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# Where's the Value: Teaching ERM to an expanding and varied audience of practitioners.

John Bugalla

## ABSTRACT

ERM (enterprise risk management) is the greatest advance in risk analysis and risk management in decades. This article addresses the question of what are the measurable benefits and value of ERM. Integrating the many forms of ERM throughout an organization requires team work and a collaborative environment. Our challenge, as educators, is to expose students/practitioners to ERM definitions and processes so that they are empowered to find the value within their own organizations.

## INTRODUCTION

Given the fact that Enterprise Risk Management (ERM) has emerged only within the last ten years, it should not be surprising that many organizations have defined ERM to suit their own needs. Back in the late 1990s, the collective *we* (brokers, consultants, insurers and risk managers) were attempting to define and shape ERM via experience gained from practical application in the field.

As might be expected from our respective employers, *our* initial approach to ERM was to exploit its commercial prospects in terms of what we could sell or what could be bought. Initially, some brokers thought of ERM in terms of new products, while other early proponents viewed ERM as a process. Over time, as ERM drew closer scrutiny and increased application, the collective *we* accepted that ERM is a continuous process. While some so called ERM products were developed and successfully employed, such as integrated risk programs, they were only one tactical tool among a variety of risk management techniques that emerged as the ERM process progressed through an organization.

Additionally, professional groups such as the Casualty Actuary Society (CAS), the Committee On Sponsoring Organizations (COSO), and even entire countries such as Australia and New Zealand eventually chimed in with their own definitions of ERM, aimed again, at fitting their respective needs and operating environments.

One example of an ERM definition driving a specific approach to ERM originated with COSO. Its driving force was a response to the trail of financial scandals, such as ENRON, which in turn spawned new regulatory reforms such as Sarbanes-Oxley. Coso's definition: "A process, effected by an entity's board of directors, management and other personnel, applied to strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives."

The COSO definition promotes the belief that ERM is a tool to be applied as part of an overall financial compliance program and several industry sectors have adopted specific elements of ERM in unison with their internal audits.

Academia also inserted its own unique ERM definitions into the mix. Differing risk management curriculums at each university resulted in a variety of definitions designed to fit each school's core focus and objectives.

Another insightful definition of ERM holds that: "Enterprise Risk Management (ERM) is a body of knowledge – concepts, methods and techniques – that enables a firm to understand, measure, and manage its overall risk so as to maximize the firm's value to shareholders..." (Panning, 2006)

Standard & Poors (S&P), the powerful rating agency, entered the ERM arena by thrusting ERM upon insurance companies, for which S&P provides financial ratings. S&P does not provide a specific ERM definition, but does require that an ERM process be employed as long as the that process provides the required specific information that S&P needs to complete its analysis.

Another entry into the definition game is the International Organization for Standardization (ISO). It apparently believes that defining risk management as "an organization's culture, (beliefs, values and behaviors), processes and structures that are directed toward realizing potential **gains** (3.2) whilst limiting **losses** (3.6) and then defining **gains** and **losses** as positive and negative consequences will encompass ERM. The ISO definition appears to be derived from the Australian/New Zealand AS/NZA definition of Risk Management as "the culture, process, and structures that are directed towards realizing potential opportunities whilst managing adverse effects."

Comparing the multitude of ERM definitions reveals a common skeletal structure with subtle differences between them which gives each a different focus and objective.

However, from my vantage point as a teacher of ERM, the various definitions and different approaches beg the questions: *which definition of ERM to teach*, and *how best to teach ERM* to an expanding and varied audience of proponents.

### WHERE'S THE VALUE?

Enterprise Risk Management practitioners know that ERM has a deceptively simplistic approach to risk – consider all the risks of an organization and manage them as an integrated whole and not in individual silos. ERM is the logical next step in the expanding role of both risk management and risk managers, and good practice suggests that ERM should be *de rigueur* in corporate America.

Unfortunately, ERM is not *de rigueur* in corporate America and it is not so for a variety of reasons – some sound, some foolish, but reality never the less. One sound reason why ERM is not embedded into corporate risk management programs across the country was recently expressed by Dr. William Panning: “ERM is, in my view, potentially the most significant development in risk analysis and risk management in decades. My greatest concern about the future of ERM is that it will be the victim of excessive hype, based on an implicit assumption that its benefits will some how become evident to senior management. I strongly believe that what ERM needs to hedge this risk is a compelling value proposition – an answer to the question “what are the benefits to my firm of embracing ERM?” (Panning, 2006)

In the case of ERM, “Where’s the value?” Unless this question is addressed by risk management practitioners, ERM will not become embedded in corporate culture beyond a limited subset of tactical applications. Organizational stakeholders are demanding value. Public or private, large or small, value is the driver.

Some of the synonyms for value are: “1. worth, merit, use, usefulness, utility; advantage, benefit gain, profit, avail, good, importance, consideration, consequence, significance, moment, weight.  
2. monetary worth, face value; cost, price, asking price, selling price, charge, expense; rate of exchange, exchange; valuation, appraisal, assessment, evaluation.” (The Synonym Finder 1978)

Within the context of ERM, there is no doubt that in order for it to become *de rigueur*, *embedded* in corporate America, it will have to provide direct value to the organizations that employ it. As a result, my hypothesis is that the amount of ERM

integration within organization will be directly proportional to the measurable value it creates.

From the value perspective, increasing cash flow, reducing the cost of capital, improving a corporate debt rating, creating a new financial instrument, changing the risk profile of a company, and of course, increasing stock price are all financially measurable value creators that resonate with Chief Financial Officers and Chief Executives. ERM practitioners must consider strategies or techniques incorporating these traditional value drivers in order to answer the question “what are the benefits to my firm of embracing ERM.” It will also provide greater clarity to ERM instructors in guiding their students toward a working definition. What ever definition educators select, “adding measurable new value”, would seem logical to include.

### **IT’S ABOUT PERSPECTIVE**

The second question of how to teach ERM is another kettle of fish and is far more challenging. The traditional risk management process usually involves the procedural steps of; Identify, Assess/Quantify, Measure, Mitigate, and Monitor.

The process works in the traditional risk management setting because at its core are the concepts of “preserve and protect.” Protecting assets and people is historically what risk management is all about and what risk managers are paid to do. The traditional risk management process was not designed to add measurable new value. Some ERM practitioners have noted the focus on the downside risk and the lack of attention to the upside of risk and are attempting to create a new or expanded ERM process which includes adding new value to its core. Once again there a multitude of new ERM processes emerging.

It might be called risk mitigation, solution analysis or decision analysis, but one of the goals of this step is to introduce the concept of exploiting risk and taking advantage of the upside of risk which is the direct path towards adding new measurable value.

During both my class room experience on behalf of RIMS and as an ERM consultant working with clients, it became clear that ERM is different at each organization – a university is different from a publicly traded company which is different from governmental agency. An insurance company is different from a manufacturer and so on. Teaching a cookie cutter approach will not work beyond ERM 101.

If we accept that increasing cash flow, lowering the cost of capital, improving a corporate debt rating, creating a new financial instrument, changing the risk profile of a company and of course increasing stock price are all measurable value creators and exploit risk, then the challenge is how do we bring these measurable objectives to our organization. Obviously, there are other measurable value creators like new sales, increased margins, investment gains in a portfolio for endowments, new members etc, but it is the unique nature of each organization that will determine which value creators are targeted for exploitation.

To accomplish any of these objectives within an organization means that ERM practitioners will have to be intimately involved in their organization and both support and be supported by a team: a collaborative environment is essential. The hypothesis being that the collaborative nature of a team, which brings with it different perspectives rather than a single minded approach, has the best potential to *exploit risk*. Collaboration produces insights that can be practically applied when different perspectives or techniques are brought to bear on the issue at hand.

For example, some problems are solved by a highly focused “zoom in” approach by examining each and every detail, digging deeper through the numbers and understanding profit drivers in detail, meeting with clients and knowing every element and time frame of the customer relationship. It means working in concert with a team and to dissect and reassemble every element of a transaction or the manufacturing process. It means interviewing as many people as possible who engage customers.

Conversely, entirely different perspectives are achieved when a wide angled “zoom out” is utilized to see the big picture and not to focus on the details. It means redefining the boundaries at the divisional or company level, examining long standing alliances or reevaluating assumed core competencies.

In my own attempt to address the question: *How best to teach ERM*, I chose to zoom out and decided to bring in ideas from so called unrelated fields to emphasize the critical nature of different perspectives and to initiate a collaborative approach in the class room. My technique is to introduce a short film created by icons of design Charles and Ray Eames. Their film, “The Power of Ten”, is about distance, but its insights are about perspectives and how different angles of approach may provide a new opportunity not seen before. My objective by showing the film is to suggest to the class that a wider view of risk and opportunity might be helpful in their attempts to exploit risk and to create value.

## CONCLUSION

I concur that ERM is the greatest advance in risk analysis and risk management in decades. My hope is that ERM does become the risk management de rigueur, but to do so means addressing the question of what are the benefits in terms of measurable value and utilizing it beyond finance or restricting its use to the internal audit process.

