against emissions and energy reduction targets. Finally, the EPS of numerous management employees (e.g. fuel management team, facility management team, sustainability management team) include emissions and energy reduction targets. |

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography.

4.2.5. SingTel

The Singaporean telecommunications firm mentions climate change in both its 2018 annual report and its sustainability report. The information presented below comes from these reports as well as the company’s CDP response documents. The company scored A- on the 2017 CDP Climate Change Program, which makes SingTel the highest scoring telecommunications company in Singapore and Southeast Asia, according to its sustainability report.

SingTel is also amongst the nine Singaporean companies that committed to align their climate-related risk assessment and financial reporting with the TCFD recommendations. It dedicates a subpart of its sustainability report to reviewing its plans with respect to each of the TCFD focus areas and recommendations.

Hence, SingTel considers climate change risks as one of the main long-term global risks with the potential to impact the company’s operations, infrastructure and supply chain. It acknowledges the energy and regulatory risk linked to it as well (e.g. emission standard, carbon taxes, etc.). The company’s approach consists of the sciences-based carbon reduction target (agreeing to the Sciences Based Target Initiative), and the adaptation of the company’s infrastructure to long term climate change. In this sense, SingTel focuses on three key areas: Renewables and Energy Efficiency; Resilience and Adaption; and Green ICT.

Singtel’s Board of Directors is comprised of 10 members, amongst which 7 are independent. The most represented qualification within the board are business, law and economics. Environmental, social and governance (ESG) issues that are material to the company are reviewed by both the Management Committee and the Risks Management Committee. Both committees support the Board of Directors in its oversight.
Who holds ultimate responsibility for climate change: The Board of Directors oversees Singtel’s sustainability strategy and initiatives, and approves the identification of related material issues including climate change. Concerning climate change specifically, the Vice President of Group Sustainability is ultimately responsible. The latter leads the group’s sustainability function (which includes the environmental sustainability function). This function reports to the Group Chief Human Resources Officer who, in turn, reports to the Group CEO.

How does the board oversee climate risks in relation with the management: Two main bodies are responsible for environmental and climate change, as part of the sustainability issue: The Singtel Management Committee and the Risk Management Committee. The first is comprised of the company’s most senior executives and its mission is to define and align with the Group Sustainability Strategy. The second focuses on the identification and mitigation of all risks, including climate change. Thus, SingTel’s board is provided with an update of the company’s strategy and plans, which include climate change, at least once a year. One of its responsibilities is also to approve the Sustainability report, which presents the firm’s agenda with respect to climate change risks.

Incentives provided for the management of climate-related risks: Unlike other company cases addressed in this report, SingTel doesn’t provide the CEO with incentives linked to the management of climate-related risks. Most of the incentives, taking the form of monetary rewards, are targeted at middle management level positions. Energy managers and facility managers for example benefit from such incentives. Their performance is measured against emissions reduction projects, energy reduction projects and environmental criteria included in purchases.

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography

4.2.6. SOMPO Holdings

SOMPO Holdings is amongst Asia’s best performers in terms of managing climate change risks. It has endorsed the TCFD recommendations, and is part of the 2017 CDP A list making it one of the highest-ranking financial institutions in Japan and in the world. The company also supports other initiatives such as the UN-led “Caring for Climate”. Climate change risks are addressed in different reporting documents from which the information displayed here is extracted. This includes the firm’s 2017 annual report, the 2017 CSR Communication Report and the company’s CDP response document.

The company belongs to the insurance industry. The latter is one of the most concerned businesses with climate change risks, given the physical risks generated by climate phenomena and subsequent need to update company insurance models and adjust the coverage. Thus, one of SOMPO Holdings’ goals for a sustainable society is to provide products and services that help address and favour the adaptation to climate change and other environmental problems.

