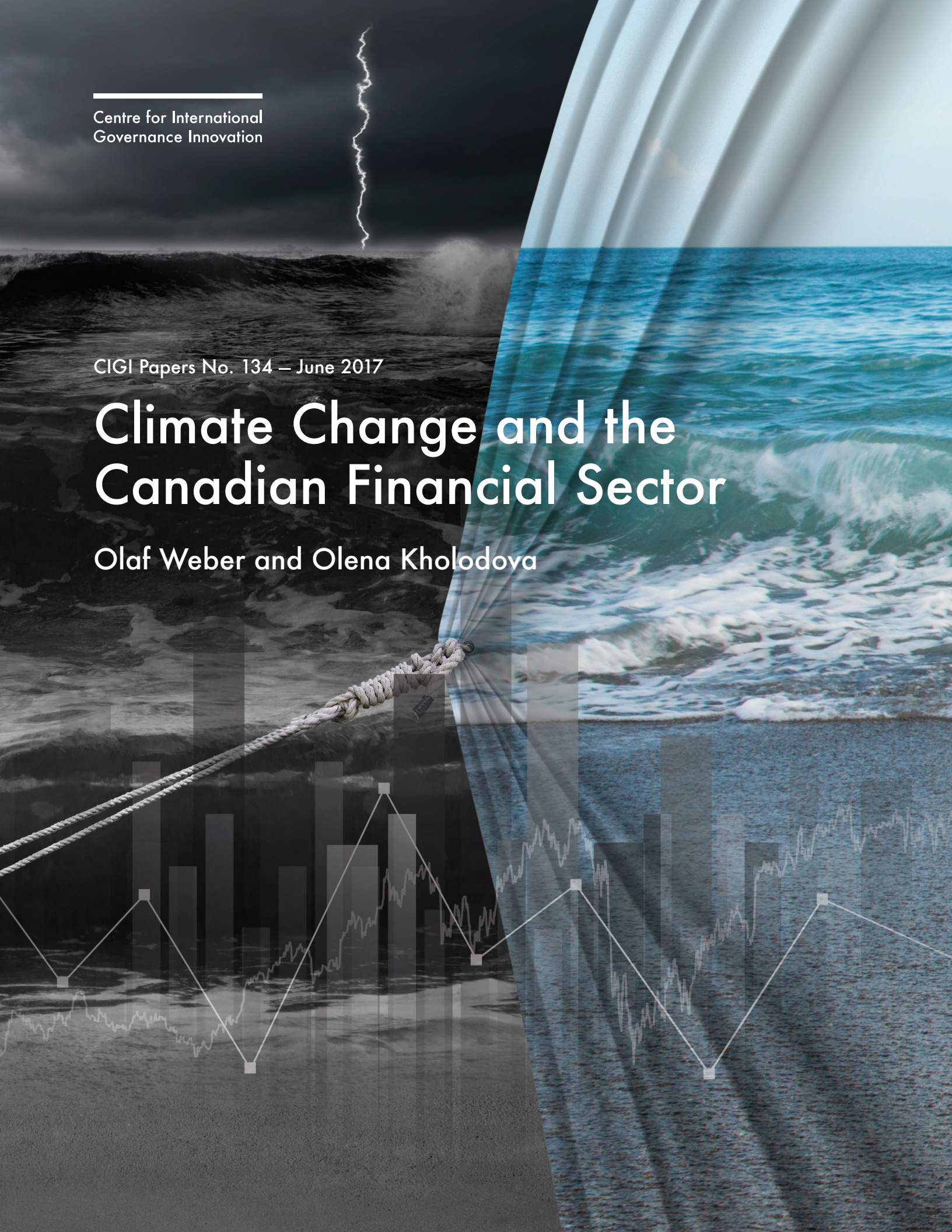

Centre for International
Governance Innovation

CIGI Papers No. 134 – June 2017

Climate Change and the Canadian Financial Sector

Olaf Weber and Olena Kholodova

Centre for International
Governance Innovation

CIGI Papers No. 134 — June 2017

Climate Change and the Canadian Financial Sector

Olaf Weber and Olena Kholodova

CIGI Masthead

Executive

President Rohinton P. Medhora

Director of Finance Shelley Boettger

Director of the International Law Research Program Oonagh Fitzgerald

Director of the Global Security & Politics Program Fen Osler Hampson

Director of Human Resources Susan Hirst

Director of the Global Economy Program Domenico Lombardi

Chief Operating Officer and General Counsel Aaron Shull

Director of Communications and Digital Media Spencer Tripp

Publications

Publisher Carol Bonnett

Senior Publications Editor Jennifer Goyder

Publications Editor Patricia Holmes

Publications Editor Nicole Langlois

Publications Editor Sharon McCartney

Publications Editor Lynn Schellenberg

Graphic Designer Melodie Wakefield

For publications enquiries, please contact publications@cigionline.org.

Communications

For media enquiries, please contact communications@cigionline.org.

Printed in Canada on paper containing 10% post-consumer fibre and certified by the Forest Stewardship Council® and the Sustainable Forestry Initiative.

Centre for International
Governance Innovation

67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org

Table of Contents

About the Authors

Olaf Weber is a CIGI senior fellow. His research with CIGI focuses on sustainability and the banking sector, including sustainability guidelines and regulations for central banks and regulatory bodies. Olaf is a professor at the School of Environment, Enterprise and Development at the University of Waterloo. His research and teaching interests are in the area of environmental and sustainable finance with a focus on sustainable financial and credit risk management, socially responsible investment, social banking and the link between sustainability and financial performance of enterprises. Before joining the University of Waterloo, he was head of the Sustainable Banking Group of the Swiss Federal Institute of Technology, Zurich.

Olena Kholodova is a graduate student at the University of Waterloo, currently pursuing a master's degree in environmental studies, within the Sustainability Management program. Prior to undertaking her graduate studies, Olena held various management accounting roles in Europe and North America with the world's leading publisher and information solutions provider. Olena holds an administrative studies degree with specialized honours in accounting from York University. She is a chartered professional accountant of Ontario and a chartered management accountant in the United Kingdom.

About the Global Economy Program

Addressing limitations in the ways nations tackle shared economic challenges, the Global Economy Program at CIGI strives to inform and guide policy debates through world-leading research and sustained stakeholder engagement.