Integrating ERM throughout an organization will require team work, creating cross functional teams and actually making them work together by fostering a collaborative environment. The very nature of global risk means that there are multiple ERM definitions and multiple ERM processes that may be employed. Our challenge, as educators, is to expose students/practitioners to these definitions and processes so that they are empowered to find the value within their own organizations.

Every organization in America today is debating the cost of health care and other employee benefits and every organization in America should be planning for a pandemic. It would be interesting to see the results accomplished by a cross functional team consisting of communications, finance, legal, operations and human resources within an organization that took an ERM approach to these issues. That's when ERM will be tested and may go beyond its hype and add real value.

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## **"The Role of Liberal Education Courses within Risk Management Education: Competitive or Complementary?"**

### **ABSTRACT**

As with other business disciplines, risk management and insurance education has traditionally struggled to maintain a balance between providing a necessary foundation of the technical aspects of the field and offering a more conceptually general learning experience that helps students develop the expansive skills required of professionals. The purpose of this paper is to examine the possibility of an ideal paradigm for linking the gap between courses required for an RMI major or minor and those offered elsewhere. This linkage model is provided by what has institutionally been referred to as "liberal education."

### **INTRODUCTION**

As with other business disciplines, risk management and insurance (hereafter referred to as "RMI") education has customarily struggled to maintain a balance between providing a necessary foundation in the technical aspects of the field, and offering a more conceptual, general learning experience that helps students develop the expansive skills required of professionals. While insurance companies, risk management consultants, brokers and actuarial consulting firms are interested in personnel with a basic underlying foundation of RMI concepts, they often attach as much, if not more, significance to general skills and attributes not proprietary to the RMI profession (see Bell and Wolverton, 1998).

The broadening of insurance education is driven by the development of the risk management process itself. As industry leaders began to change their perspective from insurance toward a broader risk management outlook, education followed by gradually morphing the insurance studies curricula into a risk management program of study. From that point a relatively new approach, Enterprise Risk Management, has moved from a narrower, more tactical focus on managing operational and legal risks to a strategic concept for analyzing all types of organizational risks and their relationship to each other. Areas requiring risk management competency and creativity include responding to obligatory corporate governance procedures that concern risk identification, disclosure, administration, and monitoring; breaking down internal silos by synchronizing diverse pockets of risk management activity for the sake of efficiency; understanding how risks interact throughout the enterprise and taking advantage of natural hedges among them;



foreseeing problems before they threaten the organization's strategic objectives, which is largely a matter of steering clear of the "land mines." In other words, the profession is progressively examining what it means to be a professional rather than merely a techno-bureaucrat. It is critical that RMI education continue to grow beyond traditional insurance licensing prep courses, and provide the tools that empower students to meet these challenges.

Even a traditionally rigorous technical area like actuarial science is moving toward a broader role in corporate affairs. Traditionally, actuaries have provided thoughtful leadership in the design and implementation of quantitative methodologies for a wide variety of economic actions. Yet according to Dr. Shaun Wang, director of the actuarial science program at Georgia State University's Risk Management and Insurance Department, "actuaries have part of the technical background to become Chief Risk Officers and head up ERM efforts" (Wang, 2006). Wang adds, "At the same time, they lack other parts, the broader perspective of corporate finance and management. As a result, it's hard for them to see the big picture. We should encourage actuaries to be more open-minded, to learn other people's perspectives so they can have effective conversations with business managers. If we can speak their language while offering our analytical skills, we can add much value for our employers" (Quinn, 2005).

The benefits of familiarity with technical distinctions, concepts, and cutting-edge skills required of RMI professionals are relatively easy to quantify, and should not be minimized. According to Gustavson (1995), even a limited number of RMI courses produce a basic familiarity with industry terminology and a solid grounding in concepts such as risk retention, risk transfer, loss control and adverse selection. Gustavson goes on to point out that this initial exposure provides RMI students with an important "head start" that shouldn't be disregarded by the insurance industry, especially when expenditures are being scrutinized so vigilantly. In fact, it is this "short learning curve" along with strong preparation, interest and commitment RMI students bring to their careers that have enabled some RMI programs to thrive (Thrower and Cochran, 1994). An education that complements technical training with a broader grounding may lead to the optimal balance: providing the "short learning curve" that benefits new professionals in their early years while offering a time-delayed boost that will help them in the later stages of their career.

One possibility is that risk managers will go through two phases in their professional careers. In the first, their orientation will be on learning the profession and mastering the basic entry-level skills that all professionals in the field are assumed to know; and many

of these skills will be precisely the detailed, technical matters that conventional risk management education has focused on. That type of professional preparation may serve new risk managers well, perhaps giving them an initial boost over any new hires coming in from without the benefits of a risk management degree. Eventually, however, the risk managers will enter the second stage of their career where their success will depend upon broader skills that are less technical in nature. They will need to recognize risk inherent in situations they have never studied before. They will also have to interact more intensely with upper management. The educational boost that could help the risk manager here may come from a broader, more general educational background.

To assist students in their development of broader and less technical skills, RMI educators have traditionally relied on courses outside their major while focusing their own efforts on those technical areas that outsiders would not be expected to cover. One downside to this approach, however is that students often don't see the relevance of these other courses. Thus they are often dubious of course requirements outside of RMI and business. Most university business faculty educators can recall times when a business major referred to general education requirements as something they had to "get out of the way." The students may consider these other courses as hindrances that must be negotiated before focusing on their real passion for risk management and insurance.

A number of studies have examined various aspects of RMI education such as percentage of Ph.D. faculty, internship activity, number of courses offered, etc. Given the tenuous nature of the discipline within business programs, some prior studies have analyzed relationships with industry (Thrower, 1991; Cassidy, 1997; Cassidy, et al., 1998; Warfel and Boose, 2004), the current status of RMI education (Gardner and Schmidt, 1995; Thrower and Gardner, 1989), and querying industry practitioners regarding the characteristics they desire from RMI graduates hired (Bell and Wolverton, 1998). Generally, while these studies have dealt with issues important to the viability of risk management programs, it is our observation that they have not provided an in-depth discussion focused specifically on curricular or pedagogical issues.

The purpose of this paper is to examine a classic tradition in education as the basis for bridging the gap between courses required for an RMI major or minor and those offered elsewhere. This model is provided by what has traditionally been referred to as "liberal education." Students may have a biased view that the course work outside of the business college is merely "touch-feely" classes put in place to pacify non-business faculty. Instead of going along with the students', perhaps it is the responsibility of RMI educators to actively validate such liberal arts course work. Some interesting statistics illustrate the

effectiveness of a liberal education. For example, Notebaert (1992) found that in the early nineties nearly 40 percent of the chief executive officers in the U.S. had liberal arts undergraduate degrees, compared with only 20 percent who studied business. The Association of American Medical Colleges (AAMC) also provides interesting data supporting liberal education. The acceptance rate of students applying for medical school in 1997-98 for biology majors was 38.1 percent. This compares to acceptance rates of 50.7 percent and 53.0 percent for history and philosophy majors, respectively.

Greene and Greene noted in 2000 that only 4 percent of the collegiate student body is enrolled in residential liberal arts colleges, yet these institutions remain a vital force in setting high standards of teaching and intellectual vigor. Perhaps equally important, the traditional model of a liberal arts education has strongly influenced the curriculum of other types of universities. As examples Greene and Greene cite larger institutions that have based their general education or university core requirements on the traditional residential college model. The growth in honors programs within larger universities is further evidence that large schools have often chosen to follow the residential colleges' emphasis on intellectual standards, teaching, and interaction with students.

According to Annapolis Group, a nonprofit alliance of the nation's leading independent liberal arts colleges, liberal arts college graduates are represented disproportionately among leaders in the arts, education, science and medicine, public service and business. A 1998 study found that even though only 3 percent of American college graduates were educated at a residential liberal arts college, alumni of these colleges accounted for 8 percent of Forbes magazine's listing of the nation's wealthiest CEOs in 1998 and 19 percent of U.S. presidents. These revealing statistics suggest that we may have much to gain by taking the liberal education tradition more seriously.

The remainder of this paper is organized as follows. The next section examines the origins and varied objectives of the liberal education. The subsequent section discusses how a liberal education can provide a means of bridging course work within and outside the RMI major/minor, and the final section summarizes the discussion of the paper. In general, however, we argue that the best education is likely to be one that integrates or combines liberal arts education with a solid foundation in the technical skills of risk management.

## **LIBERAL ARTS EDUCATION**

Situated in the middle of Iowa with an endowment of over \$900,000 per student,

Grinnell College is a successful traditional liberal arts college. Its catalog discusses liberal education in the following manner:

The original seven liberal arts, in the classical world, consisted of the trivium of deductive reasoning comprised of grammar, logic, and rhetoric, and the quadrivium of quantitative reasoning, which encompassed geometry, astronomy, arithmetic, and music. In *Rethinking Liberal Education*, Bruce Kimball describes how the medieval European universities added to the seven liberal arts "the three philosophies": natural philosophy (empirical science), moral philosophy (human thought and behavior), and metaphysics (ontology, or the study of being). These categories of the liberal arts, inherited from the medieval European university, find their modern forms in the science, social studies, and humanities divisions into which Grinnell College, like many colleges and universities today, distributes its academic departments" (Kimball, 1996).

