

An Enterprise Risk Management Curriculum for Business Studies: A Practical Understanding

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Abstract

Teaching enterprise risk management (ERM) in higher educational institutions as a mainstream subject is emerging. Risk management is traditionally taught in disciplinary silos without considering the multidimensional aspects of risk necessary to steer the entire business. This study identifies and focuses on the essential elements to develop a curriculum of ERM from a multidisciplinary perspective. The purpose of this article is to outline the contents of an ERM unit for academic business degrees. The article includes the author's view and experience in designing and delivering an ERM unit for a postgraduate finance and risk management degree at his current academic affiliation.

1. Introduction

Risk is a common business issue, and it is always a topic full of ambiguity and complexity. The understanding and awareness of risk to both professionals and individuals, including the sophistication of risk management techniques, have increased remarkably in the past few years (Bernstein, 2000). However, the professional status of risk management as a mainstream business discipline (e.g., accounting, marketing, strategy, etc.) has yet to evolve. Interestingly, the evolution of enterprise risk management (ERM) has emerged both as a concept and a management function (Dickinson, 2001).

In the meantime, several definitions of ERM have been suggested, and they reflect the professional understanding of subject experts. Consequently, they vary according to the type of industry (e.g., banking, insurance, manufacturing, service, etc.) and the sector (e.g., financial and nonfinancial). The practical understanding of ERM can be categorized into three views, i.e., technical, operational and strategic. In technical (i.e., experimental) views, ERM is the measurement and management of all significant risks (i.e., financial, operational, hazard, etc.) in a holistic framework (CAS, 2003) to maximize the opportunity and profit while minimizing the downside effect of risk. In operational views, ERM is defined as a management process of risk in an enterprise-wide framework (Muller, 2007) where controlling of risk is preferred. Finally, in strategic views, ERM is intended to reduce the degree of failure in achieving organizational strategic goals over a period of time (Dickinson, 2001). It is found that these views hold uneven understanding of risks and their consequences. Furthermore, the views often depend on the role and position of the risk management expert in the management hierarchy. The common issue is that ERM is a holistic approach to managing the risks of a modern dynamic business enterprise irrespective of their nature and sources. However, the varying adoption and adaptation of approaches is important in the implementation ERM in a particular business to achieve its business goals within the constraints of available resource, culture, regulatory, market and social environments.

It is understood that defining ERM is comparatively easier than its implementation. One important challenge for ERM is keeping a continuous track on the dynamics of risk of the business. In essence, the drivers of risk change with the pace of technological and social change. This often increases risk by several orders of magnitude, or creates new risks where none existed in the past (Crockford, 1976). Risk is continuously shaped by changes in the economy, culture, communication of information, coordination and changes in the ability of management, etc. Moreover, time continuously changes the dimension of risk, as Bernstein (2000) states “risk and time are opposite sides of the same coin.”

The objective of this paper is to propose an ERM curriculum for an academic subject of study. A few studies attempted to research this objective, and Long (1961) identified the scope of risk studies which highlighted important features in developing a risk management course in a broader perspective beyond insurance. He admitted that “establishment of a special course addressed directly to risk in the enterprise system might help students (and instructors) better to understand the substance of business and economics treated in subsequent courses.” A similar view was forwarded by Garven (2007). Moreover, Beck (2004) proposed some tentative thoughts to overcome the obstacles to the evolution of risk management as a discipline. Most of

them perceived risk from their own professional understanding, and they still suffer the narrow disciplinary perspective of risk in different degrees. The core understanding of this study is that since risk is an inherent element of administering the business, the management of risk comprehensively and efficiently will obviously bring greater success for business. The definition of business risk that this study considers “should include the possibility of gain as well as loss and should have reference to both uncertainty and probability” (Bickley, 1959).

The paper is divided into three sections. In the first section, an in-depth literature review of risk is done. The second section describes lessons from the author’s practical experience in designing and delivering ERM in the classroom. Finally, a conclusion is drawn.

2. Literature Review

The literature review is divided into three phases. In the first stage, several perspectives of risk based on individual and organizational understanding (as mentioned in the introduction above) are discussed. Thereafter, views of risk in terms of several academic understandings are initiated.

2.1 Phase 1: Several Organizational Perspectives of Risk

As mentioned earlier, there remain several organizational perspectives of risk. A thorough review of literature revealed at least three perspectives of risk, i.e., technical (or experimental); operational (or process); and strategic (or policy) views. The following paragraphs discuss them separately. The outcome of this discussion was taken into consideration while developing a curriculum for ERM.

