

2016 ANNUAL REPORT



GLOBALRISK
INSTITUTE

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INTRODUCTION

MISSION STATEMENT

“GRI is the premier organization that defines thought leadership in risk management for the financial industry globally. It brings together leaders from industry, academia, and government to draw actionable insights on emerging risks globally.”



REPORT FROM THE CHAIR

Over the past year, we have focused on increasing the value of the Global Risk Institute to its members. The further expansion and coordination of publications, event programming and academic partnerships is all part of delivering additional value to our members. Continued development of the Global Risk Institute governance structure has advanced our mission to be the premier organization that defines thought leadership in risk management for the financial industry globally.

GOVERNANCE

In 2016, the Global Risk Institute (GRI) was proud to welcome six new board members whose professional experience and risk management knowledge have helped to guide our organization towards our goal of defining thought leadership in financial risk globally:

- 1. Francine Champoux**, Chief Risk Officer, Desjardins Group
- 2. Mark Hughes**, Group Chief Risk Officer, Royal Bank of Canada
- 3. Nicola Wickes**, Senior Vice-President and Chief Risk Officer, Europe and Asia, Canadian Imperial Bank of Commerce
- 4. Don M. Wilson III**, Chair of the Risk Review Committee, Bank of Montreal
- 5. Barbara Zvan**, Chief Risk & Strategy Officer, Ontario Teachers' Pension Plan
- 6. Dwight Duncan**, Senior Strategic Advisor, McMillan LLP

We wish to thank all of the board members for their dedicated work, and a very special thanks to Carol Hansell, Michel Maila, and Leslie Rahl, who completed their terms on the board in 2016.

GRI ADVISORY COUNCIL

In 2016 we announced the first phase of the new Global Risk Institute Advisory Council. This Council will guide Global Risk Institute in establishing an international presence. It will comprise of leading experts in the various disciplines of finance from industry, government and academia. The Council will consist of representatives from Canada, USA, Europe and Asia. The inaugural members of the Advisory Council include:

- **The Right Honourable Paul Martin** - Prime Minister of Canada from 2003 to 2006 and Minister of Finance from 1993 to 2002.
- **Professor John Hull** - The Maple Financial Professor of Derivatives and Risk Management at the Rotman School of Business.
- **Dr. Jack Mintz** - President's Fellow of the School of Public Policy at the University of Calgary and Palmer Chair and School Director since 2008. Also former President of the CD Howe Institute, 1999 to 2006.

BUSINESS STRATEGY COMMITTEE

The Business Strategy Committee was created to ensure that the business development of Global Risk Institute is producing results that are connected to the needs of its members. The guidance of these industry professionals is an exciting addition to the governance and advisory structure of GRI.

RESEARCH ADVISORY COMMITTEE

The Global Risk Institute has continued to receive input and guidance on our research agenda from renowned risk professionals and academics through our Research Advisory Committee. This committee is devoted to ensuring our work is high impact, relevant and forward looking. The Research Advisory Committee meets regularly to discuss important research work at Global Risk Institute focused on our risk themes at leading universities.



ANNUAL GENERAL MEETING:

We will host our annual general meeting on April 20th, 2017 at our GRI offices in Toronto, Canada.

LOOKING FORWARD:

As a board, we have reached out for member involvement and guidance. Moving forward, under the direction of the Global Risk Institute's management team and with the full support of its Board, the Global Risk Institute has embarked on an ambitious strategic plan to define thought leadership in risk management for the financial industry globally. In an increasingly complex, interconnected and digital world economy, sound risk management is an imperative. The Global Risk Institute aspires to raise the bar with applied research focused on our member's needs, talent development, and influence on risk issues. 2017 will build on the momentum from 2016 with a particular focus on taking GRI to the world and developing our global network.

A handwritten signature in black ink, appearing to read 'Tiff Macklem'.

Tiff Macklem
Chair of the Board, GRI

REPORT FROM THE PRESIDENT AND CEO

At Global Risk Institute, 2016 has been a year of executing on the refreshed business strategy.