While there is variation on what exactly constitutes a liberal education, many consistent themes are prevalent within attempts to define it. Devine, et al. (2006) state that the term "liberal" in this context refers not to a political leaning, but to the freeing up or "liberating" of the mind to reflect critically on the world. That should, in turn, lead to active engagement with the world, for a liberal education has traditionally been viewed as helping to prepare individuals to assume responsible roles as citizens or members of society. Conceivably, liberal education may be best characterized by Lemann (2004) as viewed from its most unembellished meaning: it is education that liberates, that frees the mind from the constraints of a particular moment and set of circumstances, that permits one to see possibilities that are not immediately apparent, to understand things in a larger context, to think about situations conceptually and analytically, and to draw upon a base of master knowledge when faced with specific situations.

Perhaps no one is more identified with the distinctively American form of higher education than Benjamin Rush. While this broader view of education has often been viewed as non-utilitarian, focusing on knowledge for its own sake, there has frequently been a strong link between liberal education and the preparation for a responsible life as a citizen. This link with citizenship suggests a direct connection to the role of professions, such as risk management, that serve the larger public interest. This important bond was emphasized by Benjamin Rush who played a major role in the early years of our republic." Rush, a signer of the Declaration of Independence, co-founded Dickinson College with John Dickinson and helped establish a number of other colleges and universities. He wanted educational institutions to produce citizens-leaders who possessed the comprehensive knowledge and virtue needed to build a just, compassionate, economically sustainable democracy. Rush advocated a liberal-arts education that would be useful and

applicable for all graduates, no matter what their occupations or service - including, unequivocally - business. In putting forward this unique format of liberal-arts education, which placed a premium on "usefulness," Rush exhibited his outright disdain for the higher-education system he saw in England, which was purposefully ornamental and elitist and reserved for the privileged. The concept of applying learning to advance society was simply nonexistent (Durden, 2003).

Regretfully, many colleges that offer a liberal-arts education today are pursuing a protective purity of the liberal arts and disparage the world of business for a variety of reasons (greedy, materialistic, vocational, etc.). As a result, such institutions promote an elitism more closely aligned with the British tradition - which America's founders decided was unsuitable for the more inclusive and progressive goals of the United States.

Professional school curricula contain elements that don't seem to relate directly to professional practice, such as the study of the theoretical underpinnings and history of the field. Lemann also recognizes that professional schools have a complicated relationship with their industries. This relationship may include elements of prodding, preaching and criticism in both directions. A professional school will often try to push its industry in a certain direction, rather than simply act as part of the industry. Can an RMI studies program develop this complicated relationship with the insurance industry, rather than function as simply an arm of the profession? A number of the strongest RMI programs in the country have developed solid financial ties to the insurance industry. The benefits of industry funding for student scholarships, internship opportunities, endowed chairs, job fairs, etc. are not trivial. Whether this translates into RMI departments functioning as advocates for industry practices rather than taking an objective academic view of various issues is beyond the scope of this paper, yet remains worthy of discussion.

## **EDUCATION RELEVANT TO BOTH LIBERAL AND PROFESSIONAL EDUCATION**

A common theme that emerges from discussions of both liberal education and RMI pedagogy is that the teaching focus should be on fostering critical thinking, on teaching communication skills, and on helping students learn how to learn. Rote memorization of rules is of limited value when they are subject to change. While some such memorization may be helpful or appropriate in the early stage of a manager's career, it is far less likely to prove helpful in the latter stages that require the combination of creativity and critical analysis.

For some programs, there are ample opportunities to teach the conventional

technical skills, such as coinsurance, loss distributions, reinsurance treaties, etc. In fact, such topics provide useful occasions for implementing critical thinking skills. They illustrate how the RMI profession wrestles with complex issues that frequently defy easy solutions. The intellectual challenge for students should come not in being able to parrot back the mechanics of an insurance policy, but in coming to understand the balancing act and the limitations of all risk transfer mechanisms.

There are ample opportunities, even in an introductory risk management class, to incorporate a more independent and critical thinking approach. For example, a technical approach would focus on learning (i.e., memorizing) the various rules that apply to coverage inclusions, exclusions, and limits in the homeowner's policy; a liberal-arts/critical thinking approach would focus on the underlying issues (including previous court cases) that, in turn, explain the thinking behind the policy contract. Another example involves risk-based capital measures utilized in determining the financial health of insurance companies. Which is the better approach in the long run, memorizing NAIC guidelines or understanding the issues that must be balanced? These latter concerns are akin to the broader analysis that liberal education traditionally focused on - the analysis is simply taking place in a different domain (i.e., a risk management setting) than occurred previously where the focus might have been on philosophy or literature.

These methods also afford students the opportunity to demonstrate not only their quantitative skills of calculation, but their communication skills through discussions that explain the logic, the limitations, and the assumptions of their analyses. Faculty should also help students appreciate the dynamic nature of the RMI profession, an environment that produces continual change and development of rules in response to continuing changes in the social, economic and political environment. As noted earlier, risk theory has undergone considerable transformations over the past few decades. New risks are being identified regularly, and it is imperative that risk management professionals develop the proficiency to address these risks within logical cost-benefit parameters in the most efficient manner possible.

Although numerous, often private, liberal arts colleges uphold themselves as designed to afford a liberal education, even business schools and large universities may design their university core requirements around the model of a liberal education. RMI programs should consider attempting to build on what these other courses cover, especially since much of that course work takes place in the first two years of a student's collegiate education. RMI faculty should emphasize to their students the critical link between the many non-RMI courses and the broader skills and competencies that the

industry expects of those entering its ranks. The remainder of this section examines some of these areas and how they relate to the RMI profession.

Some universities include foreign language requirements within their core curriculum, perhaps more to expose students to different cultures than to yield genuine, pragmatic proficiency in another language, as the course requirements often stop short of providing that level of skill. This can be expanded within RMI education by examining the attitudes of other cultures toward risk and risk-transfer mechanisms ; by discussing the different legal systems that companies must operate under internationally; and by incorporating international risks such as currency exchange rates, political risk, liquidity risk, and institutional ineffectiveness into course case studies.

Most universities incorporate a mathematics requirement, reflecting a belief that mathematical, quantitative reasoning is critical for understanding the world. The requirement is of obvious benefit to the RMI profession as a basis for core quantitative competency. More importantly, it provides the future RMI professional with an appreciation for rigor and analytical reasoning skills. Programs that require calculus and statistics should also include later courses that will ask students to apply the competencies they supposedly learned in the earlier, often non-business course work. As students cover areas such as value at risk analysis, time value of money, loss distribution, risk-adjusted return on capital, and various probability distributions - such as binomial, normal, and Poisson - they should begin to appreciate the formal analysis that statistical reasoning provides. This is even more evident for students of actuarial science.

Courses in religion or philosophy may also be included in core or general education requirements, exposing students to formal methods of ethical reasoning. These provide a basis for emphasizing the importance of professional ethics and recognizing the disastrous consequences that can result when ethical principles are ignored. Students who have benefited from a liberal education are likely to make the connection between professional ethics and the betterment of society as a whole. One need only to review the bid rigging and fraud cases involving major insurance and insurance brokerage companies to understand the importance of building discussion on this issue.

One could argue that even art, music, and literature requirements serve to help students go beyond the pragmatics typified in the expression "the bottom line." The links between these types of requirements and the RMI curriculum may be less direct, but they are no less important. These courses may help students recognize dimensions of life that can easily be postponed in the rush to take care of day-to-day obligations. They invite

students and faculty to ponder how we find and make meaning in our lives. Faculty should also encourage students to appreciate and develop the creative, unconventional skills that they may learn from courses in these other academic fields.

Naturally, the social science requirements should attune students to the importance of organizational and individual influences on human behavior and decision-making that are directly relevant to risk management as well as other business disciplines. This experience provides the RMI student with valuable insights into motivation theory, group dynamics, and a basic foundation for developing personal skills to enable working with various constituencies. Courses in political science, and perhaps history, are relevant not only for appreciating the accomplishments and challenges of a culture, but also provide the basis for understanding the role of government and regulation in a society's pursuit of its goals. The RMI profession is heavily involved in the regulatory process, and the environment for regulatory changes is invariable (e.g., Terrorist Risk Insurance Act).

Courses in the natural sciences are added in part because of the importance of the content areas themselves, but frequently the focus in those areas is on helping students experience and understand the scientific method. As such they become lessons in epistemology: how do we know and how do we know what we know. In addition, these courses provide students with a foundation for further developing their analytical reasoning skills and to gain an appreciation for the rigor required to seek truth. These skills are certainly beneficial to the RMI professional, especially in today's challenging environment.

