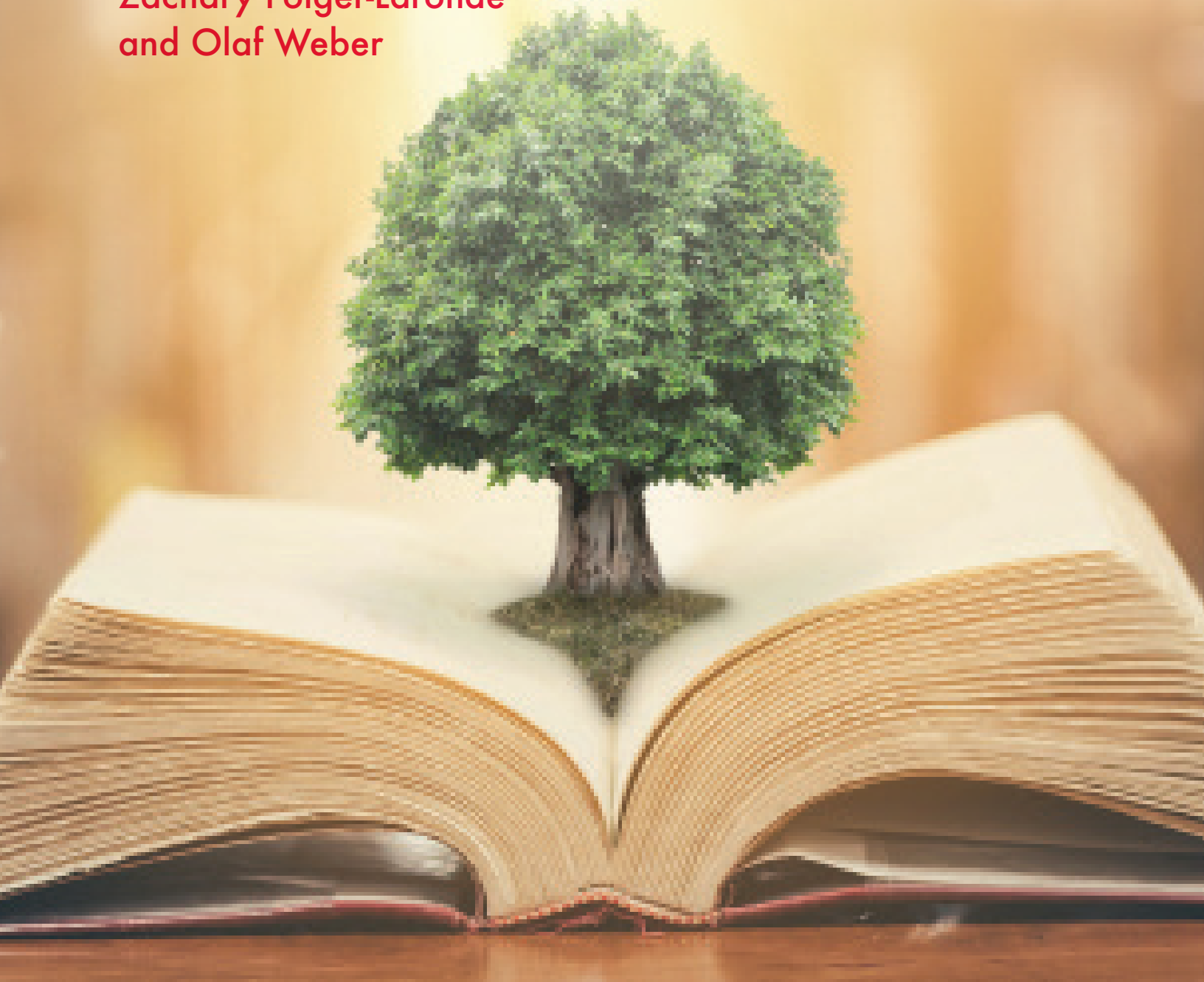
Centre for International
Governance Innovation

CIGI Papers No. 190 — September 2018

Climate Change Disclosure of the Financial Sector

Zachary Folger-Laronde
and Olaf Weber



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CIGI Masthead

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Centre for International Governance Innovation

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Acronyms and Abbreviations

ALTIS	Alta Scuola Impresa e Società
BIS	Bank for International Settlements
CDP	Carbon Disclosure Project
ECCC	Environment and Climate Change Canada
G20	Group of Twenty
GABV	Global Alliance for Banking on Values
GHG	greenhouse gas
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
IRIS	Impact Investing and Reporting Standards
NGOs	non-governmental organizations
TFCFD	Task Force on Climate-related Financial Disclosures
UNEPFI	United Nations Environment Programme Finance Initiative
UNPRI	United Nations Principles for Responsible Investment

Executive Summary

The impacts of climate change continue to grow in severity. Consequently, there is a call for action to all stakeholders, including the business community and the financial sector. An important piece in analyzing the impact of different groups on climate change and climate change solutions is transparent reporting about impacts on climate change and contributions to mitigate and adapt to climate change. Currently, the Tasks Force on Climate Related Disclosures (TFCFD), founded by the Group of Twenty (G20), is addressing climate-related reporting in the financial industry and attempting to establish standards to enable the industry to address climate-related risks and opportunities. An empirical study conducted by the authors, however, found that the industry still has some work to do to address climate change in their reporting. Based on the current state of reporting, recommendations include: that the financial sector develops indicators and risk assessment models for climate-related risks that go beyond direct materiality and include indirect risks to be able to address future risks; that climate-related accounting for financial products and services should be developed and implemented; that the financial industry should implement standardized carbon disclosure; and that climate-related risk assessment should be offered as a service for the financial sector's clients.

Introduction

The impacts of climate change continue to grow in severity. The Intergovernmental Panel on Climate Change (IPCC) (2013) explains that the increasing global temperatures have led to: changing precipitation patterns, including more frequent and severe flooding and droughts; rising sea levels; and other massive weather-related catastrophes. Research increasingly suggests the economic risks continue to grow (Botzen and van den Bergh 2008; Bredenkamp and Pattillo 2010; Burke et al. 2016; Campiglio et al. 2018; Dietz et al. 2016). Thus, the changing natural environment associated with climate change is becoming a fundamental challenge for business (Hoffman and Woody 2008).