GRI has strengthened service to our member firms. We have accelerated the quality and frequency of events, produced new publications, enhanced our research offerings and increased our level of interaction throughout the financial services industry. In response to member feedback on the topics of interest, we have completed the following work:

- i. Established our research themes and have undertaken work on:**
 - *Technological change (Cybercrime, Fintech, Big Data, etc.);*
 - *Impact of regulation on industries and markets;*
 - *Evolution of the capital markets;*
 - *Climate change and its public policy implications; and*
 - *Systemic risk.*
- ii. Formed New Research partnerships with:**
 - *Columbia University, NYU Stern and University of Waterloo; and*
 - *Continued work at: Rotman School of Management, McMaster University, CIRANO, Collegio Carlo Alberto, University of Sussex and University of Southern Queensland.*
- iii. Saw strong take-up of our Board Risk Oversight and Insight course;**
- iv. Published significant new reports on our key themes;**
- v. Held important events of interest to members on the management of evolving risks; and**
- vi. Built a strong working relationship with the International Centre for Pension Management (ICPM).**



2017

In 2017, we will continue to build the partnership with our members. In addition, we will move our activities towards an international focus and capabilities through the following:

- *Expand our research network, which today is mainly USA and Canada, to include Europe and Asia;*
- *Utilize the research for the publication of high quality articles with a global industry theme on the management of emerging risks;*
- *Utilize webinar and digital video to make all of our events available internationally;*
- *Add to our capabilities in Toronto, New York, London and Hong Kong; and*
- *Evolve our education to new online tools for board of directors and senior executives.*

This work will benefit existing members as well as new members.

Finally, we have built a strong team at GRI and we plan to continue to strengthen the team with new strategic advisors, new executives in residence, as well as partners in other major financial centres.

It will be the quality of our ideas and the engagement of our members that will continue to make GRI successful.

A handwritten signature in black ink that reads "Richard Nesbitt".

Richard Nesbitt
President and CEO

HIGHLIGHTS

The GRI research team is tasked with identifying emerging risks and with providing valuable and actionable insights in the field of risk management. This is achieved

through internal research initiatives and funded collaborations with leading academic institutions. Here we highlight some of the key research activities and collaborations from 2016.

2016 NEW RESEARCH INITIATIVES

In continuing to support research on emerging risks, four new collaborative projects have commenced in the fields of quantum computing, environmental risk and climate change, and regulatory risk.

Quantum Threat Timeline

> **By Professor M. Mosca of the Institute for Quantum Computing, University of Waterloo**

Emerging quantum technologies threaten the foundational tools and systems used by financial institutions and risks include widespread compromise of private information, loss of trust in financial systems, and the breakdown of information systems upon which institutions rely for core business functions. Although the threat may be a few years away, developing and deploying replacement technologies will also take many years. It is far from clear that reliable solutions will be deployed in time. The aim of this research proposal is to produce a key piece of the missing necessary research in order to make practical estimates of the quantum threat timeline. Combined with the results of other benchmarking work, financial institutions will be in a much better position to make informed risk management decisions, to reduce their eventual transitions costs to quantum-safe technology, and to protect the strong global reputation of the Canadian financial services system.

Competition: A Financial Approach to Environmental Risk

> **By Professor R. Engle of New York University, Stern School of Business**

Since environmental risk insurance is not available for institutions with large liabilities, institutions must buy securities that are likely to outperform during an environmental crisis in order to hedge this risk. These portfolios may consist of stocks in alternative energy, new transportation, thermal efficiency, battery storage, etc. and short positions in carbon intensive stocks. This project will focus on assessing publicly traded environmental risk hedge portfolios as well as finding new dynamic environmental risk hedge portfolios. Meteorological and textual data will be used to develop climate signals and cost benefit analysis will be performed for these portfolios using discount rate modeling. All of the results will be posted to NYU Stern's Vlab webpage and updated regularly providing ongoing climate risk assessment.

Multi-period mean-variance approach to risk & return in climate change policy

> **By Professor P. Forsyth of the University of Waterloo**

In recent years there has been increasing public pressure on the government to commit to credible plans to reduce greenhouse gas emissions through carbon taxes and/or other regulations. Given the government's response to climate change will have large impacts on the economy and on the profitability of key industries, the most cost effective policies should be implemented in order to minimize any negative impacts on economic growth. This study will employ multi-period Mean Variance (MV) portfolio allocation theory to determine an investment strategy that will minimize climate change risks and achieve a targeted level of real GDP per capita at a future specified time. An efficient frontier will be determined

showing various possible target levels of real GDP per capita and the associated risk thus providing a clear depiction of the risk/return trade-off for different climate change policies.

Centralized Trading: Collateral, Risk Shifting, and Competition

> **By Professor A. Capponi of Columbia University**

This project focuses on identifying the determinants of fee and collateral requirements of clearinghouses and looks to define the relationships between investment volatility and the credit quality of clearinghouse members. In addition, it will determine how clearinghouse members select clearinghouses based on the members' trading needs and on the clearinghouses' cost of joining.