## **SUMMARY**

According to Lemann (2004), the essential paradox, or one might even say the miracle of liberal education, is that by being evidently impractical, it equips a student for life far more richly and completely, and across a far wide expanse of time and space, than does education whose sole aim is to be useful. Lemann notes that successful professional schools at liberal universities tend not to target the initial phase of a career in their education, but, instead, they examine the whole career. They spend what might initially appear to be an illogical amount of time on top-level problems in the profession that many of their students may never encounter personally.

Liberal education may well represent an established model in education that RMI faculty should consider revisiting. Instead of viewing classical liberal education courses as competition in the scarce curricula required for RMI students, it may be prudent to recognize their complementary nature in developing a comprehensive RMI education.



Obviously, if RMI study programs can embody the values of a liberal education in their students, those same future alums can look forward to successful careers and the RMI profession will flourish. Admittedly, some programs may be at a stage where they are clashing with administration over building up a workable offering of standard RMI courses. Others may be in "survival mode" that realistically requires considerable input from industry about the makeup of the curricula. However, for those well-established programs with stable financial support, a re-examination of the liberal education goals within the parameters of an RMI major/minor is warranted.

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**1** There are a number of examples illustrating the overlap between traditional liberal arts and business. For example, Ted Kooser, who was recently named U.S. Poet Laureate by the Librarian of Congress, worked in the insurance industry for 35 years. Kooser was a graduate student in English at the University of Nebraska. Wallace Stevens, one of the most influential American poets of the Twentieth Century, was a vice-president of the Hartford Accident and Indemnity Company.

**2** To the authors' knowledge, only two undergraduate liberal arts universities in the United State offer risk management as an area of study. Students at Olivet College in Olivet, Michigan and Illinois Wesleyan University, located in Bloomington, IL can major in Risk Management and Insurance at those schools.

**3** For example, insurance deals with the uncertainties of loss and does not conform well to Islamic principles. For years it was long discouraged, if not prohibited, in Islamic society. In recent decades, however, many Islamic countries have found that insurance plays a crucial role in furthering their economic development. Takaful insurance refers to an Islamic way of joint guarantee in which a group of societal members pool their financial resources together against certain loss exposures (see Maysami and Kwon, 1999).

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## **Teaching Enterprise Risk Management: A Modeling Approach**

Peter Mikolaj  
Concetta A. DePaolo

### **ABSTRACT**

This curriculum project developed a senior-level course for students coming from different business majors whose prior coursework does not include a common background in the specialized area of Enterprise Risk Management (ERM). The course will also be offered to math (actuarial) majors from arts and sciences not having a business program background. By introducing the concept of ERM (Enterprise Risk Management) using a problem-based learning approach with real-world examples, the necessary background to provide the entire class with a common and basic framework of ERM can be established over the first two weeks of the semester. The course also involves quantitative and qualitative modeling methods including loss development, regression, curve fitting, theoretical models, and simulation using Crystal Ball for a decision-model group project.

### **BACKGROUND: THE CHANGING BUSINESS ENVIRONMENT**

Today, business organizations have dramatically changed in response to both external and internal pressures. Driving this change have been industry catastrophes such as the WorldCom and Enron debacles. In these cases, multibillion dollar companies have lost billions or even become bankrupt as a result of system failures, mismanagement from the highest board levels of the organization, and outright corruption of corporate executives and managers. Various regulatory and legislative responses such as passage of the Sarbanes-Oxley Bill by the U.S. Congress in 2002 and implementation of new reporting requirements by the Securities Exchange Commission have prompted business organizations to rethink basic strategic and operational issues. In essence, today corporate governance and management are about balancing risk against opportunity in the midst of complexity and uncertainty. Thus, the new focus is on risk, where risk is anything that impacts the achievement of business objectives.

While the broad definition of risk encompasses both internal and external causes, a business needs to effectively manage all the day-to-day risks of the organization and central to this task is the identification of the mission critical risks. A newly developed undergraduate course provides students with an opportunity to examine and analyze the

entire organization within the construct of strategic issues that can bring the company great success or lead it to failure. In other words, undergraduate students taking this capstone course must evaluate the entire corporation in a holistic fashion rather than focus on "silos" within the business as has typically been done in the past. Thus, the organization needs a process to:

- (1) identify all critical risks in a comprehensive framework;
- (2) quantify risks where possible; and
- (3) for risks which cannot be quantified, measure risk impact using disciplined qualitative tools.

The task at hand lends itself very much to a problem-based-learning (PBL) approach.

### **THE ENTERPRISE RISK MANAGEMENT PROCESS**

Generally, senior management, through an ongoing process, is continually evaluating risk factors (financial, operational, political, regulatory, or hazard) that may have a material effect upon the ability of an organization to meet its goals. Those factors deemed most critical are then prioritized. This process is often repeated and is primarily qualitative in nature, yielding a manageable list. The objective of this process is to follow a top-down approach in which the focus is on the business and the risk factors can be classified into "manageable" versus "strategic" factors. The manageable factors generally lend themselves to being resolved using existing resources within the organization. It is at this point that attention is directed to those risks that are critical, high priority, and strategic and require quantification. This quantification can be thought of as risk shaping; i.e. modeling using techniques of Operations Research such as applied probability and statistics, stochastic simulation and portfolio optimization. This approach is the focus of our course.

### **COURSE PURPOSE AND MOTIVATION**

The increasing use of ERM in industry led to the recognition that students entering the insurance industry should be familiar with ERM principles and practices; however, courses in the current insurance curriculum did not prepare students in those areas. Therefore, faculty decided that a new course, with emphasis on problem solving and real applications, should be developed. The purpose of this course is to prepare undergraduate business students, with emphasis in insurance and risk management or in statistics, to understand and apply the methods and concepts of ERM. In addition, mathematics majors with plans to enter the actuarial profession were also targeted as potential enrollees.

Insurance and Risk Management (IRM) faculty involved in assessment of their majors' skills had been aware of some deficiencies in statistical analysis. Specifically, in a survey of project consultants who had worked with students enrolled in a senior-level risk management course, 6 of the 8 consultants indicated that they did not feel that students had a strong understanding of statistical procedures to project future losses. Thus, instead of a theoretical introduction to ERM, faculty decided that the emphasis of the course should be on the modeling aspects of ERM. While this approach gives the normally more qualitative IRM students experience with the quantitative aspects of ERM, it also provides statistics and mathematics majors who may be familiar with some of the modeling methods exposure to realistic applications and business contexts within which those methods can be used.

While looking for a framework on which to base the course, we found the Tillinghast - Towers Perrin model (Miccolis and Shah, 2000), which was used at Georgia State University as one of the topics in their EMBA program. While the impetus for the course design came from this model, it was decided that a simpler version was more appropriate for undergraduates. Faculty decided to use a variety of risks in the portfolio, each from a different part of the modeling continuum as described by Miccolis and Shah. On the most quantitative end of the continuum, data analysis, students gain experience modeling one business risk with empirical analysis of historical data. Students are also exposed to the use of theoretical distributions, in which historical data is used to estimate parameters, and in stochastic simulation using these distributions to project losses. On the most qualitative end of the continuum, students gain experience with the use of Delphi method to try to assess a risk for which there is no data.

The fact that some of the risks are interrelated makes necessary a holistic approach to assessing the portfolio. Therefore, after dealing individually with these risks, the course requires students to synthesize all of the risks together, and to take the results of a simulation model of the portfolio to develop an action plan. This exercise attempts to simulate a complex organizational decision making process in which both internal and external forces and factors must be considered. The faculty felt that this problem-based learning approach would best prepare students to understand and apply these concepts when they enter the industry.

## **INDUSTRY CONTACTS**

In order to portray the ERM process as realistically as possible, industry

professionals were consulted extensively throughout the course design. Involved were four major business roles representing: (1) CEO and Board of Directors (a member of the Strategic Planning Committee of an international financial services organization), (2) Casualty Actuary (Vice President and Actuary of a global reinsurer), (3) Life Actuary (Staff Actuary of an international life insurance company), and (4) Risk Manager (Assistant Treasurer and Risk Manager of an international Fortune 500 manufacturer). Because ERM is so new and the concept is gradually evolving, there are few if any academic programs that offer a course such as ours, particularly for undergraduates. Thus we felt it important to rely on advice of these professionals to incorporate current thinking and practice. Additionally, we plan to use actual data from an industry group that provides us with historic corporate data that students will use in their projects.

### **COURSE DESIGN**

Because of the joint venture nature of the course design, two different internal university thrusts were followed. First an internal College of Business dialog was pursued because the course was intended to be cross-listed and offered by two College of Business disciplines, Insurance and Risk Management (IRM) and Operations Management and Analysis (OMA). Issues to be resolved primarily dealt with prerequisite requirements. The course was developed as an elective in both majors, and prerequisites were specified so that students entering from either major would have adequate (but not necessarily equivalent) quantitative background. A second university-wide dialog was needed because this course was also intended for mathematics majors in the College of Arts and Sciences who would not have the appropriate business background. This issue was resolved after much discussion by using the requirement of instructor approval with the understanding that mathematics majors would need to have a background in statistics.

