Risk Management Frameworks and Practices for Operational Risk Management

A Primer for Professional Operational Risk Managers in Financial Services

Edited by Jonathan Howitt & Justin C McCarthy

Professional Risk Managers' International Association (PRMIA)

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PRMIA, 1700 Cannon Rd, Suite 200, Northfield, MN 55057, Support@PRMIA.org, www.PRMIA.org

About PRMIA

Established in 2002, the Professional Risk Managers' International Association (PRMIA) is a non-profit, member-focused and member-driven professional association represented globally by dozens of chapters in major cities around the world.

PRMIA's mission is to provide an open forum for the development and promotion of the risk profession through credentialing, learning and development programs, online thought leadership resources, and events.

To learn more, visit www.prmia.org.

Contributors

PRMIA would like to thank the following individuals who contributed to the development of this textbook.

Penny Cagan is currently employed as Americas Head of Operational Risk with UBS. She previously managed a global risk and control self-assessment program, a consumer risk practices group, a compliance analytics function, and operational risk for consumer businesses for two global banking institutions.

Penny is well-known for her early work in the development of the FIRST database and a case study framework that changed how the industry approaches operational risk and influenced policy throughout a large base of global institutions. Her career achievements include an award for "Outstanding Contribution to Operational Risk" from Operational Risk & Regulation Magazine in March 2011, and a "Ten Years of Excellence" award and selection as one of the "Top 50 Operational Risk" professionals by Operational Risk & Compliance magazine in 2009.

Julian Fisher has wide-ranging experience in Risk Management, Finance and Insurance and has lectured extensively around the world on topics ranging from Governance, ERM, Credit Risk, Operational Risk, and Ethics. He is currently the Senior Vice President, Global Functions, Risk & Controls with Citi. He has also held senior roles in New York and London with Crest Rider Inc., PwC, Capco, Reuters and Deutsche Bank and sits on several Industry Risk Steering Committees.

David Coleman has a career spanning over 40 years across retail, wholesale and investment and development banking, which has given a deep and wide knowledge of the Banking Industry. Roles in British, American, and German Banks and the multilateral public sector, have also provided the experience of a range of cultural approaches to managing people operating a risk-taking organization. The majority of David's career has been spent in Risk Management and for the last 25 years at an Executive level holding regional and global CRO roles at Bankers Trust, Deutsche Bank, RBS/NatWest and the European Bank for Reconstruction and Development. As Head of Risk Management at the EBRD, David has led the enhancement of the risk framework and practices, which in 2023 was rated by independent assessors as "outstanding" and the quality of management in Risk Management was also

cited as an attribute leading to a one notch uplift in the non-financial component of the EBRD public debt rating.

Jonathan Howitt was most recently Chief Risk Officer for the World Food Programme (WFP), a major United Nations (UN) agency based in Rome. Jonathan also co-chaired the UN's High Level Committee on Management (HLCM) Risk Management Forum, with participation and support from 30+ agencies across the UN System. Prior to WFP he spent over 20 years in senior risk roles in the financial sector, focused mostly on strategic and operational risk implementation. Jonathan has worked internationally throughout his career, in London, Tokyo, New York, Hong Kong and Rome. Since 2003 he has been actively involved with PRMIA, the Professional Risk Managers' International Association, and remains committed to improving education and professional standards in risk management.

Professor Michael Mainelli, MStJ FCCA FCSI(Hon) FBCS, Executive Chairman, Z/Yen Group is a scientist and economist trying to promote societal advance through better finance and technology. Originally a research scientist in aerospace (rocket science) and computing (architecture & cartography), educated at Harvard, Trinity College Dublin, he gained his PhD from the London School of Economics, where he was also Visiting Professor in innovation and IT. He became a senior partner of accountants BDO Binder Hamlyn, and Corporate Development Director for the Ministry of Defence's Defence Evaluation & Research Agency. During a mergers & acquisitions spell in merchant banking with Deutsche Morgan Grenfell, in 1994 he founded Z/Yen, the City of London's leading think-tank. Z/Yen is renowned for its Global Financial, Green Finance, and Smart Centres indices, as well as notable 'firsts' in technology research.