The call to climate action for businesses has been expanding. Initially, the focus was on the more carbon-intensive industries (for example, fossil fuel, forestry and raw mineral extraction); however, attention is increasingly focused on the financial sector, such as banks, institutional investors and asset managers, and their role in the transition to a low-carbon economy. Similar to other industries, conducting the primary activities of the financial sector leads to carbon emission generation through the use of energy, water, paper and other environmental inputs for the operational business of financial sector organizations. However, increasing focus has been toward the climate change implications associated with the financial products and services of the sector. It is estimated that the indirect carbon emissions, which are caused in the financial sector by borrowers, investees and financed projects, are 50 to 200 times larger than the direct impacts of the financial sector (van Gelder et al. 2008). It is evident that a decarbonization strategy is needed for more than the fossil fuel industry, and will require significant changes to most economic sectors.

This added focus toward the financial sector has led to demands for enhanced disclosure of climate change information with regard to financed clients and projects. However, there remains limited guidance in how the financial sector should disclose its carbon performance to its shareholders and stakeholders. Thus, this work reviews the highlights from an empirical study that investigated the types of carbon performance voluntarily disclosed by banks and the type of carbon impact emissions disclosed.

After a long time of ignorance, with regard to the connection between financial risks and climate change, the issue has been a talking point since the twenty-first session of the Conference of Parties required financial sector contributions to climate change mitigation and adaptation. Furthermore, the governor of the Bank of England, Mark Carney, presented a speech on the "tragedy of the horizon," addressing financial risks for banks and insurers caused by climate change (Carney 2015). Finally, the TFCFD (2016), a working group of the G20, whose focus is climate change and financial risks, produced a report on how the financial sector could address climate-change-related risks through establishing standardized indicators that measure the risk to borrowers and investees. This is a step into the right direction.

However, other steps must follow that address financial sector risk assessment and reporting.

Climate-related reporting is the activity of accounting and disseminating climate-related information of a business's activities to investors, regulators, local stakeholders and society in general (Gray 1996). Even if standardized reporting of borrowers and investees increases the financial industry's ability to assess climate-change-related risks, it is not guaranteed that the risk assessment will be disclosed in a transparent way. The following sections of this paper demonstrate that the financial industry is far from transparent about climate-change-related risks. This reporting gap is due to a variety of reasons.

First, voluntary reporting generally privileges positive facts and news and avoids disclosure of negative aspects, such as financial risks. Also, the financial industry prefers to report on positive aspects, such as green products, instead of negative impacts of businesses on climate change or other social and environmental concerns. This is not a phenomenon that is exclusive to the financial industry but is rather typical for all industries (Fonseca, McAllister and Fitzpatrick 2012; Talbot and Boiral 2013). As an example, banks report about the positive impact of green bonds on climate change, but do not report about the negative impacts of other bonds, loans and investments in the fossil fuel industry.

Second, climate-related risks for, and impacts of, the financial sector are indirect. Indirect impacts through lending, investing and other financial products contribute much more to climate change than direct impacts, such as energy use, water use and commuting (Weber and Feltmate 2016). These indirect impacts, however, are not easy to measure. Lenders often do not know the emissions of their clients because this is not currently assessed. Furthermore, lenders and investors do not feel responsible for the emissions of their clients. Since a report from the Rainforest Action Network analyzed the so-called "financed emissions" of banks through assessing greenhouse gas emissions of their clients, banks have rejected any responsibility for these emissions (Weber and Feltmate 2016). This has been a barrier to transparent climate-related disclosure in the financial sector for a long time.

Third, climate-related risks have not been on the radar of financial regulators. Both domestic and international regulators and institutions, such as central banks, the Bank for International Settlements (BIS) and other regional, national and international regulators have not integrated climate change as a risk factor. Climate change has been the responsibility of environmental ministries and regulators and has not been addressed in an "interdisciplinary" way. Only very recently, the G20 and BIS started to address climate-related risks for financial sector stability. In Canada, it took until spring 2018 to establish an expert panel on behalf of Environment and Climate Change Canada (ECCC) and the Ministry of Finance that addresses the issue from a financial sector perspective.

Thus, while, on the one hand, one might criticize that currently there is no transparent reporting, on the other hand, the topic is relatively new, complex and controversial. However, to contribute to the discussion, the following sections will report about the current state of climate-related reporting in the financial sector and will propose some policy recommendations to address the problem.

Literature Review

This section will present an overview about the current literature on climate change and the financial sector.

Climate change and the financial sector are interrelated. Current thought on environmentally sustainable finance espouses two primary views: a business-oriented approach and a society-oriented approach (Scholtens 2017; Weber 2014, 2016b; Weber and Feltmate 2016). The two views can overlap when the interests of shareholders and stakeholders include both views, however, the motivations are fundamentally different.

At its narrowest view, the business-oriented approach to climate change and finance emphasizes the management of climate change externalities out of consideration for shareholders. This lens has also been referred to as the outside-in view (Weber 2014; Weber and Feltmate 2016) and is the conventional financial view of the environment (Scholtens 2017). It is one-dimensional, with a focus on monetary benefits, either in terms of minimizing carbon risk or exploiting business opportunities that come in a carbon-constrained economy (Busch and Hoffmann

2011; TFCFD 2016). The risks associated with climate change can manifest in a variety of ways (Jeucken 2004; Weber 2014; Weber and Kholodova 2017). First, there are direct climate change risks, which are weather-related events and liability risks. Second are indirect risks, which are associated with the financial performance of a financial institution's debt and equity investments in a carbon-constrained economy (Busch and Hoffmann 2007). For instance, financial performance of an investment could be hurt by new climate regulations (for example, carbon taxes and cap-and-trade schemes). Finally, there is reputational risk associated with financing climate change. This is where society perceives the sector as partially or wholly responsible for financing sectors that contribute significantly to climate change. Overall, the business-oriented view argues for management of carbon-related impacts because the risks pose a threat to the returns of a financial portfolio.