For the purposes of the course, three interrelated risks were chosen. A liability risk for which historical data were available was chosen as the first risk. A second mortality risk that involved the deaths of key company executives was also included and was based on theoretical distributions and mortality tables. The final risk, having no historical data attached to it, is the risk of monetary loss due to damage to the company's reputation. This reputational risk was included to reflect the recent reality stemming from the accounting and fraud scandals that occurred at WorldCom and Enron.

It was assumed that the three risks are interrelated. Specifically, since a company's reputation may be damaged if it is named in an excessive number of lawsuits, or if there is one very large and high profile lawsuit, then it is assumed that the liability risk and the

reputational risk are correlated. For example, accusations that Merck did not tell doctors everything it knew about the risks of Vioxx have damaged the company's reputation. Merck withdrew the drug in September 2004 after a clinical trial showed that Vioxx sharply increased patients' risks of heart attacks and strokes. Merck now faces more than 14,000 lawsuits from people who say that they suffered heart damage after taking Vioxx. Union Foundry Co., a subsidiary of McWane, Inc. provides another example of corporate liability and reputational risk. In September 2005 the company was sentenced to pay \$4.25 million in criminal fines and community service for pleading guilty to two counts related to its illegal treatment of hazardous waste and worker safety violations that resulted in the death of an employee. Treating each risk separately (the silo approach) can significantly understate the impact of a specific risk. The integrative approach of ERM provides an innovative framework within which students can not only study various modeling techniques, but are also required to evaluate the multidimensional nature of how complex organizations manage risk that can produce large losses and/or gains.

The liability risk used for the course consists of general liability (GL) data (both exposure and claims) from a national sample of thirty-four small (up to \$40 million annual revenue and two hundred employees) contractors. Additionally, a second data set of workers compensation losses is also available for study. For this risk, students will learn loss development techniques and will use regression to trend the developed losses. Regression analyses will be done with either Excel, in which the data is originally stored, or with the statistical software SPSS (see Exhibit 1: The Course Risks and Modeling Techniques Used). Curve fitting techniques will be explored for this risk using Crystal Ball, which is an Excel Add-In developed by Decisioneering, Inc. This software allows us to fit various probability distributions, with parameters chosen to arrive at the best fit, to the trended developed losses. Crystal Ball also provides goodness-of-fit statistics so that many distributions can be compared and the best one chosen.

### **Exhibit 1: The Course Risks and Modeling Techniques Used**

The second risk involves a mortality risk and is intended to provide students with the use of a theoretical distribution to model and project losses. It is assumed that there are ten key executives employed by the company, and data on each executive's gender, age, and the present value of his/her future contribution is assumed. Then, from mortality

<b>Risk Type</b>	<b>Modeling Technique</b>	<b>Software Employed</b>
Liability Risk	Analysis of empirical data, including loss development and regression	SPSS, Excel, Crystal Ball
Mortality Risk	Theoretical distribution	Excel
Reputational Risk	Delphi method	
Total/Portfolio Risk	Simulation and optimization model	Crystal Ball

tables, the expected loss to the company is computed based on the present value of the

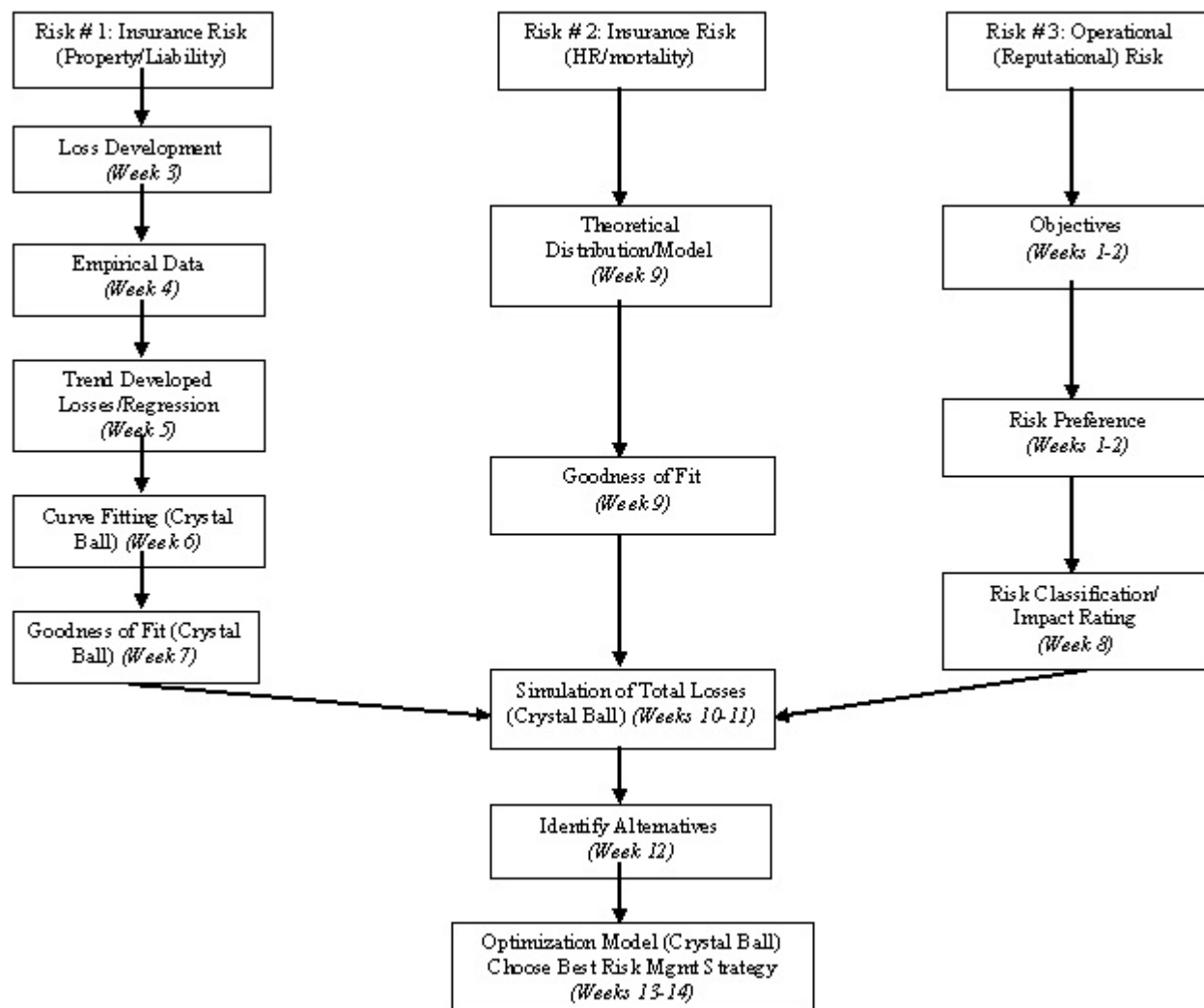


contribution and the probability of that person's demise.

The majority of content for the course will be modeling sources of risk that traditionally use probability distributions from historical data arising from hazard or financial risk. However, by expanding the risk domain to include enterprise-wide operational risks (the reputational risk), historic data are generally not available and it becomes necessary to obtain expert testimony for determining uncertainty. Here, probabilities may be established using procedures such as the "preference among bets" or the Delphi technique. For a realistic scenario, obtaining probabilities for operational risks was felt to be beyond the reach of these undergraduate students and would also tax the time limits of the course. Thus, this aspect of the course is being developed through a "special problems" MBA course currently being taught. This course has eight second-year MBA students enrolled who are completing either an operations research or a financial/insurance concentration. The objective of this course is to focus on the operational elements of a business, and through a group project, establish a risk profile with respect to strategic, credit, market, operational, and product risk components. The project will then seek to identify the sources of specific risks, exposure triggers for these sources, and then consequences to the organization in probability terms when and if the sources are triggered.

Once the risks are assessed, either through quantitative methods or by the information provided by the MBA special topics course, the students will identify several possible actions for managing each risk (e.g. mitigation and various levels of insurance and retention). Then an optimization model will be developed that simulates losses for each combination of actions for the three risks. The results of the optimization model will be analyzed and students will make recommendations based on these results. Exhibit 2: "Course Flow Chart" illustrates the course flow chart, which shows each of the course's risks and their respective modeling techniques, as well as how they will all fit together within an optimization model.

Exhibit 2: Course Flow Chart



### EXPECTED STUDENT OUTCOMES

By immersing students in this realistic organizational decision making problem and by teaching them tools to effectively model the complexities of the problem, the faculty expect one of the major learning outcomes for students will be the development of problem-solving skills. These skills include the general ability to define a problem and specify assumptions, as well as specific skills associated with statistical and optimization techniques and insurance concepts. While the insurance students will learn more of the modeling and technical concepts, the mathematics and statistics majors, perhaps future actuaries or risk analysts, will benefit from the experience of operating within the risk

management context.