2.1.1 Technical (or Experimental) Perspective

History suggests that corporations manage the economic consequences of certain risks (e.g., physical damage of properties, business interruptions, life of employees, losses of business, etc.) through purchasing insurance coverage. The function of a risk manager in the corporate hierarchy was mainly as an insurance buyer for risks of the firm, which may cause loss referred to as pure or static risk (Tippins, 2004; D'Arcy, 2001). Over time, the corporate functions became enlarged and handled several additional kinds of risks (e.g., finance and treasury functions), and there was no insurance coverage available for the new kinds of risk—in particular, those that have exposure on both the upside and downside (i.e., speculative risks). In addition, there were capacity problems in the global insurance market in particular for large risks (e.g., natural and man-made catastrophes), and since the capital market is bigger than the insurance market, large corporations moved to alternative ways of transferring risk (e.g., risk securitization). This is a hybrid product for transferring risk by using both insurance and capital markets. In line with the development of capital-market-related subjects—like financial engineering, which falls under the academic discipline of financial economics—several risk management tools, e.g., hedging for financial risk (i.e., market, credit and liquidity) were developed. The innovation placed more emphasis on risk modeling and quantification issues rather than management perspectives. The key criticism of such a perspective of risk is that it focuses more on objective issues (those that can be quantified in terms of numbers) and ignores the subjective perspectives (e.g., drivers for human behavior such as perceptions, emotions and social values). Notwithstanding, risk management is more than insurance buying and hedging; it is also a tool, concept and function to help ensure the entire business has sustainable development (Dickinson, 2001; Beck, 2004; Acharyya, 2006). Indeed, models are based on assumptions and can only work on specific situations. In contrast, human judgments are based on a person's intuition, attitude, experience and capacity. Consequently, they are subject to bias and may not always represent the view of a specific group of experts.

2.1.2 Operational (or Process) Perspective

Essentially there are many risks in the business, e.g., strategic risk and operational risk, which cannot be quantified in terms of numbers, and their exposures are often severe. In addition, there are some other risks, e.g., reputational risk, which are not straightforward and market-traded. In addition, firms cannot transfer some of these risks either in the insurance or the capital market. In fact, there are several issues involved with them, e.g., confidence, trust, long-term value, etc., which take a long time to grow but a little while to break or damage the success of the firm. They are often invisible or hidden. They can only be managed by controlling through implementing or improving policies and procedures (or governance). The process-oriented view takes the holistic perspective of risk arising throughout the systems in place for the business. It is more inclined to organizational culture and actions taken by humans and their emotions and behavior in specific circumstances. From a controlling perspective, the management of risk is close to using the insights from psychology and behavioral studies. The management theorists, who are the pioneers of the controlling perspective of risks, view risk from a broader perspective of uncertainty than in the strategic management perspective (Garven, 2007). In this view, the performance of risk taking is often measured by the scope of competitive advantage (Chatterjee, 2003).

2.1.3 Strategic (or Policy) Perspective

It is understood that many of the sources of uncertainty in business lie in the intention of others, e.g., competitors, regulators, customers and the market as a whole. In this perspective risk is viewed in a broader sense beyond technical and departmental silos. For example, the identification of the top risks of the business, whether technical or operational, is an essential requirement in the development of a firm's corporate strategy. Moreover, the corporate strategy is a broad topic and should consider the firm's profitability, growth, solvency and social responsibility needs (Forbes, 1973). Consequently, it is important to link the firm's risk management initiatives in setting its corporate goals (Froot, 1994).

2.2 Phase 2: Several Disciplinary Understandings of Risk

Risk has emerged as a dominating phenomenon, which demands political intervention and management (Renn, 2008). In addition, risk is a central concept underlying virtually every business discipline including marketing and management (Garven, 2007). In essence the economists view risk behavior at the individual level; the psychologists focus on the group activities; and the sociologists concentrate on risk as a social phenomenon. The following paragraphs discuss the disciplinary understanding of risk as an academic subject.

2.2.1 Financial Economics

From a financial economics perspective, shareholders (investors) do not care about the risk management initiatives of the firm. This is because the shareholders could efficiently manage the risk of their investment through portfolio diversification. In contrast, corporate risk matters to stakeholders [other than shareholders] since they tend to hold relatively undiversified claims on the stake of the firm (i.e., managers tie up their human capital in the firm). If these

contracts are not well-designed, then the firm subjects itself to potentially significant costs related to moral hazard and adverse selection.