Michael has advised numerous governments and municipalities around the world, including four years as International Financial Services Advisor to the Office of the Taoiseach. Michael is a fellow of Gresham College, Kings College London, and Goodenough College, visiting professor at UCL's Bartlett School of Sustainable Construction, Honorary Bencher of Middle Temple, and non-executive director of the United Kingdom Accreditation Service and a listed mining company. He is active in twelve livery companies, past Master of the World Traders, an Alderman of the City of London for Broad Street, and late Sheriff of the City of London 2019-2021, with charity interests in the environment, education, and care. His third book, written with Ian Harris, The Price of Fish: A New Approach To Wicked Economics And Better

Decisions, won the Independent Publisher Book Awards Finance, Investment & Economics Gold Prize.

Justin C McCarthy is CEO of the Professional Risk Managers International Association (PRMIA). Previously he served as the chair of the Global Board of PRMIA. He has worked in roles in many firms, including Ulster Bank, Bank of America Merrill Lynch, PricewaterhouseCoopers and with the Irish Financial Regulator at the Central Bank of Ireland. This work has allowed him to see the changes in risk management since through and beyond the recent global financial crisis. His work on the PRISM risk-based supervision framework with the Irish Financial Regulator included exposure to banking, funds and insurance risk practices as well as the quantitative work done on the related impact models and the challenge in feeding valid financial data to these models. Justin has a BSc from University College Cork and an MBA from the Michael Smurfit Graduate School of Business at University College Dublin. He completed his Corporate Director Certificate at Harvard Business School.

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Justin C McCarthy

Introduction

Financial services and the risk management profession emerged from the Great Financial Crisis, the most serious financial crisis since the Great Depression of 1929. It resulted in a focus on risk management in financial services firms to meet a public demand for such an event not to occur again.

Now emerging from the COVID-19 event, financial services and the risk management profession enter a more volatile time from a geopolitical and environmental point of view. Frameworks from the recovery of the Great Financial Crisis are still useful—risk appetites and key risk indicators are still being adopted in well-managed firms, and operational resilience is drawing together multiple disciplines including operational risk management, cybersecurity, and disaster recovery.

But it is the declaration by many governments of a climate emergency that may be the most lasting focus for risk management. Environmental, social, and corporate governance (ESG) has emerged in the 2020s as one of the most important initiatives for all kinds of firms. While there are many elements of ESG that may be relevant to risk management and governance, this chapter focuses on the climate risk aspect of ESG as being most relevant to operational risk management. For risk managers, this is another risk to consider. This chapter informs readers on climate risk so they can consider it as part of their overall work in risk management and their applications of risk frameworks.

Overview of Risk Management Frameworks

Many elements of risk management are still useful, including how to perform a risk assessment, understanding risk capacity and appetite, and how to decide how much capital to put aside for operational loss events.

Governance, Risk, and Compliance Frameworks

The content on risk governance provides an excellent overview of how risk management should sit within the overall governance, risk management, and compliance (GRC) approach in well-managed firms. Whether a firm has an overall and all-powerful board or if the "buck stops" with the management team, there needs to be some entity that communicates the value of risk management, provides challenge and oversight, and ensures that risk management is properly resourced.

Once lauded as "America's Most Innovative Company," Texas-based energy trading company, Enron, enjoyed considerable success in the late 1990s, but by the end of 2001 they had plummeted into disgrace and bankruptcy. Founded by Kenneth Lay, Enron pivoted from supplying natural gas to acting as an intermediary between natural gas customers and its producers. The establishment of a web-based trading division, Enron Online, also brought in considerable revenue. Increased competition led executives Jeffrey Skilling and Andrew Fastow to hide Enron's decline in profits by using mark-to-market accounting and special purpose entities (SPEs). Prestigious audit firm Arthur Andersen did not raise the alarm, and by October 2001, the Securities and Exchange Commission opened an investigation into Enron's business practices, eventually charging many Enron executives with fraud and conspiracy, and convicting Lay, Skilling, and Fastow of wrongdoing. When Enron filed for bankruptcy, it devastated the 401(k) retirement savings of its employees and investors and led to the establishment of the Sarbanes-Oxley Act to prevent similar behaviors by other publicly held companies.