Secondly, the large scope of the problem will give students experience with realistic, large organizational problems that are not very common in undergraduate education. Not only will they have experience with solving smaller problems (e.g. how to model and assess a single risk using empirical data) as is common in homework problems, but will also gain an understanding of the complexities of how many smaller pieces fit together into one larger picture. In addition, the identification of possible alternatives and the development of an action plan will require students to articulate how their analyses might be used as a decision making tool for management. Students will also develop teamwork skills as they work with classmates to arrive at this goal, and will become familiar with computer tools for modeling risk.

## **DISCUSSION**

The course is still in the planning stages, and will be offered for the first time as a special topics undergraduate course in the spring semester of 2007. It may also be able to be offered at the graduate level at some future point. An evaluation plan for the course is being designed. In particular, the focus will be on formative evaluation to determine how well students from the different disciplines are able to establish a comfort level with here-to-fore unfamiliar concepts of background theory that they had not studied but are necessary for understanding the enterprise risk issues of the problem. This problem has already surfaced with the graduate students in the special problems course. Additionally, attention will be given to the empirical nature of the course, particularly the "raw" data supplied by the contractors. This data may prove to be too variable for bringing student groups to a point where they can set up optimization models for selecting realistic risk management strategies. Once the pilot course has been taught and the results evaluated, a Master Course Outline will be created and a "new course" proposal will be submitted to the College's curriculum oversight committee in the fall semester of 2007.

The College's faculty has been highly supportive and encouraging of this idea to provide students with an opportunity to learn strategic management concepts within a realistic business framework, especially the interdisciplinary nature of a capstone course. Also, colleagues from the mathematics department are intrigued and plan to bring the course to the attention of their actuarial students. And there has already been a "buzz" of interest from prospective business students wanting to learn more about what is in the offing for this new course. As teachers, we are looking forward to offering a very interesting course.

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## **COMPLEXITY CASE STUDY**

Bruce Evans

### **ABSTRACT**

Complexity, Inc. is a case study that offers students and faculty members the opportunity to demonstrate their enterprise risk management skills. Originating in a Society of CPCU regional conference as an insurance project, but enlarged in several significant ways, this case study has emerged to demonstrate several other supporting academic dimensions. While the well grounded insurance aspects are evident for that discipline's study purposes, the central theme of this case study is to realize the risk exposures that are beyond the traditional boundaries. The responsibilities of the corporation's board of directors become evident as the case study develops. The vulnerability of owning only 49% of a linked entity emerges as another example. Further analysis brings forward several other non-insurance elements which radiate the enlarged scope of enterprise risk management. May the tantalizing components of this case study become an element in risk management/ insurance course curriculum at many universities.

### **INTRODUCTION**

Insurance and Risk Management students can be challenged to apply their course concepts to this Complexity case study. This corporation's physical damage exposures lie within a vulnerable wind territory. By plotting the direction of hurricanes Katrina and Rita's disastrous year 2005 catastrophes and comparing the location of this corporation's key property risk exposures, students should become aware of a severe wind concentration problem. Several well placed clues should cause the readers to think more about the essence of macro instead of micro analysis. It is suggested that faculty members divide their classes into four person teams, challenging each team to determine the greatest exposures for each risk category. Following ninety minutes for each team to wrestle with the dimensions of this case study, the faculty member can then guide learning by agreeing with issues of substance, while explaining that non critical elements are included only for academic bait purposes.

### **BACKGROUND**

The author has used this case in an enterprise risk management MBA course for several semesters. Our graduate students have discovered multiple opportunities to apply their course concepts. By dividing the class members into smaller teams, the embryo students can learn from their more experienced counterparts as they seek team

consensus. Students grounded in supply chain operations, financial management, or strategic planning can find ample evidence to apply their individual expertise while learning from their classmates who bring knowledge of complementary issues. Health care class members will spot the conflict inherent in mixing an ingredient with St. John's Wart as another example of sharing from a distinctly different background. Human resource students can examine the reasons why Complexity refuses to acknowledge the risks inherent in the deliberately undisclosed workers' compensation claim, leading to management's decision not to report this issue to their excess of loss insurers protecting Complexity's self insurance program. Another on-the-job avoidance situation emerges in the harassment claim description. These and similar risk exposures are aimed at bringing the diversity strengths of team members to share their knowledge with their groups.

### **COMPLEXITY, INC.©**

This case study involves a holding company, with total assets of \$45,000,000, and stockholders equity of \$22,500,000. Complexity, Inc. is now publicly held. 1,500,000 shares of stock have been issued, with 400,000 shares owned by the family of the founder of the firm, another 300,000 shares bought via options by present officers, and the remaining 800,000 held by diverse trusts/institutions. The stock had earnings per share of \$1.80 in fiscal 2006 after taxes, and is now being traded in the range of \$18 per share.

The Treasurer has responsibility for the risk management of corporate assets and liabilities, but has elected to have this responsibility generally shared with the comptrollers of each subsidiary. Complexity really has three risk transfer programs at this time, with the exceptions noted later.

Complexity has 24 employees in the corporate office, occupying the sixth floor of a 20-story office building in Irving, where it has office furniture, improvements, and betterments, originally costing \$110,000, in 1989. All important corporate records are stored in a steel vault.

It has a 100% ownership of three subsidiary operating companies, and a 50% ownership of a fourth company, all described below. In addition, there are twenty-six real estate trusts or corporations controlled by the founding family, owning property generally occupied by the principal subsidiary of Complexity, although some of the real estate is now occupied by others. The comptroller of the supermarket subsidiary has historically handled the insurance for those twenty-six real estate trusts or corporations.

The operating companies are the following:

(1) Complexity Supermarkets, Inc., a retail food chain (the principal subsidiary).

(2) Green Hills Dairy Company - a processor of milk, cream, cottage cheese, and ice cream.

(3) Complexity Vacations, Inc.- a chain of dealerships in recreational vehicles.

(4) Corpus Christi Mobile Home, Inc. owned 49% by Complexity and 51% by a local businessman in Corpus Christi. It is a mobile home park, mobile home dealership, marina, and recreational vehicle dealership.

The exposures of each subsidiary are described below:

#### COMPLEXITY SUPERMARKETS, INC.

Complexity Supermarkets operates 63 supermarkets in Arkansas, Louisiana, eastern Texas and southeast Missouri. These stores are situated as follows:

	Stores
Irving	12
Suburban DFW	6
Texarkana, AK-TX	5
Other Arkansas	7
New Orleans	4
Suburban New Orleans	3
Other Louisiana Gulf Coast	4
Northern Louisiana	10
Eastern Texas	9
Southeast Missouri	3

These stores have an average area of 16,400 square feet, with a range from 6,600 square feet to 37,000 square feet. They have inventories averaging \$180,000 per store, with a range from \$80,000 to \$900,000. In most cases, there are parking lots next to the stores with an area averaging 1.9 times the store area. In 17 instances, the store is located in a multiple occupancy shopping center and shares a common parking area for which it has no apparent liability (hold harmless agreement).

The average depreciated value of store fixtures and improvements and betterments is \$85,000 per store, with a range from \$30,000 to \$300,000.

None of the store locations are owned by Complexity; but 24 are owned by the real estate interests of the founding families. These involve net leases, requiring Complexity Supermarkets to insure the buildings for fire, extended coverage, sprinkler leakage where

applicable, and public liability. In twelve other cases there are net leases of a similar nature. In seventeen instances the store is in a multiple occupancy shopping center as noted above, and the remaining ten stores are in isolated buildings where the owner carries the property and liability insurance. The average structure has a replacement cost of \$14.00 per square foot; the largest cost \$450,000 to build in 1998. That key location is bordered by a pet store and a dry cleaning establishment.

All of the produce, frozen foods, groceries, some dairy products, and most of the tobacco, health, and beauty aid items are handled through a 350,000 square foot warehouse in Longview, TX, owned by the Company, built in 1989 at a cost of \$2,960,000. Net book value of \$140,000 in fixtures and equipment is in the warehouse. Inventories are averaging \$2,700,000, reaching a peak of \$4,350,000. There are few comparable warehousing facilities near Longview.

Twenty-seven of the store locations are sprinklered; thirty-six are not. Of the locations in shopping centers, thirteen are sprinklered; four are not. Company policy is to insist on sprinkler protection for all new store locations, but there is no established policy as respects existing stores.

The warehouse location is of brick construction, wood roof, and is equipped with sprinkler protection, including a water flow alarm system wired into the Longview Fire Department. It would be eligible for HPR treatment if an intermediate level of sprinklers could be installed in the high rack area, at a cost of \$200,000. The present combined annual 80% co-insurance rates for fire and allied perils are .251 (Rate per \$100 value) for the building and .311 for contents with no deductible. The HPR rates would be .063 for the building and .083 for the contents. The HPR underwriter is demanding that the sprinkler system also be extended to the freezer area, which presently has sprinklers above the ceiling of the freezers but not within freezer rooms. The agent feels the HPR underwriter will accept the risk with a penalty for non-compliance with that recommendation. The warehouse manager is strongly opposed to such an installation in the freezer section.