As of July 1st 2017, SOMPO Holdings’ Board of Directors comprised of 12 members, of which 4 are outside directors. The majority of the Nomination and Compensation Committee (4 out of 5), and the Audit & Supervisory Board members (3 out of 5) are outside directors. Furthermore, the company’s governance has both Directors and Audit & Supervisory Board members. Most Board of Directors members have prior experience in the insurance sector, while some a business or law background.
Table 4.8. SOMPO Holdings

| Who holds ultimate responsibility for climate change | The highest level of direct responsibility for climate change within the organisation rests with a committee appointed by the Board: The SOMPO Holdings Council for CSR Promotion. The establishment of the Council is part of the Group-Wide CSR performance-drive management system. The Council is responsible for identifying and addressing ESG issues and must report to the CEO, as well as Board members at the highest level. |
| How does the board oversee climate risks in relation with the management | A member of the Board of Directors, also Vice President and Group CFO of SOMPO Holdings, chairs the Council for CSR Promotion. The council meets at least 3 times a year, and addresses the CSR issues facing the entire Group, amongst which climate change with the goal of enhancing SOMPO Holdings corporate responsibility through its core businesses. Moreover, the Risk Management Division is most responsible for the management of climate change risks through the Enterprise Risk Management Committee. The Division meets annually with the CEO and other Board Members in order to monitor and review the Group’s progress and status regarding climate change. |
| Incentives provided for the management of climate-related risks | Various positions in the company, compared to other firms, are entitled to benefit from incentives related to the management of climate change issues. For instance, Executive board members are rewarded for generating business and developing products or services related to sustainability issues including climate change. The other positions receiving monetary rewards are: risk managers, public affairs managers, business unit managers, facility managers, energy managers, process operation managers and environments/sustainability managers. The list of incentivized performance indicators within the firm include: emissions reduction projects, emissions reduction targets, energy reduction projects, efficiency projects, and behaviour change related indicator. |

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography.

4.2.7. LG Electronics

LG Electronics is part of the multinational conglomerate LG Corporation, headquartered in South Korea. LG Electronics is amongst Korea’s best performing companies dealing with climate change risks; it has made it to the CDP climate change A list (which is comprised of 120 companies worldwide). The information presented below is based on LG Electronics’ 2017 response to the CDP climate change questionnaire, as well as its 2017-2018 LG Sustainability report.

Although no Korean company, including LG electronics, sign-up to the TCFD recommendations, 8 Korean companies made it to the CDP Climate change A list. LG Electronics, for example, is planning to re-establish a mid to long-term carbon management strategy, to be presented to stakeholders in 2018 and implemented after 2020. In addition, the company considers a response system on climate change as a critical part of its business management (see below). Further, the board of directors includes 7 directors, 4 of which are independent.

Figure 4.1. LG Electronics management strategy
### Table 4.9. LG Electronics

| Who holds ultimate responsibility for climate change | The CEO of LG Electronics, also member of the Board of Directors, holds ultimate responsibility for climate change risks and their potential consequences for the company. |
| How does the board oversee climate risks in relation with the management | The GHG emissions reduction targets which are a major part of the company’s strategy to manage climate change risks are set up by the Senior Executive Council, which is in leaded by the CEO. The latter is personally in charge of setting the annual reduction target of the company. The activities, targets and state of advancement linked to climate change, at the level of LG Corporation, are overseen by the Business Support Office, the Executive Vice president, who reports to the CEO. The climate related risks and opportunities, significant to the company, are reported to the Board of Directors since 2011. Thus, the assessment, strategy and implementation of climate change risks strategy of the firm is reported to the board meetings, top management and business support officer. This monitoring is ensured on a six-monthly basis or more frequently. |
| Incentives provided for the management of climate-related risks | LG Electronics provides incentives related to the management of climate change issues. They take the form of monetary rewards and are targeted at management level teams. It is the performance against greenhouse gas reduction target that is incentivised within the firm. The teams/positions concerned by those monetary rewards are: The corporate executive team (the management support division specifically), the environment/sustainability managers, as well as the energy managers. |

*Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography*

### 4.3. Strategy and Risk Management

Aside from incorporating climate-related risks in their governance, companies need to not only assess the current and potential future risks affecting their strategy, activities and financial planning, but also integrate climate-related issues in their business strategy. Risk management processes for identifying, assessing and managing climate-related risks have to be reported following the TCFD recommendations.