2016 COLLABORATIVE RESEARCH EVENTS

2016 brought new opportunities to collaborate with academic organizations on tailored research events. Given the decidedly positive feedback and strong turnout to these events, we have plans to hold more of them in Toronto, New York and London in the coming year.

> **GRI-Fields Conference and Workshop on the Stability of Financial Systems: Modelling, Regulation and Stress Testing**

This two-day conference and one-day workshop held at the Fields Institute in Toronto and was devoted to sharing the latest thinking on the nature of financial stability through presentations by some of the world's leading researchers, policy makers and industry practitioners including Nobel Laureate Robert Engle. The workshop, which focused on stress testing applications to systemic risk monitoring and bank regulation, brought practitioners and researchers alike to the forefront of this challenging new topic.

> **Columbia-GRI Workshop on Systemic Risk in Insurance**

This one-day conference held in New York, brought together experts including representation from the IMF, the OFR, FRBNY, NAIC, Citigroup, Prudential, BlackRock, and AIG, to discuss and debate the nature and measurement of systemic risk in the insurance industry. It combined expert presentations with panel discussions, dialogue focused on questions pertaining to whether insurance companies are a source of systemic risk, how to measure systemic risk and how regulators are trying to deal with the issue of systemic risk in insurance.

ENGAGEMENT REPORT

2016 NATIONAL EVENTS

In 2016 we hosted over 30 events, featuring world renowned speakers including academics, industry leaders and government regulators.

2016 EVENTS HIGHLIGHT INCLUDED:

- > **Housing Market Risk**
Myth v. Reality with Benjamin Tal, CIBC & Bob Dugan, Chief Economist, CMHC
- > **Blockchain Technology**
Unleash the power of blockchain technology with Capital One's Justin Herzig
- > **Cyber-Security**
Panel on Cyber Security Coalitions: Detecting the Imperceptible Risks
- > **Effective Governance**
Enabling More Effective Governance of Canadian Financial Institutions with OSFI Superintendent Jeremy Rudin
- > **Evolution of Capital Markets**
Improving Delta Hedging: A New Approach with Prof. John Hull, University of Toronto
- > **Regulatory Compliance**
Regulatory Considerations of Mutual Fund Fees with Maureen Jensen, Chair & CEO of the Ontario Securities Commission (OSC)

INTERNATIONAL EVENTS

In 2016 we began implementing our strategy towards becoming a truly international institute. A key element of this strategy included hosting international events:

NEW YORK CITY

- > *Changing Landscape of Risk - Dinner*
- > *Insurance Conference*
(In partnership with Columbia University)

LONDON

- > *University of Warwick - Reception*
- > *Canadian Embassy Dinner*

HONG KONG STOCK EXCHANGE

- > *Industry reception and round table discussions*

SINGAPORE

- > *Industry reception and round table discussions*

2016 GRI SUMMIT

This year's summit took a deep-dive into the business of risk, From regulation and governance, to cutting-edge technologies and emerging threats.

The theme of this year's annual conference was: **Emerging Opportunities – Risk & Reward** which brought together world-renowned speakers, industry experts, and academics from all facets of the financial services industry.

The summit was a great success with participation from over 65 organizations and 16 international speakers engaged on a variety of topics including;



1. *Data Science*
2. *Disruptive Technologies*
3. *Artificial Intelligence*
4. *Climate Change*
5. *Cyber Security*

SOME OF THE KEY HIGHLIGHTS OF THIS YEAR'S SUMMIT INCLUDED:

- **Presentation on the Future of Digital Banking** with Alexander Lipton from MIT;
- **Big Data & Advanced Analytics** with Lowell Bryan from Emeritus of McKinsey & Co;
- **Cyber Security Readiness Demonstration** lead by GRI's Brian O'Donnell with participation from several guest advisors; and
- **The Future of Risk in an Augmented World** with Brett King, founder of Moven Bank.

More information about the GRI Summit can be found on our dedicated summit website www.grisummit.com

PUBLICATIONS REPORT

2016 INTERNAL PUBLICATIONS

The Global Risk Institute was successful in launching a series of both internal publications during 2016.

We introduced the monthly publication **Risk Pulse**, a newsletter which prominently features our shorter, less technical papers on many of the key issues of the day. This year we covered topics including *cyber security, regulatory developments* (such as the Basel IV capital proposals) and *economic and capital markets developments*, including the massive build-up of debt globally since the financial crisis.