Bakery goods, delicatessen items, meat, poultry, and eggs are supplied to individual stores by a single outside supplier on a drop shipment basis.

Health food products are made by Complexity on site. One is to complement St. Johns Wort; the other helps increase white blood cells.

Milk, cottage cheese, and ice cream are supplied by a sister company, Green Hills Dairy Company, except for the two stores in Houston which handle a local brand of dairy products.



The sales of the supermarket subsidiary were \$153,000,000 last year with a profit of \$3,800,000 before taxes.

The maximum annual business interruption value at any store (gross earnings basis) is \$1,825,000. The minimum is \$95,000. The average is \$452,500, calculated by deducting expenses of warehouse operations and warehouse to store transportation as part of the cost of goods sold.

There are eight stores in the chain, which are considered as marginal, and would probably not reopen if seriously damaged by any casualty. Those eight stores account for 6.5% of the total business interruption value; all are relatively small and are not sprinklered.

In addition to the warehouse, Complexity Supermarkets has its office in a building attached to the warehouse at Longview. The office building has 10,000 square feet on each of two floors, was built at a cost of \$600,000 in 1970, and has furnishings costing \$190,000. It is a masonry construction, and sprinklered. There is a firewall between it and the warehouse, breached in several places by non-standard openings. The data processing center is in an adjacent part of the warehouse, next to the office, which used to be occupied as a poultry processing area. (That operation was discontinued in 1992; poultry is now supplied by 'outside firms'.) The data processing room has a concrete lock wall separating it from the rest of the warehouse, which has a plaster ceiling, and a smoke detection system coupled with the automatic sprinkler system. The I/S is leased from a computer-leasing firm. The lease absolves the lessee of liability for damage by fire, extended coverage perils, vandalism, or sprinkler leakage, unless due to negligence of the lessee. It also requires compliance with NFPA standards relating to computer installations. The I/S is used for financial functions, payroll, inventory controls, order picking, and other miscellaneous functions such as cost analysis and auto fleet maintenance records. No work is done for outside interests, except those of the sister companies, for whom similar functions are handled.

The cash and checks taken in per store will average about \$25,000 on Saturdays, and reach a maximum of \$125,000 at the highest volume store in any one day. Cash is kept in a two-compartment safe behind the customer service desk at each store. Each outer compartment holds change and cash necessary for check cashing, while the inner compartment can only be opened by two keys, one of which is in the possession of the armored car service which makes daily pick-ups; twice on Saturday at certain high volume stores. Cash is placed in the inner compartment through a slot, supposedly tamper proof.

One store, of average size, has been flooded badly several times in recent years, at West Memphis, Arkansas.

There is a fleet of 132 motor vehicles, as follows:

12 passenger cars  
 14 pick-up trucks  
 15 delivery vans  
 33 tractors  
 57 trailers  
 1 jeep

No more than 20 trailers or vans can be drawn up to the loading docks at the warehouse at one time. The maximum load value on any one truck is \$20,000.

There are 3,105 employees in all. Of these, 150 are employed in the central office, 300 in the warehouse, 90 as drivers, and the rest in the stores.

The estimated annual Workers' Compensation premium is \$95,000 at a .97 experience modification.

Losses have been as follows during the last three fiscal years:

Year	Worker's Comp	General Liability	Auto Liability	Auto Physical
2004	\$32,000	\$50,500	\$1,300	\$ 0
2005	51,700	*1,116,000	3,400	200
2006	55,400	64,600	9,000	2,400

\* Note: \$1 million sexual harassment lawsuit included in FY 2002 results (EPL endorsement).

There have been four small fidelity losses in the last three years, none exceeding \$1,000. There was one store robbery, involving a loss of \$4,000, one employee fled in fear from the company premises and was shot in the leg by the robber. Since the employee had just completed his regular shift, questions arose about his eligibility for workers' compensation benefits since the bullet struck him on another firm's property. Also, one burglary attempt, caused damage of \$1,400 to the premises before the police arrived.

There was one fire, in 2004, destroying a store with an inventory loss of \$140,000 and \$40,000 damage to fixtures. That store has been rebuilt. A hurricane in 1992 caused \$40,000 in direct physical damage to two stores on the Louisiana Gulf Coast and three

Houston stores and caused an additional \$25,000 in loss by food spoilage by reason of power outage. Recoveries from the insurance carrier on hurricane Katrina losses amounted to \$35,000, with ongoing dispute as to coverage for wave wash and for the consequential damage.

The air conditioning system in one store broke down in August, 2005. The repairs took three days; the manager estimated a \$20,000 loss of sales during those three days.

#### GREEN HILLS' DAIRY COMPANY

Green Hills supplies all of the milk, cream, cottage cheese, and ice cream sold by Complexity Supermarkets except for the two Houston stores. The only other customer for Green Hills is a convenience store chain, which takes 12% of the ice cream production under a different brand name.

There are three separate locations involved in the Green Hills operation all in or near Texarkana, Arkansas. The dairy plant is sprinklered, and could qualify for HPR treatment but is not underwritten on that basis now. It has annual sales of \$17,000,000. The current commercial building value is \$890,000, equipment value of \$350,000, and an inventory which averages \$55,000. The business interruption value would be \$4,500,000 on a gross earnings basis. There are three milk packaging machines in the plant on a leased basis; the lessor charges on a base rental plus a unit charge. The lease provides that the lessee is responsible for all maintenance costs or partial damage; the lessor will assume the risk of complete destruction of the equipment by any cause. These machines total \$780,000 in depreciated value.

The ice cream plant has annual sales of \$6,500,000. The building depreciated value is \$550,000, equipment value is \$620,000, and inventory averages \$95,000, with a peak of \$150,000. The business interruption value would be \$1,250,000 on a gross earnings basis. The plant is not sprinklered, but is of fire resistive construction under full fire protection services of the City of Texarkana.

The cottage cheese plant is in a small country town 15 miles from Texarkana. It is of ordinary construction, with some frame additions, and has a rather high fire rate. It has sales of \$800,000 per year, a building value of \$210,000, equipment of \$120,000, and an average inventory of \$3,000.

The total pre-tax income of Green Hills was \$3,700,000 in FY 2006. It has 490 employees. Since the price for retail store products has been standardized by agreement with supplier competitors, the level of income is virtually protected. Green Hills operates a fleet of motor vehicles numbering 30 in all, as follows:

2 passenger cars  
 8 refrigerated vans  
 7 tractors  
 13 trailers - refrigerated

The vehicles are kept in a lot adjacent to the dairy plant. A maintenance garage is also at this lot.

The estimated annual Workers' Compensation premium is \$16,000 at a .97 experience modification. Losses have been as follows during the last three years:

FY	Workers' Comp.	General Liability	Auto Liability	Auto Physical
2004	\$6,000	\$ 0	\$12,400	\$1,150
2005	17,000	250	1,400	700
2006	*7,600	300	2,700	650

There have been no fire or crime losses.

\*Note: One workers' compensation claim of \$250K not included in this figure. A former employee claims internal illness caused by plant conditions. Green Hills is denying responsibility, so they have not notified their insurer.

#### COMPLEXITY VACATIONS, INC.

There are seven locations operated by this newly acquired subsidiary, engaged originally in the sale of travel trailers, camper trailers, truck mounted camper units, motor homes, and camping and fishing equipment. These locations are in Arkansas, Texas, and Louisiana. One location, in Texas, also handles a line of motorcycles and ATV's.

These facilities involved total sales of \$6,125,000 in FY 2003, reflecting a trended 30% increase per location per year. Three more locations are in the planning stage at this time. Average inventories were \$205,000 per location, of which about \$25,000 was in the sales/service building at each location, the rest in a fenced lot. The largest location has about \$400,000 in average inventory, about \$900,000 in peak inventory, and a service building with a replacement value of \$70,000; \$20,000 in equipment; and an inside inventory of \$60,000. Most sales/service buildings are half of that size.

These locations sell from a variety of manufacturers, many of which have been in

business a relatively short time. The industry has a history of collapse of inadequately financed manufacturers. Quality control has also been an industry problem, with some modifications and many repairs being required on new units.

There are 60 employees of Complexity Vacations, with 11 in the offices at Little Rock, 7 clerical employees at field locations, 21 salespersons, and 21 service technicians.

There are seven pick-up trucks at locations, plus a total of eight dealer licensed motor homes and nine dealer licensed camper trucks for demonstration purposes. In addition, three pick-up trucks are used for hauling trailers from factories in Tennessee and Arkansas to sales locations. There are twenty motor homes and thirty-five camper trucks as part of a rental fleet.

There has been one serious Workers' Compensation injury to a service man (crushed hand), and one serious product liability claim (suit for \$1,500,000). A hailstorm caused \$20,000 in damage at a location in Arkansas in 2003 and two camper trucks have been "non-returned" in rental situations.