The 2018 CDP-CDSB report suggests that companies are not fully incorporating climate-related risks into company-wide strategies. The report points out the irregularity of board reviews, the low frequency of updates and the incompleteness of governance processes on these issues. For instance, less than half of respondent companies report climate-related results to the board on a bi-annual basis or more frequently. Furthermore, climate-related risks are more often than not considered from a short-term perspective by firms, acknowledging that board of directors are also focused on medium and long-term risks when they prove to be material.

The CDP questionnaire addresses the themes of Strategy and Risk Management from a corporate governance perspective within the Management section. In this section, companies are asked to describe and provide further details on how climate risks are identified (at company and asset level), prioritized, integrated in the business strategy, use internal pricing on carbon, and engage with policy makers and trade associations likely to take a position on climate legislation. The case study of Kering is presented below in order to illustrate this; the emphasis is on issues pertaining to the role of the board of directors.

#### 4.3.1. Kering

The French luxury group Kering is recognized as a leader for its engagement with climate-related issues. It is part of the CDP A List and reached top ranking in the 2017 Dow Jones Sustainability Index. Also, Kering could be considered as the first company to have published an Environmental Profit & Loss (EP&L) statement in 2015, which is published annually, with an explanation of results and the methodology used. For instance, the company discloses a memo on its environmental reporting methodology on an annual basis.
The company has 11 board members, of which seven are independent, and a sustainability committee (3 out of the four committee members are independent). Table 3.10 shows the way Kering addresses climate-related risks through its strategy and risk management as well the board’s (direct and indirect) involvement in these processes.

Table 4.10. KERING

<table>
<thead>
<tr>
<th>Risk management procedures</th>
<th>Climate change risks are integrated into multi-disciplinary company-wide risk management processes. It is the Risk Committee (and Executive Committee), that is responsible for monitoring and reviewing the risk management system. This Committee engages as well in the identification and management of various risks (strategic, operational, reporting, compliance risks) that may affect the organization’s business activities. The Risk Committee undertakes frequent monitoring and takes a long-term perspective, reporting to the Board of Directors and the Audit Committee.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate risks identification and prioritisation</td>
<td>Given that climate-related risks are included in risk management; they are subject to similar procedures as other risks (identifying, analysing and dealing with risks). In the years 2015-2016, this process has been extended through work sessions to different management-level positions (in regional divisions, and other corporate managers). Prioritization of climate risks (as for other risks) is done on the basis of materiality which is evaluated through the following: magnitude of potential consequences; probability of occurrence and manageability (company’s vulnerability).</td>
</tr>
<tr>
<td>Integration into the Business Strategy</td>
<td>Both the Chairman of the board and the CEO are responsible for Kering’s engagement with sustainability issues and climate change. The company established a materiality matrix in which climate change strategy is prioritized. Other initiatives include the EP&amp;L, the production system’s adaptation to climate-related developments, and the short-term sustainability targets and long-term strategy with respect to climate issues.</td>
</tr>
<tr>
<td>Board’s involvement in other strategy &amp; risk management processes</td>
<td>The EP&amp;L methodology, which includes carbon pricing, is reviewed and approved at the board-level by the Sustainability Committee. The Sustainability Committee oversees the consistency of Kering’s activities that influence policy of the company’s overall climate change strategy. The Committee has also actively engaged in defining the Group 2025 Sustainability Strategy as well as defining and implementing of science-based targets for Kering’s gas emissions along the company’s value chain (e.g. procurement, transportation, energy consumption, etc).</td>
</tr>
</tbody>
</table>

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography

4.4. Metrics and targets

Following the TCFD recommendations, major companies from various sectors are increasingly engaging in climate-related risk assessment and management that are material to the company. Nevertheless, the TCFD recommendations need be complemented by metrics assessing the related risks and performance targets guiding the company’s action to face climate-related risks. This information is meant to improve investors’ own assessment and understanding of companies’ exposure and actions taken on climate-related risks. The TCFD recommendation is supported namely by the disclosures of: the metrics used in line with the company’s strategy and risk management process, GHG emissions, targets (and performance against targets) used by the company to manage climate risks (FSB-TCFD, 2017).