With experts from academia, national agencies, international institutions and the private sector, the Global Economy Program supports research in the following areas: management of severe sovereign debt crises; central banking and international financial regulation; China's role in the global economy; governance and policies of the Bretton Woods institutions; the Group of Twenty; global, plurilateral and regional trade agreements; and financing sustainable development. Each year, the Global Economy Program hosts, co-hosts and participates in many events worldwide, working with trusted international partners, which allows the program to disseminate policy recommendations to an international audience of policy makers.

Through its research, collaboration and publications, the Global Economy Program informs decision makers, fosters dialogue and debate on policy-relevant ideas and strengthens multilateral responses to the most pressing international governance issues.

Executive Summary

This paper reports on the results and policy recommendations of a project about climate risks and opportunities in the Canadian financial sector. The results and recommendations are based on interviews with financial sector representatives and an extensive literature analysis. Both the Financial Stability Board (FSB) of the G20 and the Bank of Canada have stated that climate change is a significant risk for financial sector stability. But assessing climate change-related risks is complex, since the information needed for such assessments is fragmented, incomplete or not yet available. Strategies and tools are needed to analyze the impact of climate change on the Canadian financial sector, but these tools do not exist yet. Furthermore, the results of the project suggest that the interest in climate change-related risks and opportunities is opportunity driven for some organizations, while for others it is risk driven. Banks appear to be less exposed to the impacts of climate change than insurance companies are, since their assets are shorter term in nature and their lending and investment portfolios are typically more diversified.

Finally, the results of the interviews with financial sector representatives demonstrate that there is uncertainty about how well prepared Canadian financial institutions are for climate change-related disclosure requirements, such as the one published by the FSB Task Force on Climate-related Financial Disclosures. Therefore, it is recommended that climate change-related risk and opportunity assessment tools should be developed that are based on climate change scenarios and Canadian climate change mitigation and adaptation strategies. These assessment tools should assess the different types of climate-related risks, such as regulation risks, reputational risks, physical risks and transition risks that occur through the transition to a low-carbon economy. Finally, it is proposed that strategies should be developed to integrate the Canadian financial sector in climate finance in Canada.