Rental income from the rental fleet was \$220,000, while net pre-tax income of the Vacations subsidiary was \$230,000 this year.

## CORPUS CHRISTI

As noted previously, this company is 49% owned by Complexity, Inc. As a recreational vehicle dealership, sales were \$1,500,000 in FY 2006, with 16 employees, an average inventory of \$310,000, and a peak of \$450,000. It also sells mobile homes, with an average inventory of \$120,000, and peak of \$150,000 with sales of \$650,000. It operates a mobile home park, with facilities for 100 units on fifteen acres, and supplies water and sewerage facilities to residents, as well as furnishing a swimming pool and recreation hall.

The marina facility includes a pier, bait shop, fueling facility, and restaurant. Mooring facilities are provided for thirty-six boats.

Total FY '06 revenue of the Corpus Christi subsidiary was \$2,580,000; net pre-tax income was \$130,000.

These figures are 20% below last year's results; Complexity's purchase of stock was completed January 1, 2006.

Insurance for Corpus Christi Mobile Homes is part of the Complexity Vacations program. "Vacations" is now considering an insurance program offered through the

Recreational Vehicles Trade Association, (RVTA), in which 8% of the RVTA members participate. Complexity, Inc. has arranged a master umbrella liability policy which covers Supermarkets and Green Hills, and is now considering a Directors & Officers Liability policy. All other insurance is arranged by subsidiary comptrollers. All property risks are insured for original cost less accumulated depreciation.

### **CHALLENGES**

- A. Identify the most significant risk exposures.
- B. Which loss exposures are not candidates for risk transfer via commercial insurance?
- C. Identify those parties which shouldn't be insured.
- D. Provide recommendations for deductibles.
- E. Provide recommendations for loss control, including loss prevention, sprinkler systems. Include analytical techniques required to make such decisions.
- F. Comment on the effects of possible losses on each financial statement?
- G. Discuss possible effects of business income losses?

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## TEACHING ERM TO MBA CANDIDATES: LESSONS FROM THE CLASSROOM

John J. Hampton

### ABSTRACT

In the spring of 2006, Saint Peter's College offered an MBA course titled Enterprise Risk Management. It was interesting for me as the instructor of the course to observe ways that students behaved when approaching a problem from an ERM perspective. This article shares the experience.

### CASE STUDY

The first surprise occurred during an exercise where two teams negotiated a proposal to invest capital. One team was assigned the task of advocating the project. The other team had the assignment to ensure that the project addressed risks in an ERM framework. As the negotiation progressed, the advocacy team dominated the discussion, identifying production plans, marketing strategies, and financial results. The team with the goal of ensuring a full examination of risks was faltering.

About halfway through the allotted time, the ERM group ceased to argue any points about risk. The members changed their strategy. Instead of making declarative statements about risk, they began asking questions. "What about this exposure? Where will you get the skilled people? What could throw off the financial projections?" The change in approach quickly leveled the playing field, forcing the advocacy group to pause and hesitate as they addressed risks for which they were not fully prepared. It became clear that an ERM approach can help balance decision making processes that otherwise might be dominated by marketing or finance considerations.

A second surprise came in a discussion of stakeholder risk. The issue dealt with exposures when a company does not meet the needs of multiple stakeholders. The class did an exercise where individuals had to rank from most important to least important the stakeholders of a corporation. The choices were:

- Shareholders.
- Employees.
- Customers.
- Suppliers.
- Regulators.
- General Public.

## RESULTS

In my previous experience, this kind of exercise always produced the same result. MBA candidates, without much thought, quickly rank shareholders or customers at the top of the list. Some argue that a company has a primary obligation to provide the highest possible return to shareholders. Others argue that the goal of a business is to take care of its customers. The remaining four groups of stakeholders are generally diminished in the discussion.

The ERM discussion started in the same way and then took an unexpected turn. When students reflected on risk in a coordinated framework, they moved employees to the top of the list. How do we reduce risks across the board for a company? Take care of the employees. Create an environment where high-quality and energized people will do everything they can to ensure their personal success. Their efforts will then align with corporate goals and achievements. If the company identifies employees as the number one stakeholder, the employees will take care of the customers and suppliers. The regulators and general public will be served. The end result will be sustained competitive advantage producing satisfied customers and the highest return for shareholders.

A final lesson occurred as teams prepared a major presentation to bring together all the ideas covered during the term. Five teams of 4-5 students each researched Home Depot. In early 2006, the Home Depot, Inc. was the world's third largest retailer and the largest home improvement specialty retailer. Fortune magazine had just named it as the number one most admired specialty retailer for 2006.

From their Internet searches, teams learned that the Home Depot board and senior executives believed that corporate governance is part of the company's culture. They claimed a commitment to living values and articulated an ethical obligation to shareholders, employees, customers, suppliers, and the communities where their stores operate. According to Home Depot documents, the company followed strong corporate governance practices, compliance procedures, and transparent financial reporting.

Home Depot's commitment continued on into the areas of independence and transparency at the top. The company had a high-level committee that pursued accurate and complete disclosures to stockholders and the investment community. It established a corporate compliance council to regularly review and monitor compliance policies. The company believed that its standards for the board and its members met or exceeded New York Stock Exchange guidelines. For example, only independent directors served on the Audit, Leadership Development and Compensation, Nominating, and Corporate Governance committees.



Home Depot was founded in 1978 by Bernard Marcus and Arthur Blank, two individuals who gave managers enormous authority. The founders relied on instinct rather than analytics to build the company to \$40 billion revenues in 20 years. Still, by the late 1990's sales stagnated as the company struggled to manage its rapid growth. The board picked Bob Nardelli to become the CEO in 2000. He implemented a military-style management model. Over 500 of the 1,100 employees who were hired into management between 2002 and 2006 were previously junior military officers. In 2005, 13 percent of the company's employees had military experience compared to four percent at Wal-Mart. More than 100 were store managers. Bob explained the strategy partly as a belief that a person who has faced a shooting enemy will be calm when dealing with a tough customer.

After his arrival, Bob Nardelli began to measure performance using analytics including everything from margins on products to the number of customers greeted at the door. Instead of the previous decentralized structure, all major decisions were made at the top of the company. From 2000 to 2005, sales rose 75 percent and profits doubled. The only weak performance occurred with the stock price which dropped seven percent. This compared to the stock price of Lowe's, a major competitor, whose stock price rose by 210 percent during the same time period.

As students prepared their presentations, they learned that Home Depot followed George Stalk's principles in *Hardball: Are you Playing to Play or Playing to Win?* The book argues, among other things, that a company should find ways to raise the operating costs of competitors thus maneuvering them into pursuing unprofitable sales. A firm should devastate the profits of its rivals using tactics to constrict their cash flows. Finally, the book encourages a firm to unleash overwhelming force to engage weaker rivals in a war of attrition.

Teams began to explore the impact of a military-style, take-no-prisoners culture that had been created at Home Depot. Looking past financial results, they discovered a new and disparaging language was emerging among employees: "Aprons" was a derogatory term for store workers wearing the company trademark orange aprons. "Bob's Army" was used to describe the store leadership program where half of the participants were former military officers. "Bobaganda" referred to the company's inspirational tips, warnings, and other messages that were continuously shown on televisions in employee break rooms. Last but not least, "Home Despot" was a term being used by disgruntled employees to refer to the company itself.

## **SUMMARY**

The ERM preparation encouraged the students to reflect upon the internal issues raised by the new culture. It further directed them to look externally. They quickly

discovered the growth at Lowe's. By 2006, Lowe's had 1250 stores operating with a management style that was demanding but not military. The Lowe's environment was low-key, encouraging managers to cooperate rather than compete with each other.

Digging deeper, the teams discovered a February 2006 customer satisfaction survey that showed Home Depot was last among major retailers. It was even lower than K-Mart, a retailer with its own serious problems. Former Home Depot managers claimed the poor satisfaction rating resulted from employee paralysis and fear of getting fired. One article made a comparison between Home Depot and a factory with routine assembly lines that are constantly speeding up.

Now we get to the presentations. All five teams acknowledged the financial performance under Bob Nardelli but did not foresee long-term success. They concluded that cultural and competitive risks would overcome the short-term pursuit of profits and concluded that Home Depot had a weak risk management profile. Then the ultimate insult. They recommended shorting Home Depot stock.

The issue in this course is not whether MBA teams using an ERM analysis will be right or wrong. The important lesson for instructors is that an ERM approach to financial and strategic analysis can produce markedly different conclusions and recommendations compared to more conventional case studies or discussions on how to develop a strategic plan. The three take home lessons for me from the course were:

- Use questions rather than declarative statements to challenge proposals that have not sufficiently addressed the coordination of risks across the entity.
- Use an ERM approach to challenge commonly-held assumptions. Without much thought, we may think companies should operate mostly for the benefit of shareholders. The ERM discussion challenged that belief.
- Start any analysis with a discussion of risk. Interpret past performance and future opportunities in the context of the risks of external environmental changes and internal cultural and structural weaknesses.

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