4.4.1. Metrics and processes

Companies are requested to provide a range of metrics, as well as the methodologies used to calculate them, supporting their climate change risk assessment and management. Some apply to companies from all sectors, while others may be more relevant for particular industries. They include:

- Greenhouse Gas (GHG) Emissions: Scope 1 and 2, and Scope 3 if appropriate
- Water (i.e. water consumption and pollution), energy, land use
- Waste management
Aside from the general metrics mentioned in the TCFD recommendations, the TCFD Final Report Annex on *Implementing the Recommendations of the TCFD*, provides more details and sets additional sector-specific metrics for financial (e.g. banks, insurance companies, asset owners, asset managers) and non-financial companies (e.g. Energy, Transportation, Materials and Building, Agriculture, Food and Forest). They include, for example:

- Sales-weighted average fleet fuel (for Transportation)
- Investment in low-carbon alternatives and R&O (almost all sectors)
- Proportion of capital allocation to long-term assets vs. short-term assets (Energy sector)

Further, the Annex covers Carbon Footprinting and Exposure Metrics - including the methodology, formulas and key points - such as: Carbon Footprint, Carbon Intensity, and Exposure to Carbon-Related Assets.

### 4.4.2. Target setting and performance

Along with the measurement of climate-related risks, companies need to set targets and the underlying methodologies, dealing with the different types of risk drivers mentioned above. These goals should be disclosed by providing key indicators, base years, and meeting the expected changes implied by transition risks.

In addition, a crucial point is the time-frame for achieving the targets and performance. Performance indicators will help distinguish short and medium-term goals from long-term targets enlarging the company’s time-horizon. The case of Shell, which is planning on halving its GHG emissions by 2050, is a good example of this type of action.

### 4.4.3. BHP

Some companies in the mining and metals sectors are as exposed to climate-related risks as the energy sector mentioned above. This particularly concerns firms engaged in the coal industry (a significant issue in Australia, for example) which are facing major transition (e.g. regulatory, investment choices…) and physical risks. For example, a group of investors holding USD 26 trillion in assets called for a phase-out of thermal coal used in power generation. As for the Energy industry, companies have a different concept of climate-relate risks and action, with some distinguishing themselves as best performers while others still not recognizing the risks to come.

BHP is a dual listed company with two parent companies: BHP Billiton Limited (listed in ASX) and BHP Billiton plc (listed in LSX). The company is run as a single economic entity referred to as BHP, with a unified board and management.

BHP, which is amongst the world’s largest mining companies in terms of revenues, is increasingly engaging in addressing climate-related risks. It dedicates a special section of its annual report to climate change, within the strategy section. Also, the firm discloses a Sustainable Development report prepared by the Sustainability Committee of the board. BHP sent back the 2017 Climate CDP questionnaire and received a score of B. The metrics and targets set by the company, complementing its risk assessment and management processes, are discussed and detailed in the various reporting documents. Further, BHP highlights in its annual report that its climate change disclosures are aligned with the TCFD recommendations. The company’s Vice President of Sustainability and Climate change is a member of the Task Force.
Climate-related risks are also addressed in the reports *Climate change: Portfolio Analysis Views after Paris* presenting notably the tools used in the company’s strategic planning regarding climate-related risks such as: Commodity price forecasts, Central case (what is expected to happen in terms of long term economic growth, growth of renewables, etc.), Scenarios and Signal tracking.