Box 1: Governance Case Study: Enron

How the board and management team can use tools such as risk appetite, policies, and other items should be considered and are introduced in other chapters of this book. Risk professionals are asked to place themselves in the position of a board or management member who must convince various stakeholders—including regulators, ratings agencies, and shareholders—that they have met their obligations to ensure that good risk management is embedded in their firm. The risk professional may want to consider the following to aid in embedding good risk management practices:

- Engage with non-executive directors. Forums such as risk committees of the board can provide formal settings in which there can be a specific focus on risks. A skilled risk professional will seek to do the staff work to ensure that such forums are anything but rubber stamps for decisions already made by executives. Rather, such a professional should work to ensure that they provide an alternative forum to scrutinize a wide range of risks, which it is probably impractical to ever get the board to look at in detail.

- Good quality management information. If the risk committee, the other board committees, and the board itself are to be effective, they need to receive appropriate management information. Stories abound of risk-averse risk professionals who appear to think they are doing their job by providing part-time, non-executive directors with hundreds of pages of reading on regulatory risks before each board meeting. A previous author was reminded of Pascal's famous remark, *"I have only made this letter longer because I have not had the time to make it shorter."* Many risk professionals might wish to take this thought into account when dealing with their senior leaders if they are to become allies in a collective endeavor to ensure high-quality risk management.

- Test whether the processes are being used. If a risk professional thinks of a major acquisition, disposal, product development, or sales strategy, can he or she see how the firm's governance processes have touched upon that process? Assuming the governance processes are reasonably designed, a risk professional would expect them to touch upon a matter of importance to the organization. If important matters have not been through the governance process, this is certainly a signal that all is not as it should be.

How can risks be appropriately weighed and managed when transactions and major developments appear to occur without proper governance processes?

- Consider how outsourcing is managed. Almost all organizations will outsource aspects of their operations. Henry Ford may have found it most efficient to buy railroads and ships in the early 20th century to increase the efficiency of his production, but since then most organizations have massively increased outsourcing in the quest for cost savings and a focus on value, creating core competencies in the last 20 years. The risk professional may well need to ask themselves how the risk practices they have built within their organization translate to the outsourced service providers, and further, what happens if the outsourced service providers fail in some fashion? Good risk management will consider the risks to the organization posed by those who are not directly part of the organization.

- Ensure that reward structures are appropriate. Many countries will now have specific national regulations on reward structures for senior management, but most of them are open to interpretation and finessing. Risk managers will want to consider whether their organizations have reward structures which incentivize the long-term success of the firm with an appropriate weighting given to prudent risk management. Closely connected to reward is the incentive structure which exists for internal escalation, speaking up about issues of concern, and in the wider sense of the word, whistleblowing. Regulators increasingly find whistleblowers to be a major source of intelligence on corporate wrongdoing, which once received, is easily investigated. There are various well-recorded stories of large organizations which have treated whistleblowers badly. If a risk manager wants to be in a position in which he or she is fully aware of the risks the organization faces, what incentives and safeguards can he or she create to ensure that a whistleblower will have a safe and confidential environment to share information with the risk team? Is the alternative that the potential whistleblower waits until a problem is much bigger and then gets so desperate that he or she goes to the regulator to talk about poor behavior that has been known about for years? Encouraging potential

whistleblowers to come forward early also allows the risk manager, rather than the regulator, to sort the wheat from the chaff—the meaningful risk information from the employee who merely fails to work well with his or her boss. All too often, it is well known within a firm that someone who puts up his or her hand about a real risk is saying goodbye to his or her employment with that organization. Is that a sign of a healthy organizational culture?