Introduction

Concerns around climate change impacts on society and the planet are fuelling international and domestic regulatory action, technological innovation and a shift in public perception and behaviour. In response to the Paris Agreement (which was signed in 2015 at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change), Environment and Climate Change Canada (2016), for instance, developed Canada's Mid-century Long-term Low-Greenhouse Gas Development Strategy to be able to achieve the necessary greenhouse gas (GHG) reductions that would meet the country's national commitments. Such a strategy implies a pathway toward the decarbonization of the economy that requires more than decreasing the emissions of the fossil fuel industry: it will require changes in most of Canada's industries. The plan may pose significant transition risks and opportunities for the Canadian financial sector.

As carbon-emitting industries are under increasing pressure to reduce GHG emissions and to take other actions to mitigate and adapt to climate change, they are likely to face additional costs, as well as declining sales and returns, if they fail to take action within a required time frame. Failing to take action will thus expose their lenders and investors to increasing risks. As a result, it will be important for banks and other financial institutions to be prepared to evaluate what impact climate change will have on the organizations they lend to and invest in and the overall impact it will have on their business models — the so-called operator risk.

In this vein, Mark Carney, governor of the Bank of England, has warned in some speeches and publications that the stability of the financial sector could be in danger because of climate change risks (Carney 2015). The Bank of Canada has also addressed climate-related risks for the Canadian financial sector (Lane 2017). These risks could include the financial risk of stranded assets (also called transition risks); for instance, the value of oil, coal and gas resources may depreciate because only a fraction of the fossil fuel resources can be burned if the 2°C goal is to be achieved, and increasing government regulation could limit extraction of these resources. Physical risks, in the form of increasingly severe extreme weather events, could

affect the insurance sector through significant increases in claims for flood damage or droughts.

For investors and lenders, risks could appear due to regulative changes, such as the introduction of carbon pricing that influences the costs as well as the profits of their clients. Reputational or legal risks may arise if the financial industry offers their services to controversial projects such as pipelines. Finally, transition risks may affect the structure of the Canadian economy. They occur because of the transition to a low-carbon economy. Such a change in the structure of the economy, however, means that the financial industry has to adapt to these new structures, new types of businesses and new types of risks.

To clarify the latter type of risk, this paper focuses on Canada's Mid-century Long-term Low-Greenhouse Gas Development Strategy (Environment and Climate Change Canada 2016). The Canadian strategy is likely similar to those being developed by many other countries that have committed to achieving the 2°C goal, since most industrialized countries have to reduce their GHG emissions by approximately 80 percent by 2050 and have to be zero-emission countries after 2050.

The implementation of a 2°C strategy in Canada would require a carbon-free electrification of transport, housing and industrial energy. Currently, transport emits 62 percent of Canada's black carbon emissions (or about 25 percent of Canada's total GHG emissions) and 57 percent of those emissions are caused by passenger transport. Significant electrification and a shift to public transport and electric vehicles could disrupt the sector and consequently will affect financiers. In addition, the introduction of new building codes will influence the mortgage sector. In Ontario, for example, by 2030, new commercial and residential buildings will be required to be cooled and heated by renewable energy. Building costs will be higher due to more stringent requirements for insulation and building envelope efficiency, and decentralized energy and heat resources, such as heat pumps and solar panels, could further increase building costs. At the same time, greater energy efficiency will lead to lower operating costs for energy and heating over the life of these buildings, offsetting the maintenance costs in the long term. Higher building costs, and reduced operating costs, must both be reflected in mortgage regulations.

Furthermore, business activities of high-emitting industries, such as the fossil fuel sector, are likely to decrease because of climate change-related regulations and costs of emissions, and will be exposed to increasing costs for carbon emissions as well as for their management and storage. In addition, future costs for cleaning up tailing ponds will occur. These industries will need to invest in non-emitting energy and heat resources. Given that high-emitting industries (such as mining, pulp and paper, iron and steel, cement, smelting and refining) are important sectors in Canada, the impact on their lenders and investors will be significant.

Additionally, substantial investment in sustainable infrastructure will be necessary. These investments could be an opportunity for the Canadian financial sector because at least some parts of them are likely to be transacted privately or through public-private partnerships.