In addition, our **Risk Focus** and **Special Report** publications were sent out to members each month. These publications take a more detailed look at issues specific to industry or one of our research themes. In 2016 these included *climate change, developments and implications of quantum computing* and *the impacts of the significant reduction in liquidity across the capital markets*.

HIGHLIGHTS OF 2016 PUBLICATIONS INCLUDED:

- > **RESEARCH REPORT** - "*A quantum of prevention for our cybersecurity*"
- > **RESEARCH REPORT** - "*Climate Change: Why Financial Institutions should take note*"
- > **WHITE PAPER** - "*Mitigating Longevity Basis Risk With A Reinsurance Mechanism*"
- > **WHITE PAPER** - "*Why technology is not enough to fend off a cyber attack*"

2016 EXTERNAL PUBLICATIONS

This year the reach and exposure of GRI content grew beyond our member audiences and included coverage in several external publications and media outlets.

HIGHLIGHT OF 2016 MEDIA COVERAGE INCLUDED:

- > **BLOOMBERG TV** - "*Banks are Under Attack from Fintech*"
- > **CONEXUS FINANCIAL** - "*Risk Governance: Developing an Enterprise Risk Management Framework and Managing Emerging Risks, ranging from Climate Change to Cyber Threats*"
- > **FINANCIAL POST** - "*Regulatory changes damaging Canadian bond markets*"
- > **BLOOMBERG TV** - "*Bloomberg Interviews Richard Nesbitt on Brexit Risk*"

The Global Risk Institute was also successful in having our articles picked up in several external publications including;

- **The American Banker** publication of our "*Not too big to fail*" review of the state of regulatory changes in reaction to the financial crisis. And
- **The Global Risk Register** (a subsidiary of the *Financial Times*) publication of our paper assessing the latest regulator proposals to enhance bank capital standards (*Basel IV*)

GRI EDUCATION

As part of our mission to build the capacity of risk professionals in our sector, our Members gain 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.

2016 HIGHLIGHTS

Global Risk Institute made significant progress on our goal to build enhanced risk management capacity in the financial services sector through the provision of leading edge enterprise risk management ("ERM") education and training programs.

With a focus on strengthening risk governance best practices at the highest levels of our members' organizations, GRI's **Board Risk Oversight and Insight Program** continued to be a core, and very well received, part of GRI's education programming during 2016.

In the latter part of the year, we launched our GRI **ERM Roadmap Program**, which represents our comprehensive framework for ERM best practices in financial services

organizations. GRI has now initiated a series of special workshops to bring this extensive body of ERM education and training content to our members.

These recurring education and training programs were complemented by a wide range of GRI-sponsored risk management seminars and forums, covering emerging risk themes such as **illiquidity risk management**, a **CRO "fireside chat"** and the **developing impact of blockchain technology, cyber-risk and big data**.

EDUCATION AND TRAINING

2016 also focused on strengthening our relationship with our partner schools.

GRI provided teaching faculty and program support to a number of third-party sponsored risk management programs during 2016, including executive education forums sponsored by the **Conference Board of Canada**, the **Property and Casualty Insurance Compensation Corporation, Rotman School of Management**, and the **Institute of Corporate Directors Director Education Program**.

This year GRI has also continued to contribute to the development of the next generation of risk management leadership through its participation and support of various post-graduate risk management programs.

- *The inaugural class of **Rotman's Masters in Financial Risk Management program**, for which GRI is a key sponsor, was launched in 2016.*
- *We continue to support the **Post-graduate Diploma in Risk Policy and Regulation** run in conjunction with Queen's University.*

GOVERNANCE AND OVERSIGHT REPORT

BOARD OF DIRECTORS

- **Tiff Macklem**, *Chair, Global Risk Institute, Dean, University of Toronto, Rotman School of Management*
- **William A. Black**, *Chair Capital Markets Authority Implementation Organization (CMAIO)*
- **Alister Campbell**, *CEO, The Guarantee Company of North America*
- **Eli Dadouch**, *President & CEO, Firm Capital Corporation*
- **Janet L. Ecker**, *President and CEO Toronto Financial Services Alliance (TFSA)*
- **Rahim Hirji**, *Executive Vice President and Chief Risk Officer, Manulife Financial*
- **Timothy E. Hodgson**, *Managing Partner, Alignvest Management Corporation*
- **Malcolm D. Knight**, *Distinguished Fellow at The Centre For International Governance Innovation (CIGI)*
- **Paul Langill**, *Chief Operating Officer, TD Securities, Executive Vice President, TD Bank Group*
- **Richard Nesbitt**, *President and Chief Executive Officer at Global Risk Institute*
- **David Pelletier**, *Corporate Director*
- **Susan Wolburgh Jenah**, *Corporate Director & Senior Advisor, Aird & Berlis LLP.*