The criticism of the technical and economic analysis of risk is that it alone drives decisions in problem solving without considering its culture, human and social aspects. In addition, many transactions in the area of risk transfer and financing between individuals and organizations imply the imposition of risk on third parties, who may not benefit, or who may even suffer severe loss from the transaction itself (Renn, 2008). It was suggested that risk management decisions must take the political, social and ethical, as well as the technical, aspects of the policy problem (Bradbury, 1989).

2.2.2 Management Science

The role and need of risk management in management science were clarified by Drucker (1974) in the following statement.

“The main goal of a management science must be to enable business to take the right risk. Indeed, it must be to enable business to take greater risks—by providing knowledge and understanding of alternative risks and alternative expectations; by identifying the resources and efforts needed for desired results against expectations, thereby providing means for early correction of wrong or inadequate decisions.”

In this concept, the managers in the business are there to take risk. However, these risk-taking, decision-making and problem-solving roles of the managers may create new risk to the firm. Moreover, the efficiency of the managers depends on the accuracy of selecting alternatives in the face of the unknown to maximize the probability of achieving the firm’s business objectives.

A lot of effort has been expended in handling and managing risk, including tools and techniques (e.g., insurance contracts and hedging by the use of financial derivatives), on existing types of risks. However, little research has been conducted to understand the nature of risk and overlapping characteristics of several types of risk of a business. Acquiring and utilizing sophisticated risk management tools and techniques may support the risk management practice but do not necessarily ensure the success of the firm. The risk management policy and procedure need to be aligned and integrated with the corporate culture of the organization both at central and local levels (Aabo, 2005). It is understood that the lower the degree of knowledge of the users on the nature (and dynamics) of risk, the lower the success of the tools and techniques of handling and managing risk. Consequently, a curriculum of risk management should focus equally on both sides, i.e., knowing risks and the efficiency of the tools and techniques for handling them. Fundamentally, there must be a close link between them (i.e., knowledge on risk and the techniques), since new dimensions of risk emerge over time thus requiring change and increased sophistication of tools and techniques.

The central theme of a curriculum of ERM is to view risk from a broader perspective of mainstream topics in finance, economics, management and marketing, although these are fundamentally important to administering a business. Studying risk from one discipline only

obviously ignores the concepts and perception of others, which consequently limits the ability to administer the business as a whole (Denenberg, 1966).

It is important to understand that risks in the financial sector have many socially constructed attributes, rather than being purely a physical entity, and are therefore difficult to be explained, predicted and controlled entirely by science. Since risk exists independently of humans, who assess and experience its effects, the empirical evidence alone does not lead to any conclusions (Bradbury, 1989). Consequently, the real challenge for designing the curriculum is to integrate both the subjective and objective views of risk in a unified framework. From one perspective, the syllabus will need to be rigorous to a science-based approach, based upon economic, financial and statistical models to structure problems and test the hypothesis using econometric techniques. The art-based applications should follow a comparatively soft skills route, inclined to subjective, behavioral, psychological and sociological approaches. In this context risk management is as much an art as a science (Gahin, 1971).

In addition, risk was studied in a combination of two separate perspectives of risk, i.e., from financial economics and management science, under the topic “decision analysis,” where psychology literature plays a vital role.

2.3 Risk and Decision Analysis

The concept of risk analysis and decision making outside of economics and finance literature is provided by Pate-Cornell (2006). Furthermore, Baldwin (2006) provided a simulation framework to reduce uncertainty and risk in the decision-making process. Several psychometric studies on risk, in particular Slovic (1977), found the differences between the experts and lay risk judgments in behavioral decision making. While the experts’ emphasis is on the severity and the uncertainty associated with an event for risk assessment, the lay risk judgment demonstrates irrationality in decision making at the individual level. In economics literature, expected utility (refers to the value of an outcome to the individual) served a measure of risk in decision making (von Neumann, 1944). The literature identified two main factors for the notion of risk in decision analysis. The first is the uncertainty of outcomes resulting from the occurrence of state. The second is the expected utility to the decision maker when taking a certain action. It is assumed that while uncertainty and risk (a degree of uncertainty which refers to the likelihood of a probabilistic event) are positively correlated, risk and expected utility of an action maintain negative correlation (Yang, 2005). Notwithstanding, in the literature, decision analysis is often restricted to the classic expected utility framework based on axioms of rational choices.