Finally, yet importantly, green energy development needs significant investments. In order to meet the Paris Agreement goal, the global renewable energy sector needs $1 trillion annually (Zuckerman et al. 2016). The Canadian financial sector will be involved in financing activities for renewable energy.

While decarbonization seems like a process that will require decades of transition, it is noteworthy how quickly the goal posts have already moved. Within the last five years, Peabody Energy, Arch Coal and Alpha Resources (the largest publicly traded coal stocks in the United States) have all been forced into bankruptcy. Meanwhile, oil sands companies have lost more than half their market capitalization. This may or may not qualify as systemic risk, but it certainly must have caught the attention of financial institutions.

Managing Climate Change Risks and Opportunities in Canadian Banks and Insurance Companies

As mentioned above, climate change seems to have both positive and negative effects on the financial sector. If this is the case, how does the financial sector assess and manage these opposing but related impacts? This question has prompted a research study that assessed the current state of the Canadian financial sector with respect to portfolio risks in investment, asset management and lending. Conducted in 2016, the study used face-to-face and phone interviews with seven representatives from the Canadian banking sector (six banks) and eight from the insurance business (three insurance companies). This section of the paper highlights the main preliminary findings of the study and draws conclusions for further action with regard to climate-related risks for the Canadian financial industry.

The interviews focused on participants' perceptions, assessments and mitigation of climate change-related risks for their businesses. The risks were broken down into five specific themes that have potential financial impact on participating organizations: physical, reputational, regulatory, legal and systemic risks.

Perception of Climate-related Risks and Opportunities

The focus of the discussions was on the management of climate risks in a changing environment. The banking industry discussed their own operations (physical risks for buildings and infrastructure, insurance divisions where applicable and lending businesses). The insurance industry primarily discussed climate change impacts for their asset management and the viability of underwriting business for property, casualty, health and life products. The interviewees highlighted that climate change not only creates risks but may also present opportunities for their respective businesses. Specific opportunities discussed were in the areas of lending and investment in a low-carbon economy, primarily for renewable energy sources, energy efficiency and carbon markets.

The following word cloud (Figure 1) generated by analyzing the interviews of all participants, with regard to the frequency of words mentioned, confirms and summarizes the findings about climate risk perception in the Canadian financial industry. The focus is on the management of climate risks in a changing environment.

The top climate change-related impacts identified were physical, regulative, reputational and systemic. However, the insurance industry perceived systemic risk to be slightly more important than reputational risk. They define systemic risk as the financial impact associated with a shift to a low-carbon economy, which may change the valuation of certain assets with potentially negative financial consequences to investment and lending portfolios.

Physical aspects of climate change were perceived as most significant, due to direct and indirect effects on organizational assets and products as a result of increased frequency and severity of extreme weather-related events. The events have an impact on the financial sector's physical sphere of operations, such as offices and buildings, and create the risk of business continuity disruption.

Property and casualty insurance divisions have suffered an overall decrease in profitability in recent years, which has prompted a review of the long-term viability of their business models (Prudential Regulation Authority 2015; Thistlethwaite 2012; Treby, Clark and Priest 2006). Impacts on credit ratings (both favourable and unfavourable) as a direct result of the consequences of climate change, of organizations they finance and invest in, were also discussed. In certain regions, for instance, agriculture may benefit from increased yields as a result of warmer temperatures, while, at the same time, increased droughts and floods can have negative effects on its operations (Rubin 2017). In addition, one of the more significant opportunities identified was financing of new infrastructure projects.

Reputational sensitivity to climate change was perceived to be applicable to the finance industry in the context of any financial services related to climate change-sensitive issues, such as pipelines and coal-fired power plants. Those companies that play an active role by engaging, investing in

Figure 1: Word Cloud Generated from Interviews

Source: Authors.

research and development, and communicating their activity in this space can benefit and achieve positive impact on their reputation. Mounting evidence and growing coverage in the media regarding the connection between the financial sector and climate change have driven an increasing number of inquiries from industry's stakeholders with regard to exposure to climate change risks in their portfolios (Dordi 2016).

The impact of climate-related regulations on the Canadian financial industry seems to be mostly indirect, through risk associated with financing high-emitting industries. However, for the financial industry it will be important to engage with policy makers and regulators with regard to climate change-related topics such as carbon pricing, since they may also affect the Canadian financial industry. Climate change-related regulations, however, might also provide opportunities for the financial sector, such as financing for climate change-related projects and the involvement of the financial sector in carbon trading.

