

Risk Management for Financial Institutions

Course Outline

Winter 2020

Rick Nason, PhD, CFA
Associate Professor of Finance
Dalhousie University

This is a comprehensive course in Risk Management that introduces the basics of both Enterprise Risk Management as well as Financial Risk Management. A critical analysis of the rise and evolution (including the future evolution) of risk management is utilized. The specific concepts, frameworks, techniques and regulatory aspects of risk management are discussed in both the context of a general organization and in the specific case of financial institutions. The focus of the course is on critical thinking about risk and implementing risk management. The theory of risk management (which is still largely undeveloped) thus takes a backseat role and will only be the focus when relevant.

Overview:

Risk Management for Financial Institutions is a course designed to illustrate best practices and techniques of risk management and risk management implementation in the context of organizations (both profit and not-for profit) with an emphasis on the more specific context of risk management of financial institutions.

Risk management has gained strategic and competitive importance in recent years and has gained a newfound level of respect and prominence as a separate professional field within the broader context of management. Nowhere has the newfound importance of risk management as a discipline been more apparent and more important, than in financial institutions. With the rise of risk management techniques stemming from derivatives, and the broadening of capital markets instruments such as securitizations, along with the rapidly changing role of financial institutions in the world economy, the demand and need for highly trained risk professionals has never been greater.

Adding to the demand for and challenges of the risk manager are new risks that are coming to the fore. Risks such as cyber risk, social media, reputational risk and demographic changes are tasking the talents of the risk manager in new ways. To compound the issue, a new layer of regulatory, compliance and governance concerns is the environment in which risk management is now practiced.

The political landscape will likely prove to make this an “interesting” period of time for ERM, and particularly so in the realm of financial institutions. The historical emphasis on regulation as a means to risk management is likely to come under question, and thus taking a critical approach to studying risk management may be timely.

This course focuses on Enterprise Risk Management while also covering the basics of the more specialized Financial Risk Management. Enterprise Risk Management (ERM) is a holistic way of

examining the risks of an organization. ERM goes beyond the more traditional siloed approach to risk management and thus attempts to be a more efficient and a more effective philosophy of risk management. ERM has been associated with better governance, better credit ratings, increased risk adjusted returns for investors, and a better overall competitive environment for the stakeholders of a firm.

Despite its perceived advantages, effective ERM implementation has proven to be difficult to achieve in practice. As a holistic risk management technique, ERM also requires managers to think and act holistically using a variety of techniques and management philosophies. This course will not shy away from the difficulties of ERM implementation and will force students to critically examine and think about the various approaches to risk management and how to appreciate the need to examine and respond to the specific contexts and needs for risk management that each organization has.

The course is designed to be as interactive as possible and employs a variety of pedagogical techniques. Risk management is not a passive or a theoretical exercise. Risk management is not static; it is dynamic. Implementing risk management often produces more questions and problems than it does answers or solutions. Effective risk management requires engaged management and this course will attempt to put that into practice.

The course has twelve modules. As risk management is a rapidly evolving field, each of the modules is designed with maximum flexibility so that the course can be kept as current as possible. The course will cover the classic approaches to risk management but also will not shy away from utilizing readings and exercises on techniques that are evolving or controversial.

In order to allow the course to be as flexible and current as possible, there will **not** be a standard set of Lecture Notes as is traditional CEGB MBA (FS) courses. Instead, each of the modules will consist of a set of lectures and readings that are designed to be as flexible and current as possible while still acknowledging the classic literature and principles of risk management. Each module will consist of a combination of one or more of the following:

- A video lecture of the topics being covered in the module
- A set of readings and multimedia material to be reviewed by the student for the module
- Video lectures to cover technical aspects of risk modeling or risk analysis

Additionally, every three modules will have a Live Classroom (that will occur approximately two weeks before each assignment is due).

Marking:

Assignments (4)	25%
Participation (both for distance and intensive portions)	25%
Examination	25%
Term Project	25%

Textbook:

There are a series of three short books that provide the backbone for this course.

