

The Journal of Risk Education

Innovative Ideas in Teaching

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The Journal of Risk Education

Innovative Ideas in Teaching

The Journal of Risk Education (JRE) is published semi-annually by Kallman Consulting Services.

The mission statement for the JRE is to be the leading publication of risk management and insurance education theory and practice.

The intended audiences and authors are academic professors and professional lecturers of risk management and insurance.

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Introduction to the Journal of Risk Education

THE QUEST. Many years ago I had the idea to create a medium for sharing ideas of excellence in risk management and insurance education. That is, to create a journal dedicated to the teaching portion of our triumvirate profession. Of course, there are several very good journals devoted to the risk management and insurance discipline; including (but not limited to) the *Journal of Risk and Insurance*, *Risk Management and Insurance Review*, and the *Journal of Insurance Issues*. In the editor's opinion, these all provide excellent articles on the theories of risk economics, risk financing, and insurance. This opinion is shared by many of our colleagues. However, there is a need for a new journal that concentrates on the teaching component.

THE DEMAND. Moreover, the old adage, 'publish or perish' has never been more true in academia. The need to research and publish the results of our creative thinking keeps our minds fresh. This is especially true in teaching. With only three major journals available in our specific discipline for publishing, the supply is quite limited. One result is a very long lead time to publication. At the same time the demand for a venue is growing. This market can be described as not in equilibrium.

THE SUPPLY. Concurrently, it appears that few professors have significant formal training in teaching. Pedagogical knowledge seems to be chiefly gained through experience or through mentoring. There is a limited opportunity to learn from each other. Combined, these issues make the need for a risk management and insurance journal all the more compelling.

THE GOALS. Thus, after a long planning period and several starts, the *Journal of Risk Education* is now launched. The mission statement is 'to be the leading publication of risk management and insurance education theory and practice.' This goal is achieved in two ways. First, the journal will follow the peer reviewed format of our other journals, and second, the journal will solicit teaching articles from a diverse array of sources, including university professors, professional education instructors, and corporate trainers. These strategies enhance the diversity of ideas and uniformity of presentation.

PEER REVIEWED. Having a peer reviewed journal is an essential factor for meeting the needs of our authors. There is a wealth of teaching knowledge in our discipline that can be harnessed to improve everyone's ability. While most journals seem to have a proven and established review process, the *Journal of Risk Education* will take a bold new direction in the review process. The traditional economics, finance, and insurance articles usually benefit from the use and analysis of a large data set. Applying rigorous statistical techniques, such as ordinary least squares regression, becomes a practical and useful tool for researchers. In pedagogy, and especially in the small world of risk management and insurance education, the available data are often from case studies or of a purely theoretical construct. Alternatively, the educational environment may be changing so

dramatically that relying on past data may not be a good predictor for future results.

QUALITY CONTROL. As a result, the application of classical statistical methods, which appear to be an essential component in other journals' articles, may be inappropriate for some educational research. Inferences and generalizations might be statistically invalid if drawn from a small, dynamic data set. This poses a challenge to assure that the quality of the research is cutting edge and practical. The editor and other developers of the *Journal of Risk Education* are keenly aware of this quality issue. Simultaneously, we also want to create a platform upon which innovative and creative ideas can be shared. For example, one professor explained his recent classroom project that involved about nine students over one semester. Rather than require four semesters to get a sufficiently large data base, the *Journal of Risk Education* has a policy to accept articles for peer review that are otherwise 'outside the box.' Herein lies a challenge for the associate editors as reviewers: to try to see the creativity as a key factor in the review process. If you can assist as an associate editor please send an email to me. Your service to our discipline is greatly appreciated.

THE AUTHORS. This premier issue contains articles from authors who are gracious enough to contribute to this bold new venture. Their participation has been encouraging and supportive. They were willing to take a chance and submit their hard work to a struggling undertaking when they could have sent it to an established journal. Their confidence demonstrates the value and demand for a quality educational journal for our discipline. Thank you for your assistance and submissions.

THE REVIEWERS. The reviewers also deserve praise for their hard work. They encountered significant challenges in adapting to a new journal philosophy. Yet they boldly went where no other reviewers had gone before and produced highly insightful and helpful comments for the authors. The results are the articles in the premier issue.

THE FORMAT. We live in the electronic age where information is communicated on-line, in e-mails, and via the web. We teach courses using computers to make power-point presentations, use lcd's to project and manipulate spreadsheets, and use wifi and other technology to share information. This new journal intends to be published only in electronic format for two key reasons. Principally, it makes distribution as simple as an email pdf attachment. Second, it virtually eliminates publication costs. Those who prefer a hard copy document can easily print one.

YOUR COMMENTS. As you read this issue please make a mental note of your suggestions for improvement. As with a new product, the first iteration is bound to be a little rough around the edges. Your constructive criticism is welcomed and encouraged. In future volumes we hope to include peer reviewed articles, book reviews, and other features that will enhance your teaching skills. If you can contribute in any way please send your ideas to the editor.

PASS IT ON. At this point distribution of the *Journal of Risk Education* is complementary. Feel free to pass this journal on to as many others that you think might enjoy it. While circulation for advertising purposes is not an issue, we do want to involve as many as possible who teach risk management and insurance. Forward this electronic journal freely. And now, enjoy the feature articles. ed.