Systemic aspects of climate change, such as rapid change in valuation of companies and depreciation of assets due to a transition to a low-carbon economy (Ansar, Caldecott and Tilbury 2014;

Carbontracker 2015), were discussed controversially in the Canadian finance industry. On the one hand, transition risks are not believed to pose systemic risk to the financial sector. This view is supported by the argument that the transition to a low-carbon economy is likely to be slow and that the government will support industries that are most impacted by the transition. In addition, there is a view that by taking advantage of opportunities associated with climate change, such as investments in or financing of renewable energy initiatives, the financial sector would effectively reduce its exposure to systemic risk. The question remains, however, whether climate risks can be hedged (Cambridge Institute for Sustainability Leadership 2015). On the other hand, another group of participants believes that systemic risk can pose a serious threat to their organizations, mainly because of a transition to a low-carbon economy causing a shift in the valuation of assets and industries that are most vulnerable to climate change-related risks. The lowest impact would be on organizations with a focus on short-term investment, as they are more flexible and able to divest from risky investments.

Assessment of Climate-related Portfolio Risks

The second main question addressed by the study was how the Canadian banks and insurance companies assess climate-related risks. With regard to physical risks for the institutions' operations, the participants referred to monitoring systems in place to track possible impacts on their operations and the risk of business interruptions due to extreme weather events. Such processes are related to operational risks and are also mentioned by the Basel Committee on Banking Supervision (2013).

As expected, companies offering property and casualty insurance have procedures in place to assess the potential impact of floods or other severe weather events. This paper, however, focuses on portfolio risks in asset management, investments and lending. Banks have recently enhanced climate risk-related due diligence processes for their clients and apply environmental, social and governance criteria in their investment decisions. Assessing climate-related portfolio risks, however, is still perceived to be complex because of the lack of standard risk indicators, scenarios and knowledge about the future impacts of climate change. Nevertheless, some institutions apply shadow pricing for carbon and use different carbon-pricing scenarios to assess carbon-related risks. Because of the indirect nature of the relation between finance and climate change, more in-depth understanding is needed about how to assess both climate-related risks for the lending and investment industry as well as climate-related impacts on financial products and services.

Another issue that is hard to monetize is reputation. Although banks and other financial institutions have been reported in the media in relation to financing controversial clients and projects (Weber and Feltmate 2016), as well as their exposure to climate-related risks (Stewart 2016), the financial impact of these occurrences is still unclear.

Finally, as mentioned above, systemic risks are those risks that have the potential to expose an entire industry or economy to risks. In the case of climate change, there is debate about the transition to a low-carbon economy having the potential to trigger systemic risk within the financial sector. Recently, the Bank of Canada (Lane 2017) warned of the potential for climate change to have a material impact on the economy and advised financial institutions to monitor transition risks — that is, their exposure to climate risk and the resulting transition of the economy, based on their loans and investments. Though carbon footprinting is seen as a possibility to assess exposure to climate risk, the method is still in its infancy and needs to be complemented by other metrics, such as avoided emissions (Raynaud 2015). Often carbon-related indicators are not standardized and issues around assessing scope 3 emissions (World Resources Institute & World Business Council for Sustainable Development 2010) are still not resolved. Nevertheless, some financial institutions have conducted stress tests to analyze their exposure to climate-related risks. Further research, however, might help to understand the efficacy of such tests and the factors that must be taken into consideration.

Climate Risk Mitigation

Given that the perception of climate change risks varies among representatives of the Canadian financial sector, and that the assessment of climate risks with respect to financial products and services is still in its infancy, the management of these risks is complex. From the point of view of some Canadian banks and insurance companies, the Canadian financial sector relies on

the government's leadership in offering direction, establishing regulations, providing incentives for climate finance and fostering research on climate-related risks for the financial industry. According to financial industry representatives, these initiatives will support the transition to a low-carbon economy without exposing the financial industry to high levels of risk. Regulatory initiatives, combined with voluntary initiatives in the financial sector that focus on the standardization of climate risk-related indicators, may help to achieve a transition to a low-carbon economy that does not harm economic stability or growth.