Historically, management literature missed the notion of risk; similarly, the risk management literature missed the principle of management. Moreover, the gap still remains unfulfilled and is only at an early stage of development (Denenberg, 1966). The challenge is whether risk management is commonsense or is in fact a discipline where specialized knowledge is necessary. It really depends where and how risk management is positioned. For example, if risk management is implemented at the operational level, then it could be sufficient for the [line] managers to practice risk management in their day-to-day functions as routine work by utilizing intuition and common sense. However, if risk management is considered as a corporate function,

then specialist knowledge, in addition to intuition and common sense, is necessary. In particular, management of risk in the financial sector needs knowledge and expertise on the financial market, products, tools and techniques, and regulations, including analytical and managerial skill (Allen, 1987). In a broader sense, as Crockford (1976) proposed, “all management is risk management.”

The literature suggests that the awareness of risk grows with the increase of [economic] surprises (i.e., unexpected ups and downs) in the business function in terms of cash flow and shareholder value. In a prolonged financial crisis, the long-term survival of a corporation is of greater concern than its short-term profit. As management should focus more on the long-term vision of the corporation, the uncertainties associated with the business must be given a closer look. As Forbes (1973) suggested:

“The modern executive has become a generalist. He no longer views his business problems through the narrow window of specialization, but instead applies quantitative and qualitative approaches to decision making which consider the accounting, marketing, production and financial aspects of a problem simultaneously. His responsibilities encompass the integrated operations of the firm rather than a narrow circle of subordinates. His information systems are designed to provide accurate and relevant data rapidly as an aid in solving multidimensional problem. The firm operates as a totality in carrying out his objectives and he in turn possesses controls which enable him to direct its operations in an integrated, unified manner in order to achieve these objectives.”

The central point of Forbes’s quote is relevant to this study. This is because modern risk management should not only consider the output (or results) of the decisions but, more importantly, the way and the cause or circumstances for the basis on which the decisions were made.

2.4 Essentials to Promote Risk Management as a Mainstream Academic Discipline

As mentioned earlier, risk management is yet not established as a mainstream discipline in academics studies. A review of literature identified three interrelated reasons that prevent the growth and professionalization of risk management as a discipline (Beck, 2004). They are: (i) legal mandate or recognition of the profession; (ii) demonstration of value to the decision makers while fulfilling the organizational objectives; and (iii) loose affiliation of risk management with other applied disciplines (e.g., law, management).

The following paragraphs discuss the above requirements in the light of the recent growth of ERM.

2.4.1 Legal Mandate

Industry failures often highlight the significance of risk management. For example, several corporate scandals (Enron, WorldCom, etc.) drove stricter corporate governance in the area of financial reporting (e.g., SOX, Combined Codes, etc.).

A significant advancement of promoting ERM is due to the legal requirements that the directors of public companies should disclose the risk of their corporations in the annual reports. The recent Walker Review on banks and bank-like institutions (e.g., life insurers) is another step in promoting ERM and the role of chief risk officers (Walker, 2009). The inspiration for ERM came in the late 1990s from the Conference Board of Canada, Towers Perrin and AS/NZ 4360. The COSO Enterprise Risk Management framework provides a foundation of ERM (Moeller, 2007). However, it has been criticized for placing emphasis more on the system and compliance aspects but not enough on the dynamics of risk, in particular, opportunities.

2.4.2 Regulatory Development

In the banking sector, the capital adequacy regulations, i.e., Basel II, and Solvency II in the insurance sector were structured to capture more risks in determining regulatory capital. The design and implementation of these regulations require developing internal risk models of the firms where consideration of the firm's risk appetite and risk tolerance of business lines from a holistic perspective is essential. In the meantime, the United Kingdom's Financial Services Authority (FSA) has pioneered the holistic management of risk in the financial sector. The effort of aggregation of risk has been increased further after the 2008 financial crisis. Rating agencies, in particular S&P, adopted ERM as an essential criterion of evaluating the financial strength of both financial and nonfinancial companies.

