The global financial crisis was hugely damaging, costing tens of millions of jobs, trillions of lost output and trust in the system itself. Over the past decade there has been a global effort to strengthen the world’s financial system. We have now agreed the measures to address the fault lines that caused the crisis. The system is now safer, simpler and fairer. The work of the Global Risk Institute in education and research – which I first experienced during my time as Governor of the Bank of Canada – has been an invaluable support to understanding how to build a more resilient financial system in Canada and beyond. But such work is never finished.

GRI’s mission to provide risk insight and build capacity is more critical than ever. We will continue to rely on the GRI’s education, research and engagement to strengthen system stability in Canada and to bring a bit of Canada to the world.”

Mark Carney,
Governor, Bank of England
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LETTER FROM THE BOARD CHAIR

2018 was GRI’s most productive year to date. With 35 published reports and whitepapers, over 75 events hosted or co-sponsored, and more than 120 meetings with members, organizations overwhelmingly viewed the value of their membership to exceed investment.

In response to member feedback, GRI launched a new education program called the Emerging Leaders Program, aimed at future leaders who want to advance their knowledge and effectiveness in enterprise risk management. We also expanded the offering of our flagship education program, the Board Risk Oversight and Insight Program or “BROIP”, into Montreal, and continued with two offerings of the program in Toronto.

GRI was also active in engaging with the public sector, delivering three tailored risk management education programs for the Ontario Ministry of Finance, the Office of the Superintendent of Financial Institutions, and, in conjunction with the Ontario Treasury Board Secretariat, an education program specifically for senior leaders in the Ontario Public Service.

Additionally, the National Pension Hub (“NPH”), launched in late 2017, made important progress in 2018, working on six separate research projects and holding three NPH seminars.

THANK YOU TO RICHARD NESBITT

In 2018, Richard Nesbitt, GRI’s CEO, announced that he would be retiring. Richard has had a tremendous impact on GRI since he started in May 2015. Under Richard’s leadership, the quantity, quality and reach of GRI’s applied research has grown substantially, and its support and delivery of education in risk management now extends from graduate university programs, to working professionals, to boards of directors. On behalf of GRI’s Board, I would like to thank Richard for his substantial and lasting contribution to our organization.

WELCOME TO SONIA BAXENDALE

We are very pleased to welcome Sonia Baxendale as our new President and CEO, effective January 7, 2019. Sonia has experience at the highest levels of financial services and in many facets of the business that dominate the industry today. Her financial services background combined with her experience as a corporate director will bring perspective and leadership to further grow GRI’s impact and build on our recent successes.

GOVERNANCE

The Global Risk Institute continues to strengthen its governance through the effective use of its committee structure and the quality of our Board participation. I wish to thank all the Board members for their dedicated work. On behalf of the Board and management, I also want to particularly thank Tim Hodgson, who served on the GRI Board for six years and was instrumental in driving GRI’s strategy, bringing on new members, and making our Annual Summit the success it has been.

ANNUAL GENERAL MEETING

We will host our annual general meeting on Thursday, April 18, 2019 at our GRI offices in Toronto, Canada.

GOING FORWARD

In an increasingly complex, multi-polar and fast-paced world, the need for sound risk management is more pressing than ever. New risks arising from technological disruption, cyber threats, geopolitical uncertainty and climate change will challenge boards, management and all employees to develop and implement new frameworks, metrics and processes to address these threats. GRI’s overarching objective is to support its members in
understanding and managing risk and to help them remain at the forefront of enterprise risk management practices globally. GRI’s mission is to ensure that sound risk management remains a competitive advantage for Canada, and leadership in risk management and governance is something Canada can export to the world.

Tiff Macklem

LETTER FROM THE CEO

I am pleased to join the Global Risk Institute in Financial Services to continue the excellent work that Richard Nesbitt and his team have led with world leading institutions, government, regulators and academia in ensuring Canada continues to leverage its risk capability as a competitive advantage. Partnering in research and education will allow us to maintain a sound financial system in an increasingly complex world of global risks.

In 2019, GRI will enhance our offering to current members and target new sectors to increase our engagement with the financial services sector. In particular, some of the exciting things that we have planned include:

• GRI and the Insurance Bureau of Canada will partner on delivering its first Property and Casualty Insurers’ Conference specifically tailored to strengthen our engagement with this sector.