Finally, in the opinion of some interviewees, risk can be mitigated through engagement with clients, such as commercial and corporate borrowers or investees, and by reducing investments in industries with increased financial risks. The latter, however, may be a problem, because of missing reinvestment opportunities with similar risk-return characteristics.

Policy Recommendations

Based on the preliminary results of the interviews, the following recommendations have been developed:

- To mitigate systemic risk throughout a transition to a low-carbon economy, the financial sector should proactively communicate risks and opportunities for the Canadian financial sector with provincial governments and the federal government.
- As a number of studies (Rubin 2016; Weber 2016) demonstrate, investments in high carbon-emitting industries are at risk; therefore, the financial sector in a resource-based country, such as Canada, is significantly affected by this risk. This has recently been communicated by the Bank of Canada (Lane 2017). Strategies to manage these risks, including shifting investments to other, sustainability-oriented industries, should be developed. Divestment should be understood not only as a radical strategy advocated by activist groups but also as a way to mitigate risk. It must be taken into account, however, that with the oil and gas sector still accounting for about 20 percent of the total market capitalization of the TSX Composite Index, there is a lot of indirect investment in Canadian fossil fuel companies through passive index investing.
- The Canadian financial sector should identify industries that are both positively and negatively impacted by climate change and determine their exposure to physical, regulatory and transition risks and opportunities. Measuring and tracking the climate change-related performance of borrowers and investees, and how it affects their credit rating, will be crucial in managing climate change-related financial risks.
- Lenders should identify their lending exposure and loan loss provisions by sector to enable stakeholders, including shareholders, to assess the exposure of their loan books to climate change-related risks.
- In order to be prepared for different domestic and international regulatory environments, economic scenarios must be developed using international and domestic commitments to limit carbon emissions. These scenarios would form the basis for stress testing lending and investment portfolios. This method has been used successfully in Germany (Cambridge Centre for Sustainable Finance 2016).
- Following the efforts of the FSB Task Force on Climate-related Financial Disclosures (2016), the financial industry should develop indicators that can be used internally to measure and evaluate climate change-related performance. This will facilitate the development of an internal knowledge base and of strategies to manage climate change-related risks. The development of standardized climate risk-related indicators for other industries has to be complemented by financial sector indicators that assess the performance of the industry with regard to climate change. Methods such as carbon footprinting, avoided emissions and green-brown metrics — though still in their infancy — are helpful for managing carbon-related risks and allocating climate change responsibilities.
- The insurance industry should develop methods to assess the climate change exposure of their diverse and long-term oriented portfolios to be able to manage climate risk in these complex assets.

→ Because of a gap in knowledge on how to identify climate change-related risks for lending and investment portfolios and in the knowledge about useful strategies for the financial sector to address climate change research, further research is needed that: addresses methods to assess climate change risks for financial portfolios; and compares the current state of addressing climate change by the financial sector in Canada, internationally and in other countries.

Works Cited

Ansar, Atif, Ben Caldecott and James Tilbury. 2014. "Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets?" Smith School of Enterprise and the Environment, University of Oxford. www.smithschool.ox.ac.uk/research-programmes/stranded-assets/SAP-divestment-report-final.pdf.

Basel Committee on Banking Supervision. 2013. "Revised Basel III leverage ratio framework and disclosure requirements." Consultative document of the Basel Committee on Banking Supervision, Bank for International Settlements. September 20. www.bis.org/publ/bcbs251.pdf.

Cambridge Centre for Sustainable Finance. 2016. "Environmental risk analysis by financial institutions — a review of global practice." Cambridge, UK: Cambridge Institute for Sustainability Leadership. www.cisl.cam.ac.uk/publications/sustainable-finance-publications/environmental-risk-analysis-by-financial-institutions-a-review-of-global-practice.

Cambridge Institute for Sustainability Leadership. 2015. "Unhedgeable risk: How climate change sentiment impacts investment." Cambridge, UK: Cambridge Institute for Sustainability Leadership. November. www.cisl.cam.ac.uk/publications/sustainable-finance-publications/unhedgeable-risk.

Carbontracker. 2015. "The $2 trillion stranded assets danger zone: How fossil fuel firms risk destroying investor returns." November. www.carbontracker.org/report/stranded-assets-danger-zone/.