While this first view of the relationship between the financial sector and climate change narrowly focuses on shareholders, the second view — the society-oriented approach — considers the broader societal or stakeholder, ecological and social impacts. First described by Stephan Schmidheiny and Federico J. L. Zorraquin (1996), this view has been labelled the inside-out view (Weber 2014; Weber and Feltmate 2016), social finance view (Scholtens 2017) and, specific to climate change, climate progress (Weber et al. 2018). In this view of the financial sector's approach to climate change, the sector accepts responsibility for its broader socio-ecological system impacts (Weber 2016b). These impacts could be both positive, negative, as well as contradictory (Wiek and Weber 2014). Positive impacts could be achieved through green finance; negative impacts could be caused by financing clients that have negative environmental impacts; and contradictory impacts occur through financing green and non-green clients at the same time.

Positive contributions are seen through impact finance. This form of finance attempts to use financial products and services to achieve positive environmental and societal impacts (Weber 2016c). Specialized financial products, such as green investment products, carbon- and climate-related loans and speciality advisory services that assist clients with a transition to a low-carbon economy (Weber and Feltmate 2016; Weber and Kholodova 2017), contribute positively to addressing climate change. For instance, green bonds — bonds that are issued to finance projects or firms that address environmental issues — seem to be successful in addressing environmental and climate-related issues through financial products. In 2017, climate-aligned bonds worth US$895 billion were issued, which is an increase of 22 percent compared with the previous year. This growth is encouraging, but there is room for a much larger market given the increasing number of extreme weather events linked to climate change.

The positive inside-out view, achieved through financial products and services, is practised by both conventional financial institutions and social finance institutions. The distinction between these two types of financial sector organizations remains contested in the sustainable finance field, but social finance institutions claim to integrate the inside-out view of its financing activities at its core. One of the major social finance associations, the Global Alliance for Banking on Values (GABV), for instance, defines social banking as follows:

- triple-bottom-line approach (which considers the economic, social and environmental impacts of banking activities) at the heart of the business model;
- grounded in communities, serving the real economy and enabling new business models to meet the needs of both;
- long-term relationships with clients and a direct understanding of their economic activities and the risks involved;
- long-term, self-sustaining and resilient to outside disruptions;
- transparent and inclusive governance; and
- all of these principles embedded in the culture of the bank.[1]

Conventional financial institutions offer financial products aimed at contributing positively to sustainable development and climate change (Scholtens 2009; Weber 2005). Green bonds, which have been mentioned above, are one of those financial services aimed to have a positive impact on climate change. As Bert Scholtens (2017) noted, there has been limited research on

1 For more details see www.gabv.org/about-us/our-principles.

assessing the social and environmental impacts of positive inside-out financial products.

The inside-out view also includes the negative impacts associated with financial activities. Similar to the positive inside-out view, Scholtens (2017) argues that negative social and environmental impacts should be measured and assessed in order to understand the risks and impacts of the sector. As mentioned, initial estimates suggest that the indirect impacts of the financial sector dwarf the direct impacts (van Gelder et al. 2008). Transparent reporting about negative impacts of financial products and services, however, is missing with very few exceptions, such as the China Industrial Bank, which not only reports on positive impacts, such as green finance, but also discusses negative impacts, such as greenhouse gas (GHG) emissions caused by financing coal power plants and polluting industries.

Facing sustainability issues and criticism by non-governmental organizations (NGOs), the financial sector has adopted various voluntary codes of conduct to manage sustainability risks, such as environmental and social risks in lending, project finance and investment. These codes of conduct do not enable an adequate climate change performance to be observed for three general reasons. First, codes of conduct are voluntary, and it is unknown what changes in processes, financial risks and socio-ecological impacts they are associated with. Olaf Weber (2016a), for instance, conducted a study on how members of the Equator Principles, one of the most established financial sector sustainability codes of conduct, have guidelines with which to report the social and environmental risks of their projects. He found that although their members follow the reporting guidelines, only about five percent disclose all the information required by the guidelines and, consequently, achieve the highest score with respect to their reporting quality. Furthermore, differences in reporting quality are mainly caused by the size of members. The larger the bank, with respect to its total assets, the higher the reporting quality. Thus, further mechanisms, such as standardization and assurance, are needed to guarantee transparent reporting of environmental and social project risks. It seems that environmental reporting is a function of the size of the reporting entity and depends on financial resources. Reporting about complex interactions needs expertise that is usually only available at bigger financial institutions.

Other voluntary codes of conduct, such as the Impact Investing and Reporting Standards (IRIS), the GABV, the United Nations Environment Programme Finance Initiative (UNEPFI) and the United Nations Principles for Responsible Investment (UNPRI) have guidelines about how financial institutions should address social and environmental issues, including climate change, but they do not have guidelines about how to report on them. Furthermore, they have no enforcement mechanisms for non-compliance of these codes of conduct (Weber 2018). This also includes reporting. Although some of the voluntary codes, such as the IRIS, even have a list of indicators that should be used for impact reporting, they do not have any guidelines for transparent reporting (Weber 2016c).

Moreover, even if the codes of conduct do include guidance on disclosing compliance, empirical studies find that only positive aspects are reported. For instance, Weber (2016a) found that the disclosure behaviour of banks is relatively similar and follows an isomorphism trend. Without any external pressure and regulations, members of codes of conduct agree on certain practices that work for all members. This means that there is no incentive to become the most transparent reporting institution, but there is, rather, the trend to mimic the relatively low reporting standards.

These codes of conduct also pay limited attention to climate change impacts. The Equator Principles include an assessment of alternatives if projects exceed certain thresholds with regard to carbon emissions. However, alternatives only have to be selected if they have at least the same financial returns as projects with higher carbon emissions. Again, there is also no transparent reporting about the alternatives needed. Project financiers must report that they have considered alternatives, but they do not have to report on the alternatives, including carbon emissions and financial figures.

These weaknesses of the voluntary codes of conduct led to the argument that they are more for reputational purposes as opposed to substantive climate change management integration. Moreover, although the GABV and IRIS take a social responsibility view of finance, the major voluntary codes of conduct are geared more toward the outside-in view of finance, where the focus is about reducing risk toward shareholders and not society.