• Our Research agenda will continue to grow and strengthen, aided by our Managing Director of Research, Alex LaPlante, her research team, and the Research Advisory Committee. In 2019, GRI is introducing a new research area focussed on Geopolitical Risk to help address this growing risk factor for the financial services industry. This is in addition to our other current risk themes of Technology Disruption and Innovation, Cyber Security and Fraud, Climate Change and Environmental Risk, Systemic Risk, Regulatory Compliance and Financial Stability, and Macroeconomic Risk. We will also continue to produce important white papers and publications with relevant management responses on key topics.

• The National Pension Hub will continue its work on existing and new research projects and build a collaborative network comprised of experts from industry, academia and government, both within Canada and internationally.

• Delivering a wide variety of events, including roundtables, bespoke events, including further offerings of GRI’s risk management program to key public sector stakeholders within the Ontario Public Service, the Board Risk Oversight and Insight Program, and the Emerging Leaders Program.

• The 2019 Summit, our annual conference which has repeatedly sold out, will take place on September 18, 2019.

I look forward to working with all of our current members, welcoming new members, and leveraging the strength of our insights to a global audience.

Sonia Baxendale
Institute Growth in 2018

2018 WAS A RECORD SETTING YEAR

New risks have emerged and their impact is accelerating. These include data privacy, cyber security, conduct, strategy and technology risk, climate change, and geopolitical risk. These risks require new ideas and new skills. GRI strives to bring insight and build capacity on these emerging risks.

GRI’s mailing list subscriptions grew to 1660 in 2018, an increase of 73%
GRI’s Top Publications

GRI publications had **25,854** page views in 2018. The top 4 publications for 2018 were:

<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
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<td>What Makes a Good Risk Manager?</td>
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<tr>
<td>Addressing Culture and its Associated Risks in Financial Institutions</td>
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<td>The Secret life of Culture: Unveiling culture risk in the age of machine learning</td>
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“Ontario also is a hub of leading-edge risk management thinking, applied research, education and training through the Global Risk Institute in Financial Services, a collaboration of regulators, risk experts, academics, policy makers and practitioners.”

*BUSINESS FACILITIES, April 2018*
Research Report

NEW RESEARCH INITIATIVES IN 2018

In continuing to support research on emerging risks, two new collaborative projects have commenced in the fields of financial technology and cybersecurity.

Is the future of banking “open”?
Professor Markos Zachariadis, Warwick Business School

The recent implementation of PSD2 in Europe and the open banking initiative in the UK (CMA), are leading towards the creation of an open-banking environment through the introduction of open APIs. The question still remains: how will banks respond to this regulatory change? This research aims to explore the strategic implications of open banking in Canada and the US, and the potential benefits and risks for the industry.

Cryptocurrency Exchange Rates
Professor Patrick Augustin, McGill University

This research presents a systematic analysis of trading activity and return dynamics of cryptocurrencies and their derivatives. It will examine the pricing efficiency of digital exchange rates and will test for the presence of counterparty risk in the digital currency space.

2018 brought new opportunities to collaborate on tailored research events

Machine Learning FinTech Conference II
Through GRI funding of the FinHub, we co-sponsored this event, hosted at The Rotman School of Management. This conference focused on connecting financial services problems with Machine Learning Innovators. The event included speakers and panels on WealthTech, InsurTech, and RegTech.

Mini-Symposium on Systemic Risk
GRI partnered with The Fields Institute to produce a mini-symposium to explore recent developments in the study of stability of banking networks, presenting the insights from leading academic researchers and regulators working in this area. Speakers included Ian Buckley, Canadian Securities Transition Office; Tom Hurd, McMaster University; Jorge Cruz Lopez, Bank of Canada; and Agostino Capponi, Columbia University.
GRI recognizes that international relations are in a state of disruptive transition. The growth of emerging economies, the rise of populism, and evolving security threats are increasing multipolarity, upsetting trade and investment flows, steering markets and shaping regulation. Given the implications of these changes for the Canadian financial services industry, we have expanded our research themes to include Geopolitical Risk.

Consistent with our strategic realignment, we produced two reports concerning the recent North American trade negotiations:

- A preliminary assessment of the United-States-Mexico-Canada Agreement (USMCA)
- A social scientific analysis of the NAFTA renegotiation process.
National Pension Hub Report

INITIATIVES IN 2018

In late 2017, GRI announced the creation of a National Pensions Hub (NPH) that will serve as a Canadian centre for pension knowledge and research. The purpose of the NPH is to provide pension and income security research that, among other things, will lead to innovative solutions to pension design, governance and investment challenges.

IN 2018, THE NPH HELD ITS FIRST THREE EVENTS ATTRACTING 50 NPH MEMBERS.