- Think about how you tolerate eccentricity. Genuinely think about how your organization deals with those who do not quite fit into the organization's culture. What advice or insight can they give?

Risk Assessment, Incidents, and Information

Many risk professionals will spend much of their time in this part of risk management ensuring that inherent risks are listed in a risk register, that mitigating controls and activities are recognized and measured, and that residual risk is kept within risk appetite. This is much of what risk managers are expected to do.

But risk managers are asked to consider the larger picture presented in the risk governance and risk framework chapters. Has the risk capacity of the firm been defined, and is the risk appetite comfortably within that risk capacity?

In the chapter, Risk Management Framework, we see that risk capacity, and thus risk appetite, may be defined by profitability/net earnings, capital, liquidity, and reputation.

Risk professionals are asked to think about the AIB rogue trader case study. John Rusnak was a currency trader at Allfirst Financial, a U.S. subsidiary of Allied Irish Banks (AIB). In 2002, it was discovered that Rusnak had engaged in falsified currency trades, which caused losses of around $691 million for AIB. Rusnak had been hiding losses by making unauthorized trades. He used various methods to conceal his trades, including altering bank records. When the fraud was discovered, AIB was forced to write off the losses as they were less than their expected profits of around $1 billion for that year. It can be argued that AIB exceeded their risk appetite, but not their risk capacity as the losses were absorbed by their profits for the year.

Several years later, during the Irish Banking Crisis, AIB was left with significant losses after it invested heavily in property and construction projects that collapsed at the end of the Irish "Celtic Tiger" boom. In response to this, the Irish government injected capital into the bank and took over some of their assets. AIB received a capital injection of €21 billion from the Irish government; it can be argued that the bank exceeded both its risk appetite and risk capacity.

Box 2: Risk Capacity versus Risk Appetite

By performing both top-down and bottom-up risk assessments, a firm can start to understand and manage its risks. In addition, by presenting management information as key risk indicators (KRIs) and applying lessons learned from risk incidents, the risk profile of a firm can be measured and improved upon.

Risk Capital

Operational risk capital refers to the amount of capital that a firm is required to hold to protect against potential losses arising from operational risks. Operational risk and losses are those that result from inadequate or failed internal processes, people, and systems or from external events. It would make

sense that the amount of operational risk capital that a firm is required to hold depends on the complexity, and most importantly, the risk of its operations, as well as the level of operational risk inherent in its activities. Firms can argue that they have mitigated their operational risk by implementing effective risk management processes, investing in technology and systems, and by having an effective governance, risk, and compliance framework in place backed by suitable resources. However, how to quantify this has been a challenge.

The Basel II Accord in the mid-2000s had suggested several approaches including the advanced measurement approach (AMA) as a way for banks to quantify their investments in better risk management in exchange for lower capital requirements. But the global financial crisis highlighted that operational risk capital requirements were not sufficient to cover the losses incurred by some firms. It also highlighted that the source of these losses—including those related to fines for poor conduct risk management or poor controls—were difficult to predict under models allowed by the AMA. This indicated that the existing set of simple approaches for operational risk, including the AMA, did not generate sufficiently accurate operational risk capital requirements relative to operational risks. The Basel Committee on Banking Supervision (BCBS) finalized the new standardized approach (SA) for operational risk capital in 2017. The new SA for measuring minimum operational risk capital requirements is a non-model based method, and it replaces all three existing approaches for operational risk under Pillar 1.

The related chapter in this book will look at elements of the older approaches including data sources and then move onto the new SA and introduce the related components and how they will be calculated for banks; however, readers will be asked to consider how these old and new approaches could be used for the calculation of the amount of risk capital that should be held by any firm once they understand their operational risk losses.

Resilience

Operational resilience had already been an area of concern for regulators during the 21st century. Outages at several financial services providers,

including RBS, have resulted in hardship for consumers. But the COVID-19 event drove home the potential fragility of the global financial services system.