Voluntary Disclosure of the Financial Sector

Climate-related disclosure accounts for and disseminates climate-related information of a business's activities to investors, regulators, local stakeholders and society in general (Gray 1996). This type of non-financial reporting is also called triple-bottom-line, social, environmental, ecological, sustainability, corporate social responsibility and corporate citizenship reporting. For a long time, reporting from banks and other financial service institutions has been of relatively low quality and content (Hahn and Kühnen 2013; Kolk 2004), because the financial sector does not have the same level of direct social and environmental impacts compared to other industries, such as the resource extraction, chemical and fossil fuel industries (Lock and Seele 2015). Thus, we will describe the current reporting practices of banks and the financial sector in general and the current limitations in assessing climate-related performance.

As described above, there is an increasing demand for enhanced carbon-related information. The TFCFD, for instance, calls for enhanced descriptions and narratives on the integration of carbon-related risks and opportunities and for associated carbon impact performance metrics (TFCFD 2016). Responding to these recommendations will require the use of carbon accounting and reporting.

Consequently, carbon accounting and reporting has emerged as a recent focus in the social and environmental accounting literature (Hahn, Reimsbach and Schiemann 2015). It is important that appropriate carbon metrics are used to ensure carbon performance is appropriately assessed with respect to sustainable development (Wright, Kemp and Williams 2011). A typical measure of performance that has garnered support in the literature and practice is the carbon footprint. This is a quantitative account of the carbon emissions associated with an activity (ibid.) or with a financial portfolio that includes carbon-emitting investments (Hunt and Weber 2018). The carbon footprint can be calculated at various levels: individuals, projects, products and services, organizations, sectors/regions, nations and financial portfolios (Pinkse and Kolk 2009; 2010). In the financial industry, the carbon footprint could be calculated as a ratio of GHG emissions per dollars invested or by GHG emissions per sales of the invested stocks, in case of investments in corporate shares (Hunt and Weber 2018). Although the carbon footprint is relatively easy to calculate, the problem is data availability, since there are no regulations on carbon reporting and all reporting is voluntary.

Further, it is worth noting that carbon is not the only GHG to consider. GHGs are commensurable on the grounds of their global warming potential, which enables aggregation for a carbon footprint or emissions to be measured and reported as a unified unit of carbon dioxide equivalents (Wright, Kemp and Williams 2011). Again, however, the availability of the data needed to conduct carbon footprinting is a major issue.

Most businesses have responded to the call for more carbon-related information with enhanced transparency (PwC and Carbon Disclosure Project [CDP] 2013). Broadly, this amounts to reporting on the direct carbon emissions that occur onsite and that are associated with the energy that they purchase, so-called scope 1 and scope 2 emissions. However, it has been argued that carbon impacts associated with a business' supply chain, business travel and products and services, so-called scope 3 emissions, should also be considered (Gray 2006; Searcy 2014). Otherwise carbon accounting and reporting only conducts a partial disclosure about climate-related impacts.

Similar to other industries, in the financial sector there are two major aspects with regard to GHG emissions that reflect the dual responsibility for banks (Labatt and White 2007). The first is to identify and manage carbon risk related to the bank's internal operations. Second, and more importantly, the carbon risk and impacts of their loan portfolio and other financial products and services must be assessed. In contrast to carbon-producing industries, the indirect impacts of the financial industry's products and services are much higher than the direct impacts (Collins 2012; Weber and Feltmate 2016).

Both types of impacts could be characterized with respect to shareholders, as seen in the conventional view of finance, or with respect to society as the sustainability case for banking advocates (Weber and Feltmate 2016). Thus, assessing carbon impact performance of banks includes the carbon emissions associated with their internal operations as carbon emissions released onsite and associated with energy purchases, but also the carbon impacts

of their lending and investment activities (Bimha and Nhamo 2017; Weber and Feltmate 2016).

Empirically, banks and the financial sector have received limited attention in the social and environmental accounting literature. The financial sector has not been regulated with regards to its environmental impacts, and, therefore, research has been focused on determining what is reported in voluntary disclosures. Consequently, these empirical works have conceptualized social, environmental or sustainability performance from activities disclosed in the banking sector's voluntary reporting and not on the positive or negative magnitudes of their impacts (Alberici and Querci 2015; Bimha and Nhamo 2017; Branco and Rodrigues 2006, 2008; Chih, Chih and Chen 2009; Lock and Seele 2015; Scholtens 2009; Weber 2005).

With regard to the question of how banks and the financial sector choose to disclose performance, Manuel Castelo Branco and Lúcia Lima Rodrigues (2006) show that the reporting strongly emphasizes narratives and performance metrics concerning internal operations activities. Similarly, through the analysis of the 30 environmental indicators of the Global Reporting Initiative's sustainability reporting guidelines, Adalberto Alberici and Francesca Querci (2015) found that disclosures from the financial sector on internal operations were reported more than 50 percent of the time, but no sustainability-related metrics were provided for the financial products and services. Finally, using the CDP database, Alfred Bimha and Godwell Nhamo (2017) analyzed the carbon performance of the banking sector in South Africa. Again, because of limitations in accounting and reporting standards, carbon-impact performances could not be assessed (Bebbington and Larrinaga-González 2008).

Thus, empirical investigations into banks and the financial sector have been challenged to assess carbon-related performance and risks. First, the reporting of banks focuses chiefly on internal operations, employee relations and philanthropy (Scholtens 2009; Weber 2005), usually reported through qualitative narratives or anecdotal case studies. For instance, both Weber (2005) and Scholtens (2009) find that banks disclose the offering of environmental and climate-related lending products and services through a description of their positive environmental impact, but no accompanying quantitative and comparable metric is provided. Both studies find that banks provide limited disclosures on the sustainability aspects of their conventional loan and credit activities, which, as detailed in the previous section, are crucial. Thus, the impacts associated with banks' financial activities cannot be assessed.

Moreover, the results of these disclosures suggest that they report almost exclusively on the positive aspects of the banks with respect to sustainability. Robert H. Gray and Markus Milne (2004) are critical of this disclosure behaviour, arguing that ignoring the complexities and nuances of sustainability issues presents only a partial account. This limits any accountability value of carbon-related reporting (Gray 2010). Specifically, shareholders are not able to assess the financial risk associated with the climate-related risk of the banks' portfolios, nor is society able to assess the risks and impacts toward society (Scholtens 2017; Weber 2014; Weber and Feltmate 2016).