New Board Members In 2016

- **Nicola Wickes**, *SVP and Chief Risk Officer, Europe And Asia - Canadian Imperial Bank of Commerce (CIBC)*
- **Mark Hughes**, *Group Chief Risk Officer, Royal Bank of Canada*
- **Don M. Wilson III**, *Chair of The Risk Review Committee, Bank of Montreal*
- **Barbara Zvan**, *Chief Risk & Strategy Officer, Ontario Teachers' Pension Plan*
- **Francine Champoux**, *Chief Risk Officer, Desjardins Group*
- **Dwight Duncan**, *Senior Strategic Advisor, McMillan LLP*

GRI ADVISORY COUNCIL

In 2016, we announced the first phase of the new GRI Advisory Council. This new Advisory Council will guide the GRI board, committees and management in establishing an international presence.

The Advisory Council will be comprised of world leading experts in the various disciplines of finance from industry, government and academia who are known broadly for their expertise. Ensuring an international background of the Advisory Council members is critical given GRI's mandate to grow as a globally relevant research institute. Eventually this body will consist of representatives from each of the USA, Europe and Asia in addition to the Canadian members.

THE INAUGURAL MEMBERS OF THE COUNCIL INCLUDE:

- **The Right Honourable Paul Martin**
Prime Minister of Canada from 2003 to 2006 and Minister of Finance from 1993 to 2002
- **Professor John Hull**
The Maple Financial Professor of Derivatives and Risk Management at the Rotman School of Business.
- **Dr. Jack Mintz**
The President's Fellow of the School of Public Policy at the University of Calgary after serving as the Palmer Chair and Director since 2008. He also served as the former President of the CD Howe Institute from 1999 to 2006.

GOVERNANCE AND OVERSIGHT REPORT

BUSINESS STRATEGY COMMITTEE

The Business Strategy Committee makes recommendations on major strategic and policy initiatives that will impact the direction of GRI

MEMBERS ARE:

- **Edwin D. Cass**, *Senior Managing Director & Chief Investment Strategist, Canada Pension Plan Investment Board (CPPIB)*
- **J. Michael Durland**, *Former Group Head and Co-CEO, Global Banking and Markets, Scotiabank*
- **Stephen Forbes**, *EVP and Chief Commercial Officer, Canadian Imperial Bank of Commerce (CIBC)*
- **Richard Frank Goulding**, *Former Chief Risk Officer, Standard Chartered PLC*
- **Stephen Hart**, *Chief Risk Officer, Scotiabank*
- **Ozench Ibrahim**, *Partner, Audit, Financial Services, KPMG*

RESEARCH ADVISORY COMMITTEE

The Research Advisory Committee's (RAC) mandate is to advise the GRI research team, Chief Research Officer, and CEO on matters of research.

MEMBERS ARE:

- **Claude Bergeron**, *EVP and Chief Risk Officer, La Caisse de Depot et Placement du Quebec*
- **Peter Carr**, *Executive Director, Math Finance program at NYU's Courant Institute*
- **Michel Crouhy**, *Head of Research & Development, Natixis in France*
- **Darrell Duffie**, *Economist and Professor of Finance, Stanford University*
- **Walter Engert**, *Senior Director of Research, Office of the Superintendent of Financial Institutions (OSFI)*
- **Paul Glasserman**, *Professor and Research Director, Columbia University*
- **Toni Gravelle**, *Chief of Financial Markets, Bank of Canada*
- **Kathryn Hyland**, *SVP, Risk Management, Swiss Re*
- **Malcolm Knight** (*GRI Director*), *Distinguished Fellow at CIGI, The Centre for International Governance Innovation (CIGI)*
- **Michelle Ostermann**, *SVP, Research and Risk Measurement, British Columbia Management Investment Company*
- **Dan Rosen**, *Professor of Mathematical Finance, Fields Institute, University of Toronto*
- **Barbara Zvan** (*GRI Director*), *Chief Risk & Strategy Officer, Ontario Teachers' Pension Plan (OTPP)*



**GLOBAL
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Global Risk Institute in Financial Services

55 University Avenue
Suite 1801
Toronto, ON M5J 2H7

Tel 416 306 0606
Fax 416 306 1450

www.globalriskinstitute.org