COVID-19 has emerged as one of the most significant events in the early 21st century. The coronavirus disease caused by the SARS-CoV-2 virus was first identified in December 2019. It quickly spread around the world and was declared a pandemic by the World Health Organization (WHO) in March 2020.

The COVID-19 pandemic has had a significant impact on global health, economies, and societies. Many countries implemented lockdowns and other restrictions on movement and gatherings, in an effort to slow the spread of the disease. Firms around the world had to quickly adapt to operating in a world where people might be asked to stay within a few kilometers of their home and, thus, had to work remotely as an obligation and not just an option. Related efforts to control the spread of COVID-19 have included measures such as wearing masks, social distancing, and vaccination campaigns.

The COVID-19 event highlighted the importance of resilience, both at the individual and organizational levels. The pandemic disrupted business operations and economies around the world, and organizations that were able to quickly adapt and respond to these disruptions have been more successful in weathering the crisis.

Organizations that had already invested in remote-working capabilities were better prepared to adapt and show resilience. Firms may now be obliged to review their operational risk management and resilience and invest in new technologies and capabilities to better prepare for future disruptions.

Box 3: COVID-19 and Resilience

One of the chapters will look at the emerging obligations for operational risk as well as cyber resilience and how risk professionals can aid in this important initiative.

ESG and Climate Risk

ESG

Environmental, social, and corporate governance (ESG) is a term developed as investors started to consider the sustainability and ethical impact of their investments. This developed further as firms like Institutional Shareholder Services (ISS) started to produce ESG ratings, and firms had to change their activities to improve such ratings.

Environmental factors refer to a firm's impact on the environment, such as its carbon emissions or enabling diversity and growth in nature. Investors are increasingly interested in organizations that reduce their carbon footprint. While oil companies are among the largest and most profitable in the world, investors and funds might now avoid these investments if they are concerned about how their investments may impact nature and the planet. In addition, the expected changes to climate from climate change can also be part of this. Damage from weather events is part of operational risk.

Social factors refer to an organization's impact on society, such as its relationships with employees, suppliers, and the wider community. Investors are interested in organizations that promote diversity and inclusion, employee well-being, and social responsibility. Corporate social responsibility has been a part of this trend; a firm may now encourage its employees to take part in local community and charitable events. This is seen to be part of being a "good corporate citizen" and giving something back to the communities that make up their employees and markets as well as broader locales.

Governance factors refer to an organization's internal management and control structures, such as its board composition, executive compensation, and most relevant here, risk management practices. Investors are interested in organizations that promote corporate governance practices. With an excess of corporate governance scandals in recent years, this continues to be a place where investors and others should expect a return. It is hoped that well-run businesses are also successful businesses that will maintain their success over time. Also, diversity within boards and committees is expected to result in

better governed companies with many firms seeking new sources for their board members and senior management.

While ESG investing has become increasingly popular in recent years, this has now become a more mainstream item for everyday citizens. Whether it is considering the purchase of a foodstuff or meal, or even a new job, many people will now consider a firm's ESG policies and position as part of their decision. Firms with good ESG policies are seen to be preferred employers, suppliers, and investments, and this makes it desirable for firms to develop these areas.

Nike, Inc. is a global sportswear and athletic shoe company that has distinguished itself with various ESG initiatives.

In the 1990s, Nike received criticism for its use of "sweatshops" —workplaces with very poor, socially unacceptable, or even illegal working conditions. Between this and concerns about items like water pollution, some investors and consumers were slow to invest in or buy from the firm.

Thus, it set what initially looked like improbable targets to reduce items like water usage and to eliminate waste from its supply chain.

It has established a responsible leather-sourcing process and is working to eliminate hazardous chemicals from its supply chain. It is also committed to protecting workers' rights and promoting fair labor practices in its factories and throughout its supply chain.

To address social responsibility, it has launched several initiatives to promote gender and racial diversity within its workforce, and to support communities and promote access to sports for underserved populations.