The poor quality in disclosure is also influenced by institutional and methodological accounting aspects (Gray and Milne 2004). Institutionally, it appears that the voluntary nature of reporting incentivizes the use of voluntary reporting largely as a reputational tool (Bebbington, Larrinaga and Moneva 2008). Concerning methodological limitations, practitioners and academics continue to struggle with how to provide an account on the business or micro-level for sustainability-related aspects, such as climate change (Gray and Milne 2004). The complexities of the intermediary position of banks makes determining the appropriate methodology for measuring climate risks and impacts even more challenging.

Weber (2013) and Weber and Feltmate (2016) state that previous sustainability accounting and impact assessment frameworks and indicators take a narrow view of impacts, focusing largely on the positive aspects of a business and do not focus on indirect, or seemingly non-material (Unerman, Bebbington and O'dwyer 2018), impacts associated with financial products and services. Thus, without standards for assessing the financial products and services impacts, assessments of sustainability and climate-related performance of and risks for banks are limited. Evidently, there is a research gap concerning the disclosure of the carbon impacts of and risks for banks. Consequently, it cannot be assessed whether there is a correlation between climate risks and opportunities and financial risks and opportunities for banks, and, similarly, positive or negative impacts of financial products and services on climate change cannot be evaluated.

Based on this review of literature, the remainder of the paper presents an analysis that addresses the question: how do banks disclose carbon performance and carbon impact performance? The former focuses on disclosures of substantive changes in banking operations, activities and products and services with respect to climate change risks and opportunities, while the latter concerns how carbon emissions, or impacts, are disclosed.

Methods

Disclosures of carbon performance were assessed using two instruments over the three activity areas of international operations, carbon risk management and "green" opportunities. Given the intermediary position of banks, the carbon performance includes impacts associated with internal operations and financial products and services (Bimha and Nhamo 2013). The first instrument focused on the metrics used to report carbon impact performance with carbon accounting. This included distinguishing between carbon impact emissions and carbon emissions avoided (Schaltegger and Csutora 2012). While the former remains an inherent by-product of economic activities, the latter is a comparison between the quantity of carbon emissions between two activities that have equal purpose (Wright, Kemp and Williams 2011). One example is reporting the carbon emissions avoided by financing a renewable energy plant in comparison to the business-as-conventional energy plant. Stefan Schaltegger and Maria Csutora (2012) argue that carbon emissions avoided are measures of sustainability improvements, while measures of carbon emission emitted are measures of unsustainability. Furthermore, the scope of the reported carbon accounting metrics was considered: project, product, sector and portfolio.

The second variable for this study measured the degree of carbon management integration that is disclosed by banks. Similar to other disclosure studies in the banking sector, this variable is assessed based on the quality of evidence in terms of revealing substantive changes in the three activity areas, internal operations (programs and activities), carbon risk management and green financing. Thus, this approach measures the quality of disclosed carbon performance from a substantive perspective (Bond et al. 2018). The coding for this instrument is available in the appendix.

Table 1: List of 36 Banks Included in the Carbon Impact Performance Analysis

Conventional Banks	Social Banks
Bank of America	Affinity Credit Union
Bank of Nova Scotia	Assiniboine Credit Union
BNP Paribas	Banca Etica
Citigroup	bankmecu
Deutsche Bank	Beneficial State Bank
DNB	BRAC bank
The Goldman Sachs Group	Centenary Bank
HSBC Holdings	City First Bank of DC
ING Bank N.V.	Clean Energy Development Bank
J.P. Morgan Chase	Credit Cooperatif
National Australian Bank	Cultra Bank
Royal Bank of Canada	Ecology Building Society
Sonali Bank Limited	First Green Bank
Stanbic Bank	New Resource Bank
State Bank of India	Southern Bancorp
Toronto-Dominion Bank	Sunrise Banks
Unicredit	Triodos Banks
Wells Fargo	Vancity

The sample includes the 2013-2014 sustainability reporting of banks (see Table 1). First, a sample of social banks that are members of the GABV was selected as the social bank sampling frame. As described above, the GABV is a group of social banks that follow the triple-bottom-line approach of considering the economical, social and environmental impacts of their banking activities. Also, the GABV follows a governance principle of transparency, therefore its members are some of the most visible social banks (Weber and Feltmate 2016). At the time of the data collection, the GABV consisted of 27 social banks. However, only the banks that provided sustainability-related reporting that

was written in English were considered. A sample of social banks has been selected because these banks' core business is to address environmental and social issues, such as climate change. Consequently, they also should report about their activities and results with respect to climate change.

To obtain a sample of conventional banks, the country of each respective selected social bank dictated which countries of the conventional banking group were to be considered. In these countries, the banks with the highest assets under management were chosen, because the size of financial organizations can be a good indicator of the amount of sustainability-related considerations in their activities (Chih, Chih and Chen 2009). For this project, the data incorporated both the banks' annual sustainability-related reports and related websites.

Results

The following section reports about the disclosure of carbon impact emissions and the quality of disclosed evidence of carbon management integration of banks.

Disclosure of Carbon Impact Emissions Emitted and Avoided

The observations for carbon impact performance disclosed by the banks are presented in Table 2. The table shows that carbon impact emissions reporting mainly addresses internal operations (n = 23), compared to carbon risk management (n = 1) and green opportunities (n = 9). Trends (i.e., multiple reporting periods of carbon accounting for the activity area) regarding the carbon impact of internal operations were provided by 19 banks. Significant to assessing climate progress, the data suggest that the disclosure of financed carbon impact emissions, that is, the carbon emissions associated with the businesses and sectors financed by the banks, is rarely reported.

Next, the indicator scope for the carbon impact emissions avoided were not disclosed consistently (Table 3). The total number of observations was greater than the total for this type of performance metric because some banks disclosed multiple uses of this indicator (for example, reporting both a project and sector-based portfolio-based indicator

Table 2: Count of Carbon Performance of Bank Activity Areas Based on the Presence of Carbon Impact Metrics

	Activity Areas		
	Internal Operations	Carbon Risk Management	Green Opportunities
Conventional banks	14	1	6
Social banks	9	0	3
Total	23	1	9

Source: Author.