Technology and the Future of Pensions
This roundtable, led by Stanford’s Dr. Ashby Monk, Executive & Research Director, Stanford Global Projects Centre, discussed the importance of reorienting institutional investors around technology. Professor Monk described his findings on the chief obstacles to such technological reorientation, as well as how to remove them.

Exit, Voice, and ESG
Professor Randy Cohen, Partner with Alignvest Investment Management & Professor at Harvard Business School, discussed whether institutions can invest in a way that improves the world without impeding performance. It addressed the best techniques to attain such goals, what conscientious investors may do to help reduce the probability of climate change and developed a framework for understanding when an exit-based approach will be the most effective versus when to employ voice, and, when voice is preferred, how to use it.

Financial Innovations for the Pension Industry: Blockchain and Smart-contracts
Joris Cramwinckel, Technologist and Pieter Wijnhoven, Managing Director, from Ortec Finance provided the audience with a deeper understanding of smart contracts, a polished view of the disruptive power of blockchain and their applications within the pension industry.

“The National Pension Hub is awarding funding to three research projects, focusing on themes like portfolio construction and plan design.”

BENEFITS CANADA, July 12, 2018
THE FOLLOWING ARE NPH RESEARCH PROJECTS STARTED IN 2018:

**Decumulation Options for Employer Pension Plan Design: Theory to Practice**
Bonnie-Jeanne MacDonald, Senior Research Fellow, National Institute of Ageing, Ryerson University

This research explores the value of pooled-risk annuities and longevity insurance as a design feature for employer pension plans seeking to provide greater advanced-life income security to their members.

**Designing Pension Plans for Fairness, Sustainability, and Transparency**
Professor Mary Hardy, and Professor David Saunders, University of Waterloo

The purpose of this work is to investigate optimal pension plan designs that satisfy the following: 1) transparency of the plan structure, 2) sustainability of the fund, 3) welfare improvement effects, and 4) fairness between generations.

**Future Pension Plan Adequacy in a Changing World**
Professor Pierre-Carl Michaud, HEC Montreal

This project looks to significantly improve the assessment of future retirement income adequacy, using tools that update and significantly improve on previous work in the area of microsimulation modeling. It will incorporate detailed pension coverage and saving sources as well as several sources of uncertainty.

**Drivers of Successful Pension Investing: Lessons from the Canadian Model**
Professor Sebastien Betermier, McGill University

The aim of this research is to conduct an empirical analysis investigating the factors that lead to successful pension investing under the attenuating pressures of low interest rates and high life expectancy.

**Population Aging: Impact on Equity Returns and Pension Plan Finances in Canada**
Professor Douglas Andrews and Stephen Bonnar, Post-Doctoral Fellow, University of Waterloo

Demonstrate the importance of changing population structures in setting asset allocations for DBP plans, and in tailoring communications to plan members of defined contribution arrangements.

**Valuation of Private Market Investments in Pension Fund Portfolios**
Professor Mikhail Simutin and Professor Redouane Elkamhi, Rotman School of Management, University of Toronto

The goal of this project is to develop a set of indices to serve as benchmarks for assessing private market investments by pension funds. Using these indices, we plan to assess the risks of such investments, their fit in the overall portfolios of the funds, and propose ways these investments can be used to improve funds’ risk-return trade-offs.
Publications Report

TOP PUBLICATIONS IN 2018

GRI continued to deliver on its mission to produce high quality and relevant content in the field of risk management. In 2018, GRI produced a total of 20 research reports and 15 white papers.

**GRAFT**

The Global Risks and Trends Framework (GRAFT) is a new approach designed to help organizations identify, assess and respond to global risks and trends in order to avoid pitfalls that could threaten an organization’s long-term survival or conversely to leverage for the benefit of the organization. GRI released three specific case studies to go along with the GRAFT framework.

- Pension Case Study
- Cyber Risk Correlations in the GRAFT Framework
- GRAFT - 2007 vs 2017

**Risk Culture**

In the wake of the financial crisis, misbehaviour and misconduct have led to unquantifiable losses of brand value and trust amongst customers and stakeholders. It is no surprise then that culture risk and its management is one of the topics at the top of the agenda.

- The Secret Life of Culture: Unveiling Culture Risk in the Age of Machine Learning
- What makes a good risk manager
- Risk Governance — Best Practices for Boards
- Addressing Culture and its Associated Risks in Financial Institutions

**Cyber Preparedness**

Cyber intrusion and cyber resilience are topics receiving tremendous attention, discussion and action currently and for good reason. For both 2017 and 2018, the top risk identified by our members was cyber risk.