Nason, R., *Rethinking Risk Management: Critically Examining Old Ideas and New Concepts*, 2017, Business Expert Press (N)

Nason, R., and L. Fleming, *Essentials of Enterprise Risk Management: Practical Concepts of ERM for General Managers*, 2018, Business Expert Press, (NF)

Nason, R. and B. Chard, *Essentials of Financial Risk Management: Practical Concepts for the General Manager*, 2018, Business Expert Press, (NC)

The lectures and modules will follow these books in a very loose manner. The books supplement the material in the course rather than forming the backbone of the course.

Participation:

Participation is a key component of the grade for this course. Students are expected to contribute to the online discussions, the Live Classrooms and especially during the Intensive. Participation will be assessed based on overall quality of the contribution to the learning of the class.

Additionally, all students will be required to peer rank everyone in the class from best to worst contributor at the conclusion of the course.

Term Project:

Another key component of the course is the term project which each student will complete individually. The purpose of the term project is to give students a chance to integrate all of the ideas of the course into a comprehensive project. The term project will be due two weeks after the Intensive. Students may submit their term project at the end of the Intensive. However experience has shown that most students wish to modify and edit their term project after the discussions that occur during the Intensive and after having had a chance to talk about their term project to others at the Intensive.

Examination:

The Examination will take place on the final day of the Intensive. The exam will be written on a computer. Therefore students should have access to a computer that contains a Word Processing program as well as Excel (or an equivalent).

Module Summaries and Learning Objectives (subject to change):

1. Introduction: What is Risk?

Risk has many different definitions and connotations. Many of the implementation problems associated with ERM stem from inconsistent understandings of risk within an organization. This module examines the various different definitions of risk and why a precise definition is important. It also introduces the different approaches to risk management that arise from the different definitions of risk.

- What is risk?
- What is risk management?
- Why is risk management important?
- Why is risk management so difficult?
- Introduction to modules of course

Learning Objectives:

- Understand the different definitions of risk
- Understand how the different definitions of risk affect risk management strategy and implementation
- Appreciate some of the history of risk management
- Appreciate the challenges and opportunities of risk management in an organizational context

2. The Importance of Risk Management

This module examines the rise of risk management as a management discipline and risk management's role in creating sustainable competitive advantage. There are a lot of misconceptions of the role of risk management, particularly in financial institutions. Risk management is frequently seen as "the department of no", when instead the trend is towards an enabling function.

- The current context of risk
 - The financial crisis
 - The dot-com bust
 - Enron, Worldcom, etc.
 - Bernie Madoff and ethics
 - BP
- Value Added Risk Management
 - Risk management and strategy
 - Value-added risk management
 - Risk management as an enabler
 - Risk management versus auditing
- Risk Management for Competitive Advantage

Learning Objectives:

- Understand the current context of risk management, including the various stereotypes that exist around risk management
- Understand the link between risk management and business strategy
- Learn to appreciate that good risk management is an enabler
- Understand how to develop a risk culture in which risk management is an enabler
- Understand how and why risk management leads to sustainable competitive advantage

3. Risk Management and Complexity

The study and science of complexity is rapidly developing to act as a counter-development to the quantification of risk management. The credit crisis showed the limit to mathematical modeling and deductive thinking and the science of complexity is one of the major paradigms that is arising to help solve the problem. This module introduces the concept of simple, complicated and complex systems and provides guidance for recognizing when each type of system is in effect and how to deal with each type of system. In addition, the important question of whether a risk management system should be based on process or judgement (or both) will be extensively debated.