Table 3: Level of Analysis for Carbon Impact Emissions Avoided Metrics and Portfolio-based Impact Metrics

	Carbon Impact Emissions Avoided Metrics	Exposure-based and Sector-specific Metrics
Project	4	11
Product	1	13
Sector	6	7
Portfolio	0	0
Total	11	31

Source: Author.

concerning climate change). The scopes for these metrics were project (n = 4), product (n = 1), sector (n = 6) and portfolio (n = 0). Similar inconsistent scopes were observed for sector-specific metrics that measure exposure in terms of number of projects or financial investment. The scopes of these metrics were project (n = 11), product (n = 13), sector (n = 7) and portfolio (n = 0). This suggests that banks are either not measuring or electing not to disclose the carbon emissions avoided that are associated with their financing. Thus, progress of facilitating the transition to a low-carbon economy cannot be assessed. Furthermore, Chris Weber et al. (2018, 35) explain that the exposure-based and sector-specific approaches are challenging to aggregate per financial institution and only relevant for a number of sectors and there lacks a taxonomy on what a green sector is. Moreover, this would suggest that banks focus on internal operations and carbon emissions avoided, as opposed to carbon emissions emitted, because it can be characterized to enhance a bank's

Table 4: Descriptive Scoring for Disclosures of Substantive Carbon Integration

	Internal Operations (max = 5)		Carbon Risk Management (max = 8)		Green Opportunities (max = 5)	
	Average (max = 5)	Std. Dev.	Average (max = 8)	Std. Dev.	Average (max = 5)	Std. Dev.
Conventional banks	4.22	1.66	2.94	1.95	2.78	1.77
Social banks	2.61	2.23	0.39	0.98	2.44	1.79
Total	3.4	2.1	1.67	2.0	2.61	1.76

Source: Author.

reputation as an eco-efficient business (Busch and Hoffmann 2011; Porter and van der Linde 1995).

Exemplary Disclosures of Carbon Impact Emissions Emitted and Avoided

The disclosure of carbon impact emissions suggests that banks focus more on the reputational enhancing metrics, either in terms of carbon emissions avoided or the financial amount exposure in green sectors. This would suggest that banks are more defensive than proactive with regards to disclosing climate change impacts (Kolk and Pinkse 2004). Thus, it would be insightful to present two exemplary practices of carbon impact emissions disclosure that were observed during this study. These are the Bank of America's carbon emission intensity of its US power utility loan portfolio and Banca Etica's carbon impact assessment with the use of the "social cost of carbon."

Following a sector-based approach that includes carbon accounting, the Bank of America has disclosed its carbon intensity (i.e., quantity per megawatt-hour) from 2004 to 2013 for all the electricity generators in the United States that are borrowers of the bank. This carbon impact performance metric is the only portfolio-based carbon impact assessment approach that has been observed for conventional lending, demonstrating that there remains significant room for innovation and improvement in carbon-related disclosures. Although this metric is not for all economic sectors that the Bank of America lends and provides credit to, the energy sector is associated with relatively higher direct and indirect carbon risks, making it an ideal sector with which to begin. Also, this metric can assess the carbon exposure of a lender that is associated with direct and indirect carbon risks. Furthermore, a falling trend of carbon intensity indicates a positive contribution toward climate progress. However, without a comprehensive carbon intensity metric for all economic sectors, it is unknown whether the carbon risk exposure is high, low or has absolutely decreased. Thus, sector-based carbon impact emission reporting is only a partial view of climate progress (Weber et al. 2018).

The second exemplary disclosure behaviour was observed from the social bank Banca Etica. It disclosed a report that estimated the social impact of its financial activities over 15 years. The impacts reported included carbon-related impacts. This approach used the number of renewable energy projects that have been financed by the bank with the quantity of clean energy produced each year and the associated quantity of avoided carbon emissions disclosed. The unique aspect is that Banca Etica applied a form of impact assessment to the avoided emissions. The report states that the quantity of carbon emissions avoided is equivalent to "achiev(ing) a savings in cost for the community of 410 thousands Euros per year" (Alta Scuola Impresa e Società [ALTIS] 2014, 5). The strength of this impact assessment is that it is contextualized through economic costs to the society. This can help with minimizing the distortions of social and political issues, such as climate change, when they are narrowly managed in a reductionist way common to businesses (Cohen et al. 1998, cited in Bebbington and Larrinaga-González 2008). Using an impact assessment approach can help maintain a societal-value approach, which is a priority for social banks (Weber and Remer 2011), but also enhances the assessment of climate progress. However, this approach can be costly (Weber 2013) and requires continuous methodological development (Johnson and Hope 2012).

Disclosures of Substantive Carbon Integration

The other variable analyzed was the disclosure of substantive carbon integration into the internal operations, risk management and green opportunities. The descriptive statistics for the reporting of substantive carbon integration are presented in Table 4. The total average, which includes the three business activity areas of internal operations, carbon risk management and green opportunities, is 3.4 (maximum of 5), 1.67 (maximum of 8) and 2.61 (maximum of 5), respectively. Thus, most disclosure of substantive integration of climate change issues into the core business has been conducted in the internal operations activity area. Moreover, comparing the carbon risk management and green opportunities, carbon issues are more integrated in green opportunities than in risk management. This is problematic because carbon-related risks to the financial sector seem to be larger than the green opportunities, with the latter being niche-sized financial products and services.

The main difference between conventional and social banks occurs in reports on carbon risk management that have been provided by 15 of the 18 conventional banks, while only three of the 18 social banks displayed this disclosure behaviour. This suggests that conventional banks are more aware of climate risks for their business or that social banks assume that they are less exposed to climate risks because of their type of business.

Overall, the analysis suggests that banks do not disclose their carbon performance in a transparent way (Weber, Diaz and Schwegler 2012). From a conventional view of the environment and banking, banks may not accept their role in governing sustainability (Weber and Feltmate 2016) or are not aware of the business case for addressing climate change (Stubbs, Higgins and Milne 2013). Concerning this latter point, there seems to be skepticism about the economic and financial incentives for carbon disclosure, although financial entities, such as TFCFD and the Bank of England, have emphasized climate-related risks for the financial industry (Harmes 2011; Sullivan and Gouldson 2012).