Climate change is considered as a board-level issue within BHP Billiton. The board is responsible for the oversight of the company’s strategy and decision-making on climate change issues. The board delegates authority to the Sustainability Committee which dedicates a considerable part of its work to dealing with climate change risks, monitoring the resilience of the company’s portfolio. This Committee includes Non-Executive directors, assumed to be appropriately skilled, and meets five times a year; membership and attendance records are disclosed in the company’s annual report.

Indeed, BHP stresses in its Climate report and CDP response the mix of skills and experience of its board members. It puts forward their competence regarding energy, governance and sustainability as well as their expertise in finance, economics and public policy. Further, the relevant experience of non-executive directors enriches board discussions on climate change. This helps the company understand ongoing developments, as well as the systemic risk and potential impacts on BHP’s portfolio.

BHP Billiton’s board has also taken measures guaranteeing that its decisions are informed by climate change science and expert advisors. Following the same logic, BHP’s board of directors seeks and takes into account the input of Management, of the Forum on Corporate Responsibility, which gathers civil society leaders advising the board on sustainability issues, and of independent advisers.

**Table 4.11. BHP**

**Incentives provided for the management of climate-related risks**
The company doesn’t provide information on incentives for boards of directors (including the sustainability committee which assisting with board oversight) linked to climate-related risk management. However, in addition to the managers, BHP Billiton links the CEO’s remuneration to Short Term Incentives (35% of total compensation) which include targets for GHG emissions. This policy, overseen by the Remuneration Committee, is meant to drive the performance to meet the various targets, such as GHG metrics. The performance indicators for the firm with regard to management-level positions are the emissions/energy reductions projects.

| Targets | In 2012, BHP met the 6% GHG reduction target that it set for its business in 1996; this concerns Scope 1 and 2 emissions (location-based). The company didn’t set a higher target in the FY2017, it plans on limiting its GHG emissions below 2006 level while growing its business. Further, its target is not science-based, but BHP anticipates setting one in the next 2 years. The company argues as well that limiting its FY2017 emission below 2006 level is consistent with the principles of a sciences-based target following the Corporate Finance Approach to Climate-stabilizing Targets (C-FACT). According to BHP, this method is environmentally robust and addresses potential stakeholder concerns. However, the approach is criticized for the complexity it adds to tracking progress over time; due to base year recalculations for significant structural changes to the organization. |
| Initiatives | BHP has had emissions reduction initiatives that were active within the reporting year. Amongst those; 10 were implemented, one started to be implemented, and 2 were to be implemented. Further; 15 initiatives were not implemented, while 15 others were under investigation. These initiatives, aiming at reducing GHG emissions, are mainly linked to BHP’s transportation activity (i.e. the fleet) through the reduction of fuel usage across its operations. Operational examples include improving maintenance practices, changes in driving behaviour, improving Iron Ore rail operations, etc. |

| Methods used to drive investment in emissions reduction activities | BHP displays five methods used; they include: |
| Compliance with regulatory requirements/standards |
| Marginal abatement cost curve |
| Internal incentives/recognition programs |
| Internal price on carbon |
| Dedicated budget for low carbon product R&D |

Source: CDP 2017 questionnaires supplemented with OECD research, details in bibliography.
Chapter 5. Key takeaways and possible next steps

As stated in the G20/OECD Principles of Corporate Governance, a key function of the board of directors is to review and guide corporate strategy as well as oversee risk management policies. In particular, the board should demonstrate a leadership role to ensure that an effective means of risk oversight is in place, including the integrity of the reporting process and monitoring systems with clear lines of responsibility and accountability through the company. Climate related financial risks need to be understood and measured by the board. Yet some investors claim to be in the dark as to how effectively companies are responding to risk from climate change, which firms are well prepared, and which are taking tangible actions.

The assessment of climate-related risks by companies is starting to become common practice in several sectors, especially those most exposed such as energy and mining. Despite the beginning of a momentum in the corporate world, there are disparities between companies. Even within the same sector of activity, companies are at different stages of awareness and advancement in terms of assessing and disclosing climate-related risks, especially the financial aspects. While some firms just started mentioning climate-related risks in their annual reports or board discussions, others are actively engaged in producing detailed analysis and internal models.