2.4.3 Demonstration of Value

A connection between risk management activities of corporations and the value of their economic activities is often claimed by practitioners and some academics. However, there is no empirical proof of such claims other than a few works of finance scholars. These studies claim that risk management aligns the demand of funds with the internal supply of funds (Froot, 1994). This alignment in turn reduces the expected cost of financial distress (i.e., transaction cost) and bankruptcy. In addition, the practice of proper risk management reduces the conflict between shareholders and bondholders, managerial risk aversion and reducing corporate tax liabilities through cutting the rate risk of buyout debts (Smith, 1985; Rawls, 1990; Stulz, 1996). However, these claims are mostly based on theoretical works without any practical evidence. Notwithstanding, risk management provides essential criteria prior to making decisions at a strategic level, where risk and benefits are evaluated. Moreover, a well-designed risk management program will increase the transparency of information and actions throughout the business.

The above literature review reveals some important points for the purpose of this paper to develop a curriculum of ERM for business studies. First, any curriculum of ERM should take a holistic view of risk in terms of organizational (i.e., technical, strategic and controlling) and disciplinary (i.e. financial, economics and management science) perspectives. In addition, the growth of ERM depends on the three essential factors, i.e., acquiring legal mandates, regulatory development and demonstration of value for the firm.

3. Designing and Delivering ERM in the Classroom

Considering the findings of the literature, Bournemouth University designed a full-time module titled, “Enterprise Risk Management for MSc Finance with Risk” degree that was first offered in the 2008–09 academic year. The academic aim of the module is to develop practical, theoretical and critical understandings on risk and risk management for present and future managers. The syllabus included the development of a basic understanding of the role of risk in management and business functions (i.e., marketing, finance, operations and management of people and projects). The emphasis was on the inquiry and creative thinking capability of managers in risk issues while bringing together theory and practice. In addition to this ERM unit, students were required to take other units, i.e., business and financial economics, accounting and finance, international investment management, contemporary business issues, governance and ethics, and writing a research project. All of these units included some elements of risk management, at least in isolation, and the ERM unit takes a holistic view of risk as considered in each individual unit. A total of 37 students attended this full-time face-to-face delivery in the 2008–09 intake; none of them had previously learned risk management as an academic subject.

The approved intended learning outcomes of the ERM unit are as follows:

1. Handling the complexities associated with identifying, modeling, measuring, transferring, financing, reporting and monitoring risks.
2. Comprehending the dependencies of several types of risks and the complexities associated with integrating them in a single framework.
3. Understanding the role of a chief risk officer and the challenges in developing an ERM system within an organization.

The entire syllabus of ERM consists of 10 lectures and is designed under four topics referred to here as “broader knowledge-based topics” (BKBT). They are: (i) the philosophy of risk and an associated theoretical understanding; (ii) risk and organization; (iii) risk and markets; and (iv) risk and crisis management. The 10 series lectures included the following topics: (i) Foundation of ERM; (ii) Theories of ERM; (iii) Risk and Capital; (iv) Risk Modeling and Measurement, Risk and Governance; (v) Risk Transfer and Financing; (vi) Risk, Regulation and Ratings; (vii) Contemporary Issues on ERM; and (viii) a case study on ERM. Item (iv) was continued for two weeks, and the case study of implementing ERM in Hydro One (Aabo, 2005) was discussed in the ninth lecture. The final week number (x) was used as a revision of the topics that were covered in the units. The classroom delivery consisted of 10 consecutive lectures. In addition, practical and computation issues related to the lecture topics were covered in all of the seminars. Furthermore, four industry experts (e.g., chief risk officers) were invited, and they voluntarily shared their practical ERM experience with the students. These events were arranged either as classroom presentations or by video conference depending on their locations, availability and other circumstances. The achievement of each participant was assessed based on a classroom presentation and a 4,000–4,500 word coursework or assignment (see the coursework exercise in Appendix A).

3.1 The Philosophy of Risk and Associated Theoretical Understanding

In this context, the discussion of several risk and decision theories (e.g., utility theory, prospect theory, game theory, etc.) was found appropriate as a major topic for class discussions covered under “Managerial Decision Making.” However, it was found important to establish its theoretical foundation focusing on the implication of risk in managerial decision making. In addition, the irrational behavior of managers/investors and the concept of “bounded rationality” were clarified (Simon, 1979). With reference to this theoretical foundation of risk taking and decision making, the ideas of risk appetite and risk tolerance were introduced to the students. This included a discussion on risk attitudes of the managers/investors in light of the theoretical foundation of risk aversion and moral hazard. Thereafter, the conceptual foundation of ERM was introduced. A discussion of strategic risk was also included. These topics were covered in lectures 1 and 2.