This has resulted in it gaining many industry awards for its ESG awareness, while continuing to increase its revenue, profits, and share price.

Box 4: Nike and ESG

Climate Risk

Climate risk refers to the growing impacts that businesses and our overall society can face due to climate change. Climate risk can arise from physical impacts such as extreme weather events, like droughts and sea level rise. Related risks include damage to physical assets like office buildings and warehouses, disruptions to supply chains, and health impacts for both employees and the wider human race.

It can be argued that physical climate risk is the part of ESG that is most relevant to operational risk management.

A separate climate risk is transition risk. This refers to so-called stranded assets, impacts from the shift to a low-carbon economy, changes in policy and regulation, and shifting consumer preferences.

As the world shifts towards a low-carbon economy, the coal industry faces increased regulatory, financial, and reputational scrutiny. Coal has been used for centuries for home heating, transport, and power generation. While its use had decreased for some of these uses during the latter half of the 20th century, measures to reduce greenhouse gas emissions, such as carbon taxes and emissions trading schemes, have put further pressure on this area. The Paris Agreement, for example, aims to limit global temperature rise to well below 2° Celsius and transition nations to a low-carbon economy, which has had significant implications for the coal industry. This has put pressure on investors and financial institutions as they are expected to consider climate risk in any investment decisions. Some investors have withdrawn from fossil fuel investments due to climate risk concerns. In addition, many financial firms are now adopting climate risk assessments and integrating climate considerations into both their lending and investment decisions. As a result of this, many coal companies have seen significant financial challenges and have been forced to shut down operations. For some investors, these have become "stranded assets"—assets that have suffered from unanticipated or premature write-downs, devaluation, or even conversion to liabilities.

Box 5: Transition Risk Case Study

As the impacts of climate change become more severe and widespread, firms are being urged to assess their exposure to climate risks and develop strategies to manage and mitigate these risks.

Bodies, such as governments and related financial regulators, are developing frameworks and standards to help companies identify, measure, and report on their climate-risk exposure. These include initiatives such as the Task Force on Climate-related Financial Disclosures (TCFD).

The Task Force on Climate-related Financial Disclosures was created in response to growing concerns about the risks associated with climate change and the need for greater transparency and consistency in reporting on these risks. It is a global initiative established in 2015 by the Financial Stability Board (FSB). Its purpose is to develop voluntary, climate-related risk disclosures, and its work is based on four key pillars:

Governance: Companies should disclose the board's oversight of climate-related risks and opportunities.

Strategy: Companies should disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

Risk management: Companies should disclose how they identify, assess, and manage climate-related risks.

Metrics and targets: Companies should disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities.

The TCFD's recommendations are voluntary, but many companies and financial institutions are adopting them as a best practice for climate risk reporting.

Box 6: Task Force on Climate-related Financial Disclosures

Physical Climate Risk

Physical climate risk arises from the physical impacts of climate change. These can come from factors such as increased frequency and severity of weather events, flooding, drought, heatwaves and even sea level rise. It can impact physical assets, businesses, and critical infrastructure. Such risks can be said to have already been part of risk management. The Basel Committee categories of operational risk have included damage to physical assets, business disruption, and system failures. These were usually mitigated with business continuity planning (BCP) and/or disaster recovery (DR), but with more extreme weather events to be expected from climate change, risk managers will need to consider more targeted responses.

Readers can consider physical climate risk as a timely example as they work through each chapter.

Risk Governance and Risk Management Framework

Governance is a structure specifying the policies, principles, and procedures for making decisions in an organization. As part of this, working together with other stakeholders, like the risk management team, a board of directors should put in place a risk management framework that includes risk appetite, policies to manage risk, etc. Making physical climate risk part of this process would address the more immediate nature of this risk.

The board and/or management needs to communicate the importance and expectations around physical climate risk. Leading by example or a strong "tone from the top" helps with this. Related policies need to be updated or put in place, for example, a definition of physical climate risk, and indeed transition risk, need to be agreed and documented. Once these are included in the risk policy, the risk capacity and risk appetite need to be updated with related content.