Banks might also be reluctant to disclose climate-related data because their products and services are a means toward an end (Scholtens 2017). Consequently, none of the banks in the sample have been able to communicate comprehensively their performance with respect to climate change. This is a significant challenge because both conventional and social banks could be exposed to carbon risk or low-carbon financial opportunities (Weber 2005). The current state of reporting, however, addresses the positive aspects of climate finance, namely the financing of the renewable energy sector. Even the single instance of carbon emissions associated with the conventional financing activities was characterized as a reduction of carbon exposure. In other words, the link between climate change and financial risks is missing, as is the link between financial activities and climate change impacts (Wiek and Weber 2014).

Policy Recommendations

This section will discuss the following policy recommendations for climate-change-related disclosure of the financial sector:

- The financial sector needs to develop indicators and risk assessment models for climate-related risks that go beyond direct materiality and include indirect risks to be able to address future risks.
- Climate-related accounting for financial products and services should be developed and implemented.
- The financial industry should implement standardized carbon disclosure.
- Climate-related risk assessment could be offered as a service for the financial sector's clients.

There is a need for stronger participation of financial regulators with regard to climate-related financial risks and risk reporting. It is evident that the financial sector's connection to climate change is twofold and includes both risks and opportunities. On the one hand, the financial sector can influence climate change through its financing activities. This influence could explicitly aim to contribute positively with specialized products known as climate finance. Examples of such products are green and climate bonds, green loans and project finance, responsible investing and impact finance. However, the financial sector also contributes to climate

change through its conventional financing with carbon emissions being a by-product of economic activities. On the other hand, the financial sector is affected by climate change directly, for instance through extreme weather events and indirectly through its clients, such as borrowers and investees. Thus, there are both shareholder and stakeholder interests in the activities of the financial sector.

Climate change presents both risks and opportunities for the financial sector. The development of new risk management models could be an opportunity to address climate-related risks of lenders and investees as well as new products, such as climate bonds that address climate change. Risks occur through climate-related impacts on lending and investment portfolios as well as from direct impacts of extreme weather events or regulatory changes.

Climate-related reporting could be a way to address these risks and opportunities and to develop strategies to address them. Climate-related reporting in the financial industry, however, comes with some issues and problems. The first is that most impacts are indirect. The direct impact of the financial industry on climate change is relatively small and is relatively more straightforward to manage. The main exposure, however, comes through indirect effects predominantly caused by clients. The problems with reporting these effects continue to be substantial. First, it is often unclear what the climate-related impacts of borrowers or investees are. Currently, carbon emissions of financing are not assessed routinely by the sector itself, nor do borrowers and investees provide meaningful data (Scholtens 2017). Thus, the financial sector cannot develop strategies to address the emissions and the associated risks. Therefore, the Canadian financial sector and the financial industry elsewhere should immediately start to implement the standard disclosures proposed by the TFCFD (2016). These standardized indicators should be components of all credit risk assessment tools and should be integrated into asset management and investment analysis tools. With routine practice of standardized carbon disclosures, the financial sector would be able to assess the climate change risks with respect to their correlation to financial risks. The implementation of this framework into standard financial decision making would be a first step to assess indirect climate change risks and opportunities.

Implementing standardized carbon disclosure could be voluntary or mandatory. A broad implementation would guarantee a data pool that could be used to analyze the impact of climate-related risks on the financial performance of clients and, consequently, on the financial sector. Given the hypothesis that climate change has an impact on the financial sector stability, the introduction of the indicators could be overseen by central banks or other financial regulators. However, financial sector sustainability associations, such as UNEPFI, UNPRI or the Equator Principles, could oversee the implementation as well and be responsible for the analysis of the impact of the indicators.

Enhanced carbon risk analysis is needed because the connection between climate change and credit or investment risk remains significantly uncertain. Climate-related risks in the financial industry are still treated as externalities that are not material for the industry. In line with Unerman, Bebbington and O'dwyer (2018), it is argued that externalities could soon become material. Therefore, developing standards to measure and to account for climate-related risks could be a way to address current and future risks and opportunities that are material for the financial industry.

The introduction of indicators to assess indirect climate-related risks is complex. A look at the CDP demonstrates that all industries struggle to assess and to publish indirect GHG emissions. This can be seen by the relatively low rate of scope 3 emissions compared to the direct scope 1 and scope 2 emissions. At CDP, for instance, about 500 of 3500 reporting entities report their scope 3 emissions. Indirect emissions in the financial industry are even more complex to assess than scope 3 emissions that consist of emissions through purchases. Therefore, research is needed to develop a valid and reliable system to assess the financial sector's indirect exposure to climate-related risks.

One step that should be done to enable banks to introduce climate risk assessment and reporting is to distinguish between climate risk exposure and climate change responsibility. Important work by NGOs, such as Rainforest Action Network, have analyzed carbon emissions that have been financed by banks (van Gelder et al. 2008). While this has been an important step to make the connection between the financial industry and climate change more transparent, it has led to risks for banks to publicly report on indirect carbon emissions by their clients because banks deny responsibility for these emissions. Consequently, as this study has indicated, data concerning climate risk exposure

of portfolios has not been reported to a level that enables risk assessment. The important discussion about the responsibility of the financial industry for climate change should be decoupled from reporting climate-related data. Having a higher exposure to climate-related risks can have a number of reasons and does not automatically allocate responsibilities for climate change to the financial industry. The transparent publication of indirect climate risks and opportunities, however, would help to deliver the data for the important discussion about climate change responsibilities and to enable investors to assess financial risks caused by climate-related risks.

Finally, it is often argued that borrowers and investees are not willing to provide environmental data and change their lender or investor if they are asked for the data. The financial industry, however, could offer climate-related risk assessment as a service. Instead of emphasizing the benefit for the lender or investor, climate risk assessment could be promoted as beneficial for the clients. Clients of banks would be enabled to address climate-related risks in their businesses and consequently reduce financial risks for themselves and for lenders.

Establishing indicators for clients and investees would be the first step in addressing climate-related risks in the financial industry. Without developing strategies based on climate change scenarios and available indicators, applying standardized climate-risk-related indicators makes little sense. Therefore, two activities are recommended. First, it is necessary to develop climate change scenarios that allow the financial industry to develop strategies that are able to respond to different scenarios. Because climate-related changes will be disruptive rather than linear, conventional financial risk models that are based on past performances are not useful anymore. The advent of new systematic risks needs forward-looking risk assessment and risk-management models and tools. Therefore, the development of climate scenarios and of strategies and financial risk assessment models that are able to address these scenarios are proposed.