3.2 Risk and Organization

The basic understanding of this topic is to understand and manage risk in implementing a firm’s corporate strategy. In reality, the best strategy may fail because of inappropriate/inaccurate implementation. The key to any success/failure is the organizational complexity that is associated with people, technology and systems in operating the business functions. Discussion with the reference of organizational theories (e.g., theory of firm, agency theory, stakeholder theory, etc.) was introduced. In this context, the topic of corporate governance and its link with risk management was clarified. The hierarchal view of risk in the organizational hierarchy was found useful under these topics. The process-oriented view of management (i.e., identification, assessment, mitigation, control, monitoring, etc.) was discussed. The description of several risk management policies and procedures including internal controls and their significance was covered.

The topic “operational risk” was covered herein. A clarification of the meaning and significance of operational risk, including its separation from other risks of the organization, in particular the more easily quantifiable risks, was also discussed. These topics were covered in lecture 6.

3.3 Risk and Market

While the previous lectures under the topic “risk and organization” deal with risks that arise inside of the firm, the lectures under this broad topic “risk and market” deal with the risks that arise outside of the firm, e.g., investment (stock market), credit and liquidity risk. Several computational techniques including their assumptions and applications were covered. The modeling (e.g., Monte Carlo) and measurement (e.g., VaR, TVaR, expected shortfall, etc.), including mathematical forecasting of these risks, were introduced under this topic. The underlying foundation and practical use of several risk transfer and financing instruments (e.g., insurance, derivatives, hedging, etc.) were also discussed. These topics were covered in lectures 3, 4 and 5. Some risk transfer and financing techniques, including hedging, were introduced in lecture 7. The seminars included some risk quantification and modeling exercises by using

spreadsheets (e.g., EXCEL). In addition, risk management software (i.e., @Risk) was utilized for forecasting and computation.

Furthermore, risks associated with marketing—e.g., competition risk, reputation risk, legal risk, political risk—and their roles to organizational success and failure were briefly discussed from an ERM perspective in lecture 8. Moreover, the role of regulators and rating agencies in promoting ERM for the firms was covered.

3.4 Risk and Crisis Management

The development and managerial responses to financial crisis and natural disasters are an important part of ERM. The techniques of managing crisis situations and continuing the business during an adverse environment were emphasized in several items of the curriculum (e.g., case study in lecture 9). The benefits of ERM were briefly covered. Finally, the role and responsibilities of a chief risk officer and the challenges s/he faces in implementing ERM were considered in the seminar. The topic was delivered by setting an artificial office environment for a chief risk officer in the classroom amongst the students where each student took an executive role in the management hierarchy. Appendix “B” illustrates the criteria of several managerial/executive positions and their risk management roles. The task of the CRO is to determine the top 10 risks of the firm (i.e., UBS in this example). Interestingly, two seminar groups came to virtually opposite results in ranking the top 10 risks. The criteria for implementing ERM, as suggested in Fraser (2010), were utilized with modifications.

4. Conclusion

The development of an ERM curriculum for a business degree should take a broader view of risk in key functions, i.e., from strategic decision making to the implementation of corporate strategies. The risks associated with both internal and external environments of the firm should be aligned and integrated within the available resources (i.e., firm's risk appetite or capacity). The curriculum should place emphasis on the dynamic nature of risk, including its correlations and how a firm can capture the opportunity (or add value) if risk is taken sensibly. It means that the traditional single disciplinary view of risk is insufficient for developing an ERM curriculum.

The literature suggests that the economic and the strategic perspectives of risk taken alone end up with conflicting conclusions. The interpretation of the relationship between risk and return could be a good example, where positive relationships were found in the case of financial risk and negative relationships were found in the strategic risk arena (Fiegenbaum, 1988). The modern ERM curriculum must consider the application and implication of risk management in policy issues for which a broader disciplinary knowledge on risk is necessary. Academically, ERM should consider the understanding and conclusions of both positive and normative theories of risk. Consequently, the curriculum included the key issues of ERM under four broader knowledge-based topics, i.e., the philosophy of risk and associated theoretical understandings; risk and organization; risk and market; and risk and crisis management. In addition, three constraints, i.e., legal mandate, regulatory development and demonstration of value, were found in the study.