- Simple, Complicated and Complex Systems
- Risk Homeostasis
- Deconstructing Risk Debacles
- Management by Judgment or Process
- The Risk Management of Risk Management

Learning Objectives:

- Learn the characteristics of simple, complicated and complex systems
- Learn the differences in how each of the three types of systems should be dealt with
- Explore further the concept of risk homeostasis
- Study how social science impacts risk management effectiveness

Learn how to manage a risk management program in light of the consequences of complexity and homeostasis

4. Risk Frameworks

The rise of risk management as a discipline has led to the development of standard risk frameworks. Several risk frameworks exist although only two are commonly cited. This module explains what the various frameworks are, how to assess them, and how to customize them for the specific requirements of an organization. The module also introduces the concept of risk homeostasis.

- COSO
- ISO 31000

- Comparing Risk Frameworks
- Are Risk Frameworks Evil
- Creating Customized Frameworks

Learning Objectives:

- Understand the implementation essentials of the major risk management frameworks
- Understand how to choose the most appropriate framework for a given organization
- Learn how to customize an existing framework, or create a specific framework for a given organization or situation
- Understand risk homeostasis and how to prevent it from derailing a risk strategy

5. Risk Governance

A strong and effective risk culture begins with good risk governance. This module covers what risk governance is, how it is created and the role of the Board in risk governance. Various risk governance frameworks are critically examined. Additionally the important task of setting the risk philosophy as well as the risk appetite of an organization is discussed.

- What is Risk Governance
- Ethics and Risk Governance
- Why is Risk Governance Important
- The Role of the Board in Risk Management
- Dey Report
- Sarbanes Oxley
- Setting the Risk Philosophy and Risk Appetite

Learning Objectives:

- Understand what good risk governance is
- Learn about the various governance frameworks
- Understand the role of the Board in setting the risk strategy
- Understand the role of the Board in providing risk oversight
- Understand what Board members need to know about risk management
- Develop processes for creating a risk philosophy as well as a risk appetite statement for a firm

6. Quantitative Risk Techniques

This module covers the quantitative risk techniques that are frequently used (and abused) in risk management. This module introduces the techniques, how to use them, and how to critically assess the results. This module covers risk modeling techniques as well.

- Risk Measures
 - i. Standard Deviation

- ii. Semi-standard Deviation
- iii. Beta
- iv. Value at Risk
- Expected and Unexpected Loss
- Decision Trees
- Monte Carlo Simulation
- Real Options

Learning Objectives:

- Understand how to conduct a risk measurement analysis
- Understand how to assess the results of the various risk measurement techniques
- Learn to appreciate the advantages as well as the limitations of quantitative risk management
- Learn to appreciate the advantages as well as the limitations of risk modelling

7. Qualitative Risk Techniques

While the focus of risk management is often on the quantitative issues, the critical risk issues are often qualitative in nature. This module discusses the all-important techniques for identifying, measuring and assessing qualitative risks.

- Delphi Method
- Risk Maps
- Risk Dashboards
- Scenario Analysis
- Stress Testing
- Risk Reporting

Learning Objectives:

- Understand the importance of qualitative risk management
- Understand how qualitative risk management complements and enhances quantitative risk management
- Learn the various techniques of conducting qualitative risk analysis
- Appreciate the role of creativity in risk management
- Understand the role of reporting and communication for successful risk management

8. Financial Risk Management

When many managers think of risk management they only consider financial risk management. This module introduces the main tools, instruments and techniques of financial and market risk management. This module covers derivatives both as a risk management tool for financial institutions as well as a product that financial institutions market to their clients and the

resulting differences in risk management strategies.

- Introduction to Derivatives
 - i. Forwards and Futures
 - ii. Options
 - iii. Swaps
- Using Derivatives for Risk Management
- Derivative Pricing Concepts
 - i. Forwards
 - ii. Options
- Exotic Derivatives
- Measuring Risk Sensitivities
 - i. Hedge Ratios
 - ii. The Importance of Volatility
 - iii. The Importance of Correlation

Learning Objectives:

- Learn the basics of derivatives as hedging instruments
- Learn how derivatives are created and marketed as a product
- Learn the basic concepts of derivative pricing
- Appreciate the limitations of derivative pricing
- Learn how to create financial hedges of the appropriate type
- Appreciate the influence of derivative modeling on risk management

9. Credit Risk Management

Credit risk management has traditionally been the cornerstone of risk management in financial institutions. This module covers the traditional methods of credit risk management as well as credit derivatives and their increasingly important role in credit risk management. Finally the module will discuss the role of credit risk in the recent credit crisis and the lessons learned as well as the questions that remain.