- National Approach to Cyber Intrusion: A Comparison of United Kingdom & Canada
- Systemic Cyber Preparedness
- Managing the Risk of Web Security
GRI introduces the Financial Innovation Series

This year, GRI launched an in-depth, ongoing series of papers focused on examining specific fintech innovations and their impact on the financial services industry. The series was hugely successful grabbing the attention of both members and mainstream media as a source of foundational knowledge and insight into these evolving technologies.

An Overview of FinTech in Canada
A comprehensive overview of Canada’s FinTech landscape, comparing Canada to other FinTech hubs in terms of funding, regulations, and collaborations.

Blockchain and Its Applications to Cryptocurrencies
This paper provided a non-technical introduction to blockchain technology using cryptocurrencies as an illustrative example. It described the mechanics of blockchain and outlined some risks associated with the existing cryptocurrencies.

Risks and Rewards of Financial Innovation
This report looked at several vantage points, including that of the incumbent financial institution, the consumer, and the financial system as a whole, offering insights on potential risk-mitigation strategies and commentary on the potential for fintech-related risks to become systemic.

Smart Contracts
In this paper, we discussed smart contracts, outlining some applications of smart contracts and discussing associated risks.

Innovation and Digitization in Credit
In this report, we drew from a wide range of sources to provide a comprehensive overview of the global digital lending landscape.
Education Report

MEMBER EDUCATION PROGRAM HIGHLIGHTS

As part of our mission to build the capacity of risk professionals in our sector, our members gain exclusive access to GRI’s education programs and networking events.

We have several programs underway to improve the skills of risk managers, from new university grads, to C-Suite executives, to Board members.

BOARD RISK OVERSIGHT AND INSIGHT PROGRAM (BROIP)

This educational program, launched in 2013 and provided in conjunction with University of Toronto’s Rotman School of Management, is a 1.5 day program tailored specifically for board members and senior executives with board responsibilities to provide them with the necessary risk perspective to better execute on their leadership and governance responsibilities.

In October 2018, GRI launched this program in Montreal in partnership with HEC Montreal.

EMERGING LEADERS PROGRAM

In 2018, GRI launched its newest education program, the Risk Management for Emerging Leaders Program. It is targeted at new leaders interested in advancing their knowledge and effectiveness in the management of risk. This program will prepare leaders by improving their understanding and application of risk methodologies. It will assist them in asking the right questions and assess responses to risk challenges within their organization.
Education and Training

GRI was active in training and educating member organizations on best practices in risk management. During the year, GRI staff held 11 bespoke risk management education programs specifically tailored to member organization needs.

STRENGTHENING RISK MANAGEMENT IN THE PUBLIC SECTOR

- GRI staff held a risk management workshop for executives at the Ontario Ministry of Finance. The session highlighted risk management practices to help prepare leaders to better identify and prepare for risk in an environment of heightened uncertainty.
- In partnership with the Ontario Treasury Board Secretariat, GRI hosted a full-day, interactive workshop designed to support OPS senior executives in the application of Enterprise Risk Management (ERM) tools and techniques.

CYBER PREPAREDNESS ROUNDTABLES

GRI hosted three roundtables with industry and the public sector on the topic of cyber preparedness. The sessions allowed for important discussions regarding pre & post cyber-attack responses for the financial services industry. Following these roundtables, GRI published whitepapers on the topic.

GRI has partnered with leading universities to provide new and unique courses in risk management for professionals within the financial industry. These educational programs are instrumental for building skill and capacity within the Canadian financial system and beyond.

Rotman School of Management Master of Financial Risk Management

GRI was instrumental in the development of this unique and intensive full-time eight-month degree program, introduced in the 2016/2017 academic year, to offer advanced education specific to risk management for the financial sector.
Events Report

EVENTS IN 2018

In 2018, GRI hosted and spoke at 75 events attended by 800 GRI members. These events featured leading financial services experts from academia, industry and the public sector.

Using Artificial Intelligence Advances in the Management of Risk Culture

Speakers:
Michael Durland, CEO of Melancthon Capital and Professor of Practice at the Munk School of Global Affairs and Jonathan Kreindler, CEO Receptiviti

Are We Ready for the Next Financial Crisis?