Finally, the CRO, whose key role is to develop and implement the ERM methodology throughout the organization proactively, should possess a broad knowledge of the uncertainty associated with the business and develop techniques to balance the upside and the downside effects of risk for long-term sustainability. Finally, the curriculum of ERM should focus on the risk of the enterprise as a whole rather than a specific managerial or departmental function. The curriculum proposed in this study can also be utilized to develop an ERM unit for an MBA course.

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Appendix A

Enterprise Risk Management

Coursework

A consulting firm seeks your professional advice on the ongoing financial crisis. In fact, the firm intends to prepare several case studies on the troubled local/global banks, insurance companies and any other financial or nonfinancial organization, who have suffered losses from the ongoing financial crisis/turmoil. You have to use your research expertise to collect and analyze data and prepare an in-depth case report on one such organization using your intellectual and analytical skills.

Required

Collect relevant information from the daily newspapers/magazines (e.g., past/current issues of *Financial Times*, *Wall Street Journal*, *Economist*, etc.). Also download appropriate financial data from the Thomson database (available on BU library sources) and analyze using appropriate techniques. Thereafter, prepare a complete case report on your selected organization. You can investigate the followings points in your analysis. They are for your reference only, but you should go beyond this boundary to conduct a meaningful investigation and draw constructive conclusions. In addition, you are advised to maintain the requirements of the assessment categories attached with this coursework.

- Global economic environment and pro-cyclical effect.
- The origin of the problem for which your selected organization [near] collapsed or suffered significant losses.
- The development of the crisis and its effect throughout the organization.
- Alternative ways/arrangements that could avoid the losses/crisis if executed properly.
- Role of the organization's management, regulators, policy makers, rating agencies that you think appropriate (or inappropriate) to handle/resolve the crisis.
- The implication of accounting and solvency regulations, e.g., Basel II, Solvency II, IFRS, where appropriate.
- Your alternative suggestions to solve the crisis.

All of your comments must be supported by specific evidence from your data, analysis and research findings. In addition, you should focus on the principle and significance of Enterprise Risk Management throughout your analysis from both theoretical and practical perspectives. It is expected that you will utilize your knowledge on the topics included in the lectures and seminars of this module. The conclusions, based on your own understanding on the investigated issues/topics, are highly significant to secure good marks.

- What are the strengths of your case study report? Justify.

Appendix B

Seminar Topic: A Risk-Profiling Exercise with UBS

Step 1

The board of directors will approve the corporate objectives and strategy of the Bank. The key areas include:

- Financial and investment
- Operational (e.g., IT)
- Marketing
- Product development and distribution
- Human resources
- Geographical expansion and contraction (e.g., merger & acquisition and divestments)
- Research and development.

Step 2

The following top executives are responsible to execute the decisions of the board of directors, in particular, achievement of the corporate objectives, and to supply information to the board of directors about the status of the Bank and the market.

Chief Executive Officer (CEO)

Chief Financial Officer (CFO)

- Treasury
- Tax
- Accounting and Controlling

Chief Accounting Officer (CAO)

- Accounting Policy

Chief Investment Officer (CIO)

Group General Counsel

- Legal & Compliance

Chief Audit Executive (CAE)

- Assurance to the Board of Directors

Chief of Business Divisions (CBD)

- Business Management and Operations

Chief Technology Officer (CTO)

- Chief Health & Safety Officer

Chief Risk Officer (CRO)

- Portfolio Risk Control
- Operational Risk
- Risk Management Policy and Procedure
- Business Continuity

Step 3

The CRO is the head of the Enterprise Risk Management function and his/her job is to take a holistic view of risk of all types. This is different from the silo (i.e., segregated) view of risk that the department heads traditionally hold.

The Problem to Solve

Due to the recent financial crisis, the board of directors is concerned about the potential risks of the Bank. They are not risk experts but want to see a clear view on the potential risks in order to determine the appropriate corporate strategy of the Bank (in terms of financial, operational, marketing, expansion, etc.). They asked the CRO (who is the head of the ERM department of the Bank) to identify the top 10 risks of the bank as at the end of 2009, which they will consider to determine/amend the corporate objectives and strategy.

The CRO is to identify the top 10 risks of the bank and report to the board of directors with recommendations.

Two Deputy CROs are there to assist the CRO to complete the job.