- The 5 C's of Credit
- Credit Scoring
- Counterparty Risk
- Credit Portfolio Management
 - i. Retail Credit Management
 - ii. Loan Management
 - iii. Bond Portfolio Management
- Credit Derivatives
 - i. Credit Default Swaps
 - ii. Collateralized Debt Obligations
 - iii. Credit Indices
- The 2008 Crisis and Lessons Learned
- Sovereign Risk

Learning Objectives:

- Understand the historical role of credit risk management in financial institutions
- Examine the main techniques for measuring and managing credit risk
- Understand the current role of credit risk management in financial institutions and the role of regulatory management of credit risk
- Learn the basics of credit derivatives and how they have changed credit management in financial institutions
- Understand the root causes of the 2008 financial crisis, the lessons learned and the remaining unanswered questions
- Understand sovereign risk and sovereign risk management techniques

10. Strategic and Operational Risk

The earlier module on quantitative risk management will have introduced some of the strategic and operational risk issues. This module completes the discussion on this very important risk area that is often overlooked. One of the main reasons for strategic and operational risk being overlooked is that it is hard to objectively measure and thus it is considered to be hard to manage. Various techniques for managing strategic and operational risk will be covered as well as integrating strategic and operational risk into an enterprise risk management framework. Finally, risk management as a source of competitive advantage (which is a key recurring theme of the course) will be explicitly discussed.

- Managing what you cannot measure

- Project Risk Management
- Risk Learning
- Differences with Financial Risk Management
- Risk as a Story
- Integrating for Enterprise Risk Management
- Risk Management as Competitive Advantage

Learning Objectives:

- Understand the key concepts and techniques of strategic risk management
- Understand the key concepts and techniques of operational risk management
- Appreciate the differences with financial risk management and why those differences must be respected
- Learn how to integrate strategic and operational risk into an enterprise risk management strategy
- Learn how mastery of strategic and operational risk (along with financial and credit risk) leads to sustainable competitive advantage

11. Financial Institutions and Risk Management

The risk management of financial institutions carries additional responsibilities due to their importance in the global economy and the functioning of local economies. The risk management of financial institutions is inextricably linked with regulation and this module explores those links and debates whether or not regulation helps, or harms the ability of financial institutions to manage their risks. The major pieces of regulation are discussed and how their evolution came to be is examined. The module concludes with a look at the implications for the future of risk management in financial institutions.

- Financial Institution Risk Management versus Corporate Risk Management
- The Role of Regulation
- Implications for the Future

Learning Objectives:

- Learn how and why financial institution risk management differs from corporate risk management (as well learn how they are similar)
- Learn about the latest pieces of risk regulation and how these regulations are likely to evolve as they become finalized
- Debate what the implications of financial institution regulation are for the future of financial institution management and the role of financial institutions in the global and local economy

12. The Future of Risk Management

Risk management is ultimately about managing the future and this module explores this concept in depth. Techniques for planning, both short and long term, and their implications for risk management are introduced and evaluated. Additionally a look at the evolving role of a career risk manager is presented. The session concludes with a discussion of what risk management is likely to look like in the future.

- A Shifting Landscape
- Long Range Planning
- Managing a Career in Risk Management
- The Transformation to Obsolescence?
- Speculating on The Future

Learning Objectives:

- Be introduced to planning techniques both long and short term
- Learn about the evolution of careers in risk management and discuss how they might evolve in the future
- Take a speculative look at the future of risk management and its role in the corporation, and in a financial institution, and its potential role in the economy at large.