Additionally, it became clear that financial sector reporting with regard to climate change is incomplete. With regard to climate impacts, most of the banks only report about positive impacts, such as GHG emissions avoided through the financing of renewable energy projects. Thus, the current reporting practice is selective. While indirect positive impacts are reported, negative impacts are often not disclosed. This makes it impossible for investors and other stakeholders of the financial industry to assess climate-related financial risks or contributions to climate progress in the industry. Thus, mandatory reporting of, at least, the indicators proposed by the TFCFD, including those for the financial industry is proposed. This might be mandated by the Bank of Canada or by provincial bodies, such as the Ontario Securities Commission. This would enable stakeholders, including financial regulators, to conduct climate-related risk analyses of the financial sector.

Finally, the role of financial regulators and central banks should be addressed. In other countries and regions outside North America, financial regulators and central banks play an important role in addressing climate-change-related impacts of the financial industry. Recently, the European Union High Level Expert Group in Sustainable Finance (2018) as well as the European Banking Federation (2017) published guidelines for financial sector sustainability that have mainly been written from a financial regulator's perspective. Furthermore, the Chinese financial regulator and Bangladesh Bank introduced guidelines and regulations on green finance, including reporting standards and the development of key performance indicators (China Banking Regulatory Commission 2012; 2014). Additionally, the International Finance Corporation (IFC) hosts the Sustainable Banking Network, consisting of banking associations, regulators and Central Banks from different countries.[2] All these regulations are coming from a financial sector perspective instead of an environmental perspective. They also include proposals for reporting and key performance indicators that should be reported to enable regulators to consider the climate-related performance of the financial industry. In spring 2018, Canada came up with an expert panel on sustainable finance, working on behalf of the ECCC and the Ministry of Finance that also should address climate-related risk disclosure and the potential next steps the Government of Canada may wish to consider.

Canadian provincial and federal financial regulators are still very cautious to address climate-related risk reporting for the financial industry. However, standardized climate-related reporting would be beneficial for the financial sector, for investors, regulators and other stakeholders. Therefore, financial regulators' should become more active with regard to climate-related reporting in the

2 For more information, see www.ifc.org/sbn.

financial industry. Finally, it is for the regulators' benefit to have the necessary information about the risks and stability of the financial industry.

Conclusions

This paper demonstrated that climate-related reporting in the financial industry is still in its infancy, not very transparent and fragmentary. This is true for reporting in Canada and globally. The indirect relation between banking and climate change is one of the reasons why banks struggle with climate-related reporting. Missing standards and institutional pressure from regulators or by sectoral peers could be reasons for the current state of climate-related reporting. With efforts to standardize the indicators through the TFCFD and other groups, these struggles will shrink, and it will become easier to report climate-related risks and opportunities. Additional research, however, is needed to analyze the correlation between climate-related risk indicators and financial risks for the financial sector and what impacts different institutional approaches have on climate-related reporting. Therefore, data is needed that is only available through transparent and standardized reporting.

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Appendix

Substantive Quality of Disclosed Carbon-related Activities Scoring

Internal Operations (programs and activities)	Carbon Risk Management	Green Financing Opportunities
0 — no data / no relevant data	0 — no data / no relevant data	0 — no data / no relevant data
1 — disclosure of some evidence of at least one carbon-related program or activity aimed at internal operations	1 — disclosure of some indication of incorporating carbon risks into lending/assets/underwriting	1 — disclosure of some evidence of at least one green product or service
2 — disclosure of description of at least one carbon-related program or activity aimed at internal operations	2 — disclosure of evidence of applicable policies to conventional financing activities	2 — disclosure of description of at least one green product or service
3 — disclosure of the output associated with at least one carbon-related program or activity aimed at internal operations	3 — disclosure of description of carbon integration activity (e.g., policy)	3 — disclosure of the monetary value allocated or number of loans financed, to at least one green product or service
4 — disclosure of the carbon emissions mitigated that are associated with internal operations	4 — disclosure of outcomes associated with carbon-related financing integration/policy	4 — disclosure of carbon impact emissions avoided
5 — disclosure of trend of carbon emissions mitigated	5 — disclosure of carbon impact emissions associated with only a portion of financing activities	5 — disclosure of trend of carbon impact emissions mitigated
	6 — disclosure of trend of carbon impact emissions with only a portion of financing activities	
	7 — disclosure of carbon impact emissions of all financing activities	
	8 — disclosure of trend of carbon impact emissions of all financing activities	

About CIGI

We are the Centre for International Governance Innovation: an independent, non-partisan think tank with an objective and uniquely global perspective. Our research, opinions and public voice make a difference in today's world by bringing clarity and innovative thinking to global policy making. By working across disciplines and in partnership with the best peers and experts, we are the benchmark for influential research and trusted analysis.

Our research programs focus on governance of the global economy, global security and politics, and international law in collaboration with a range of strategic partners and support from the Government of Canada, the Government of Ontario, as well as founder Jim Balsillie.

À propos du CIGI

Au Centre pour l'innovation dans la gouvernance internationale (CIGI), nous formons un groupe de réflexion indépendant et non partisan doté d'un point de vue objectif et unique de portée mondiale. Nos recherches, nos avis et nos interventions publiques ont des effets réels sur le monde d'aujourd'hui car ils apportent de la clarté et une réflexion novatrice pour l'élaboration des politiques à l'échelle internationale. En raison des travaux accomplis en collaboration et en partenariat avec des pairs et des spécialistes interdisciplinaires des plus compétents, nous sommes devenus une référence grâce à l'influence de nos recherches et à la fiabilité de nos analyses.

Nos programmes de recherche ont trait à la gouvernance dans les domaines suivants : l'économie mondiale, la sécurité et les politiques mondiales, et le droit international, et nous les exécutons avec la collaboration de nombreux partenaires stratégiques et le soutien des gouvernements du Canada et de l'Ontario ainsi que du fondateur du CIGI, Jim Balsillie.

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