A GRI Co-Hosted Conference with Rotman School of Management

Mitigating Misconduct Risk through Effective Corporate Governance

Speaker:
Jamey Hubbs, Assistant Superintendent, Deposit-Taking Supervision Sector, OSFI

Preparing for the Security Risk of Quantum Computing

Co-Hosted by GRI & Gluskin Sheff
Speaker:
Mike Lazaridis, Co-Founder of Research in Motion (RIM)

Understanding and Navigating Increasingly Complex Security Risks

Speakers:
Ray Boisvert Security Advisor and Associate Deputy Minister, Government of Ontario and Henry Harrison, Co-Founder & CTO, Garrison Technology

Women on Boards, Investor Protection Reforms and OTC Derivatives Reform

Speaker:
Maureen Jensen, Chair and CEO, Ontario Securities Commission
GRI 2018 Annual Summit

The GRI Annual Summit was our largest to date. The conference focussed on managing risk in a world of innovation, disruption and threat.

**Summit presentations reflected GRI’s key research themes:**

- A Financial Approach to Climate Change – Hedging Risks

- Technology’s Impact on Financial Services – Newcomers, Challenges and Opportunities

- Preparing for a World of Cyber Events – Institutional, National and International Preparedness

- What Makes a Good Risk Manager? Reflections from former CROs

- The Role of Private Retirement Savings; more specifically how can we improve coverage and the level and efficiency of private savings

Individuals in attendance this year representing 58 Organizations.

GRI achieved 100% satisfaction based on post summit survey.
Governance and Oversight Report

BOARD OF DIRECTORS

MEMBERS ARE:

Tiff Macklem,
Board Chair, Dean, Rotman School of Management

Sonia Baxendale,
President & CEO
Global Risk Institute

Alister Campbell,
CEO, Property Casualty Insurance Compensation Corporation

Francine Champoux,
Executive Vice President, Risk Management, Desjardins Group

Julie Dickson,
Corporate Director

Dwight Duncan,
Senior Strategic Advisor, McMillan LLP

Janet L. Ecker,
Corporate Director

Rahim Hirji,
Executive Vice, President & Chief Risk Officer, Manulife Financial

Mark Hughes,
Corporate Director

Paul Langill,
Chief Operating Officer, TD Securities, EVP, TD Bank Group

Lynn Oldfield,
President & CEO, AIG Canada

Nicola Wickes,
Senior Vice-President & Chief Risk Officer, Europe & Asia, Canadian Imperial Bank of Commerce (CIBC)

Don M. Wilson III,
Chair of the Risk Review Committee, Bank of Montreal

Barbara Zvan,
Chief Risk & Strategy Officer, Ontario Teachers’ Pension Plan

EXECUTIVE TEAM

MEMBERS ARE:

Sonia Baxendale,
President & CEO

Alex LaPlante,
Managing Director, Research

Sharon Ludlow,
Executive-in-Residence

Michael Stramaglia,
Executive-in-Residence

Karen Tam,
Chief Financial Officer and Corporate Secretary

Lois Tullo,
Executive-in-Residence

GRI RESEARCH FELLOWS:

Dr. John C. Hull,
Senior Research Fellow

Bernard Morency,
Senior Fellow, National Pension Hub
Our Advisory Council includes world leading finance experts from industry, government and academia.

RESEARCH ADVISORY COMMITTEE

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Executive Vice President and Chief Risk Officer, Caisse de dépôt et placement du Québec
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Head of Research & Development, Natixis
Darrell Duffie,
Economist and Professor of Finance, Stanford University
Stefan Dunatov,
Senior Vice President, Investment Risk, Strategy & Research, British Columbia Investment Management Corporation (BCI)
Blair Feltmate,
Head, Intact Centre on Climate Adaptation, University of Waterloo
Paul Glasserman
Professor and Research Director, Columbia University
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Chief Risk Officer, Bank of Canada
Mark Hughes,
Corporate Director
Dr. John C. Hull,
Professor of Derivatives and Risk Management, Rotman School of Management
Kathryn Hyland,
SVP, Risk Management, Swiss Re
Jean-François Perrault,
Chief Economist and Senior Vice President, Scotiabank
Dan Rosen,
Professor of Mathematical Finance, The Fields Institute, University of Toronto
Barbara Zvan,
Senior Vice President, Strategy & Risk and Chief Investment Risk Officer, Ontario Teachers’ Pension Plan

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Chief Executive Officer, Alquity
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Corporate Director
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Executive Vice President, Banking Centres, CIBC
Paul C. Genest,
Senior Vice President, Power Corporation of Canada
Richard Frank Goulding,
Former Chief Risk Officer, Standard Chartered PLC
Ozench Ibrahim,
Partner, KPMG
Sharon Ludlow,
Executive in Residence, Global Risk Institute
Gadi Mayman,
CEO, Ontario Financing Authority
Daniel Moore,
Chief Risk Officer, Scotiabank
Annette Ryan,
Associate Assistant Deputy Minister, Financial Sector Policy Branch, Finance Canada