For risk capacity, any new threats to the resources of the firm need to be considered such as capital, profits, liquidity, as well as reputational damage. How the risk of damage to resources may be increased by physical climate risk

would now also have to be part of that exercise, with stress testing, perhaps, being a part of this new approach.

Risk Assessment

A risk assessment program is foundational to the management of operational risks including physical climate risk. Such a risk assessment program should be designed to capture risks through both a top-down and bottom-up approach. Using the bottom-up approach, mapping where assets like premises or people may be impacted in the delivery of services by physical climate risk can be considered. The process for the identification, measurement and management of physical climate risk might build on existing BCP/DR approaches.

New risks such as sea level rise or more drastic flooding need to be considered. This is where a more top-down workshop or scenario analysis approach may work best. These may be aided by mapping tools that allow the location of critical offices and infrastructure to be reviewed against potential sea level rises. This may have to be followed up with mitigating measures, such as improving infrastructure resilience, diversifying supply chains, and relocating vulnerable assets. An effectively designed risk assessment program should track physical climate risks from the risk identification stage all the way through to control assessment, issue tracking, and action plan execution.

Third parties pose another area of significant risk for physical climate risk and require risk assessment rigor. A firm may be dependent on a third party in a remote or global location that could be impacted by an extreme weather event such as flooding, drought, or wildfires. Again, these will need to be considered as part of a large risk assessment exercise.

Risk Information and Risk Incidents

Gathering and using risk data, collating it, and turning it into risk information is a major part of risk management. For physical climate risk, a challenge is to decide what data is relevant and where to get it. New providers of this data are being joined by existing providers to try and meet this requirement. The related

data could be anything from sea levels, projected sea-level rise or expected climate data in coming years.

Using this data in a meaningful way is part of the new challenge. Putting in place a set of KRIs related to physical climate risk will aid in risk management. These can be linked to the risk appetite of the firm to aid in the overall risk management of physical climate risk.

The operational risk function should take ownership of the investigation for large or more complex operational risk losses. Understanding which of these relate to damage or other impacts caused by physical climate risk should be part of this and should be prescribed in the related policies and procedures.

Recognizing any physical climate risk related incidents would also be useful and may serve as a KRI for this area. These could be adopted from existing BCP/DR work and could include any items related to extreme weather events that result in some outage for the firm. Also, the KRI framework could be used to develop these physical climate risk KRIs.

Risk Capital

In this book, the topic of risk capital is addressed with a focus on the shift from the quite complicated AMA to the new SA. However, some of the data sources included in risk capital modeling, such as external loss data (ELD) or scenario data (SD), will still be useful for physical climate risk.

Scenarios can be more forward-looking for what have been low probability/high impact events. While capital modeling exercises with shorter term horizons, such as one year, may be well served by ILD, well managed firms might be seen to follow best practices if they use scenarios to look to the medium or even long term and the impact on their firms from physical climate risk.

Combining this with ELD or data from operational risk consortiums will further enhance this work and may lead to better risk modeling and use of data for areas like physical climate risk.

Operational Resilience

Lastly, operational resilience may be a way to draw together all these strands of physical climate risk. Operational resilience can be defined as the ability of a firm, and the financial services sector as a whole, to identify and prepare for, respond and adapt to, and recover and learn from an operational disruption. Some of these disruptions may be caused by physical climate risk, and thus understanding more of this risk and its possible impacts may aid a firm in its operational resilience goals. By thinking of what services are important for customers, how these may be impacted by physical climate risk, and how to keep these outages within acceptable tolerances, a firm may be best placed to manage its physical climate risk.

Summary

ESG risk is likely to grow and evolve as organizations seek to manage and mitigate the risks associated with it. Within this, climate change will continue to be one of the most pressing ESG risks. Its impact is expected to increase in the coming years. As a result, businesses and investors are likely to place greater emphasis on mitigating climate-related risks, be it transition or physical climate risks.