The following documents are available from the Bank's 2008 Annual Report available on www.ubs.com:

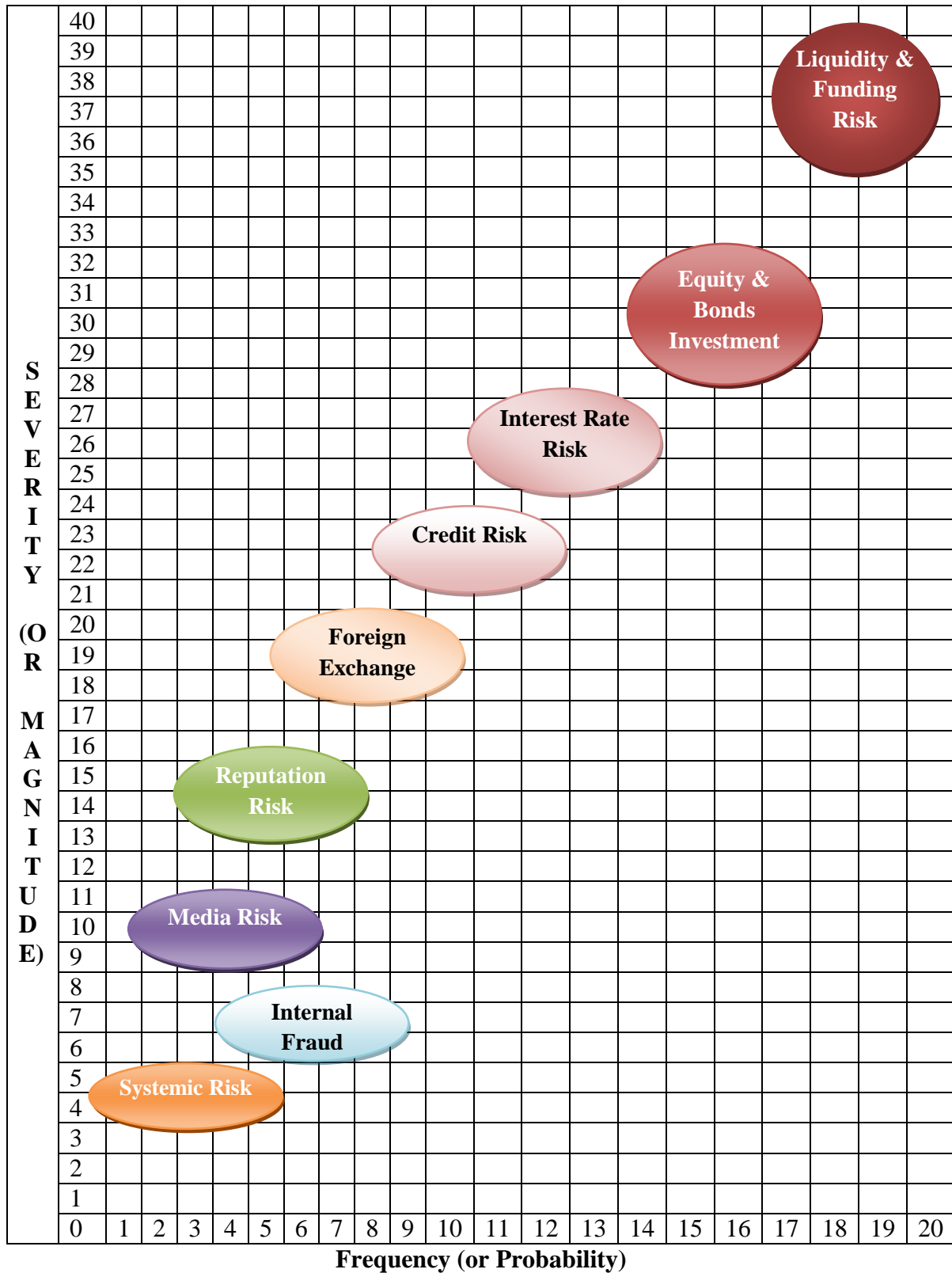
- Risk and treasury management
- Corporate governance and compensation
- Financial information
- Strategy, performance and responsibility
- Review of the strategy and financial results

In addition, there are several *Financial Times* news and reports on the current financial market crisis.

Step 4

The CRO and the Deputy CROs will interview all the departmental chiefs. The objective is to obtain their opinions as to the risks they think significant in their respective fields and to the Bank as a whole. [Note chapter on doing these interviews written by John Fraser in the ERM book!]

Risk Mapping Results Produced by Group 1 Students



The Top Risk

Risk Mapping Results Produced by Group 2 Students