Carney, Mark. 2015. "Breaking the tragedy of the horizon — climate change and financial stability." Speech given at Lloyd's of London, September 29.

Dordi, Truzaar. 2016. "An Event Study Analysis of the Fossil Fuel Divestment Movement." Master's thesis, University of Waterloo.

Environment and Climate Change Canada. 2016. "Canada's mid-century long-term low-greenhouse gas development strategy." Gatineau, QC: Environment and Climate Change Canada. http://unfccc.int/files/focus/long-term_strategies/application/pdf/canadas_mid-century_long-term_strategy.pdf.

Lane, Timothy. 2017. "Thermometer Rising — Climate Change and Canada's Economic Future." Speech given to the Finance and Sustainability Initiative, Bank of Canada, Ottawa, ON, March 2.

Prudential Regulation Authority. 2015. "The impact of climate change on the UK insurance sector: A Climate Change Adaptation Report by the Prudential Regulation Authority." London, UK: Bank of England Prudential Regulation Authority. September. www.bankofengland.co.uk/pra/Documents/supervision/activities/pradefra0915.pdf.

Raynaud, Julie. 2015. "Carbon Compass: Investor guide to carbon footprinting." London, UK: KeplerCheuvreux and the International Investors Group on Climate Change. November 23. www.iigcc.org/files/publication-files/Carbon_Compass_final.pdf.

Rubin, Jeff. 2016. *The Case for Divesting from Fossil Fuels in Canada*. CIGI Paper No. 112. Waterloo, ON: CIGI. October. www.cigionline.org/publications/case-divesting-fossil-fuels-canada.

———. 2017. *Economic Opportunities from a Changing Climate*. CIGI Paper No. 118. Waterloo, ON: CIGI. February. www.cigionline.org/publications/economic-opportunities-changing-climate.

Stewart, Hamish. 2016. "Canadian rating agencies ignore climate risk." *National Observer*, July 4. www.nationalobserver.com/2016/07/04/analysis/willful-blindness-canadian-rating-agencies-ignore-climate-risk.

Task Force on Climate-related Financial Disclosures. 2016. "Recommendations of the Task Force on Climate-related Financial Disclosures." Basel, Switzerland: Task Force on Climate-related Financial Disclosures. www.fsb-tcfd.org/publications/recommendations-report/.

Thistlethwaite, Jason. 2012. "The ClimateWise Principles: Self-Regulating Climate Change Risks in the Insurance Sector." *Business & Society* 51 (1): 121–47. doi:10.1177/0007650311427595.

Treby, Emma J., Michael J. Clark and Sally J. Priest. 2006. "Confronting flood risk: Implications for insurance and risk transfer. *Journal of Environmental Management* 81 (4): 351–59. doi:http://dx.doi.org/10.1016/j.jenvman.2005.11.010.

Weber, Olaf. 2016. "Digging into the Eco-Fund Ratings." *Corporate Knights*, January 18. www.corporateknights.com/reports/2016-eco-fund-rating/digging-into-the-eco-fund-ratings-14530788/.

Weber, Olaf and Blair Feltmate. 2016. *Sustainable Banking and Finance: Managing the Social and Environmental Impact of Financial Institutions*. Toronto, ON: University of Toronto Press.

World Resources Institute & World Business Council for Sustainable Development. 2010. "Corporate Value Chain (Scope 3) Accounting and Reporting Standard." http://pdf.wri.org/ghgp_corporate_value_chain_scope_3_standard.pdf.

Zuckerman, Julia, Jana Frejova, Ilmi Granoff and David Nelson. 2016. "Investing at Least a Trillion Dollars a Year in Clean Energy." Contributing paper for Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate. London, UK, and Washington, DC: New Climate Economy. http://newclimateeconomy.report/workingpapers/wp-content/uploads/sites/5/2016/05/NCE_CleanEnergy_financing_final_web-Copy.pdf.

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 qui formule des points de vue objectifs dont la portée est notamment mondiale. Nos recherches, nos avis et l'opinion publique ont des effets réels sur le monde d'aujourd'hui en apportant autant de la clarté qu'une réflexion novatrice dans 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.

Centre for International
Governance Innovation

67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org