The corporate cases cited above demonstrate the diversity of approaches, specifically with respect to board oversight in implementing the TCFD recommendations. While this report does not cover regulatory settings, they can influence corporate board practices. Some common elements observed are that all companies are using incentives, either monetary or non-monetary, mainly directed at the management and in some cases the board to incite action as well as that boards tend to have a majority of independent directors examining climate-related issues.

Some issues for further discussion may include:

- Echoing the findings of the TCFD’s recent review, what is the extent to which the “better-performing” companies with regard to disclosure are addressing climate-related financial risks in substance rather than from a compliance perspective?

- How are companies creating resilience and integrating climate strategy into their business strategy? For instance, when board committees and reporting lines are in place and they are being more transparent through their disclosures – how do we know what changes they are actually making? Beyond the earliest stage of designing a vision, are roadmaps with interim milestones, KPIs, processes and tracking of outcomes being developed?

- Should future work consider analysis by sector? In sectors that are struggling with physical risks linked to natural resource constraints or quantitative
pollution quotas, the financial implications can be more substantial than when climate change is an exogenous shock, for which the cost is mainly that of the transition.
Notes

1 Stranded assets can be defined as assets that “have suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities” (Caldecott and McDaniels, 2014[6])


3 The background paper of the 36th Roundtable on Sustainable Development, Ang and Copeland (2018)

4 The Principles have been adopted as one of the Financial Stability Board's key standards for sound financial systems. The updated Principles were launched at the meeting of G20 Finance Ministers and Central Bank Governors in Ankara on 4-5 September 2015. They were subsequently endorsed at the G20 Leaders Summit in Antalya on 15-16 November 2015, http://www.oecd.org/corporate/principles-corporate-governance.htm

5 Additionally, the OECD Due Diligence Guidance for Responsible Business Conduct underscores the importance of assigning board level responsibility for activities related to responsible business conduct, including management of climate risks, http://mnguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf

6 The select corporate case studies benefitted from CDP questionnaire responses and a review of annual reports, as well as other publicly available information.

7 In late 2017, PRI integrated 14 climate-related indicators based on the TCFD recommendations into its 2018 reporting framework.

8 The tables can be found in Appendix 4 (pp 54-61) in FSB-TCFD (2017), “Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures”.

9 In addition, the TCFD’s framework is strengthened by the guidance it provides to companies to align their financial reporting with the recommendations and recommended disclosures. This includes: Guidance for all sectors and Supplemental Guidance for Certain Sectors. Guidance for all sectors consists of providing context and suggestions for implementing the recommended disclosures for all organizations. Whereas, the Supplemental Guidance for Certain Sectors highlights important considerations for certain sectors and provides a fuller picture of potential climate-related financial impacts in those sectors. Supplemental guidance is provided for the financial sector and for non-financial sectors potentially most affected by climate change.


3 The Intergovernmental Panel on Climate Change (IPCC) was set up by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) to provide an objective source of scientific information. The UN Intergovernmental Panel on Climate Change (IPCC) released its Fifth Assessment Report which looked at the science of climate change: http://www.ipcc.ch/report/ar5/wg1/


1 A subpart of Citi’s 2017 Global Citizenship Report introduction (p.11) is named “Our material issues: Citi in a global context”. The company identifies 22 material issues, taking in consideration their importance to stakeholders and their influence on business success. These issues include for instance: Addressing climate change risk/opportunity, regulatory reform, corporate governance, environmental footprint, etc.

2 Being part of the CDP A List means that, relative to other respondents, the company demonstrated an advanced understanding of climate change risks, and implemented comprehensive strategies and risk management processes in order to mitigate those risks.

3 The GHG Protocol Corporate Standard classifies a company’s GHG emissions into three ‘scopes’. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emission (Greenhouse Gas Protocol, FAQ).
References


Date and venue

7 - 8 November 2018
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