Feature Articles

AN INVESTIGATION OF STUDENT PERCEPTIONS OF THE RISK MANAGEMENT AND INSURANCE PROFESSION

Christine T. Berry¹,

Ronald L. Berry², &

Steven Tippins³

ABSTRACT

The purpose of this study was to investigate the perceptions of the next generation of business professionals regarding careers in the risk management and insurance industry. Students in two regional schools were surveyed to assess their perceptions about the image of risk management and insurance. Specifically, students were asked about their perceptions of careers in insurance, the background skills required for employment in the insurance industry, their perception of existing insurance professionals, and the need for business professionals to understand insurance and risk management. Results suggest that if the risk management and insurance industry is to be competitive recruiting top students in the future, industry and academia will need to work together to enhance the reputation and visibility of the industry. The study provides useful implications for marketing collegiate risk management and insurance programs and recruiting students as majors and to the risk management and insurance industry.

INTRODUCTION

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The future growth and success of industries is highly dependent upon the availability of a well-trained work force interested in pursuing careers in that industry. For this reason, identifying the perceptions of potential employees for a particular industry is extremely important, especially in areas that are not thought to be mainstream career choices.

While risk management and insurance is something most people are familiar with, few students are aware of the wide range of career opportunities available in the field. Most are exposed to insurance when they make their first trip to an agent for automobile or health insurance or through comments from their parents. In all likelihood, an insurance agent or commercials on television are probably the extent of most students' exposure to the industry. Students are generally not aware of the potential opportunities such as risk manager, underwriter, claims adjuster, producer, or actuary before entering college.

To further compound the problem of little exposure to the field and a lack of understanding about the field, the insurance industry suffers from an image problem (Mulherin, 1999; Wells and Stafford, 1995). If a prevailing negative image of the insurance industry holds true for college students, it is reasonable to expect that college students' decisions to elect insurance careers would be negatively influenced. It follows that a student's decision to choose insurance as a major, minor or concentration would be similarly biased.

A stream of research investigating students' perceptions of insurance has been conducted over the past few years (Barrese, Gardner and Thrower, 1998; Junge, et. al, 1993). The Insurance Education Foundation was formed to improve the understanding of insurance and its role in society through education of high school students and high school teachers, partially because of the concerns raised in the previous studies that the insurance

discipline is not well understood. Dorfman (1990) reported a decline in the importance of undergraduate insurance education while Ferguson, et al, (2001) found evidence that risk management and insurance (RMI) education may be at risk of losing its separate identity either by becoming absorbed into other departments such as economics or being removed altogether from some business curricula.

The focus of this study was to investigate college students' perceptions of careers in insurance. The survey was designed to investigate the question of whether or not there is a lack of understanding of insurance and an inherent bias against careers in insurance.

SURVEY METHODOLOGY

To investigate the image of insurance professions, business students at two regional universities with risk management and insurance programs were surveyed. Surveys were administered to a broad range of classes to ensure a representation from many business disciplines. Both insurance and non-insurance majors participated. Since a convenience sample was used, results may not be generalizable to the entire population but there is little reason to believe that those surveyed do not represent the population in general. The results herein should be useful in beginning the analysis of student perceptions about the insurance industry.

Prior to administering the survey instrument, a pre-test was conducted with twenty students and colleagues following the approach suggested by Dillman (2000). According to Dillman, a four-step process should be used to adequately pretest an instrument. First, the instrument should be reviewed by knowledgeable people to ensure content validity. Second, interviews should be conducted to ensure face validity and several other aspects

such as the appropriateness of the total survey package. Third, a small pilot test should be conducted. Finally, a final check of the revised instrument should be completed. During this process, analysis of the results and interviews with the participants led to several changes that improved the overall validity of the instrument.

SURVEY INSTRUMENT

The survey instrument (shown in appendix) consisted of two sections. Section one contained demographic questions such as major, classification, age, and gender. Students were also asked about their awareness of career opportunities in insurance and business before entering college. Another important set of questions asked was whether they knew about the insurance major before entering college, before they selected their major, and before filling out the survey. Section two contained sixteen questions related to the current image of the insurance profession. Respondents were asked to answer the questions using a five point Likert scale with responses ranging from "strongly disagree" (1) to "strongly agree" (5). A similar instrument was used to assess the image of the computer information systems profession (Berry, Rettenmayer, and Wood, 2000).

The image questions are related to perceptions regarding: careers in insurance (hours of work, career burnout potential, promotion potential, rate of salary increase, job security); the background necessary for an insurance professional (math skills, general business knowledge, interpersonal skills); existing insurance professionals (respect, activity in the community, professionalism, ethical behavior) and; a general need for business professionals to understand insurance. Many questions asked respondents to compare insurance careers with other careers. For example, respondents were asked to respond

to the following statements: "Insurance salaries increase faster than most other business salaries" and "Insurance professionals suffer career burnout more than other business professionals." Finally, students were asked to respond to the statement that insurance professionals mostly "sell" insurance. A complete list of the image questions can be found in Table 1. The selection of the items for the categories was made using the Berry, Rettenmayer and Wood (2000) survey and professional judgment.

DEMOGRAPHICS OF RESPONDENTS

A total of 193 respondents completed the survey instrument. The majors represented among the respondents included finance (11%), general business (10%), insurance (10%), and computer information systems (9%). Six percent of the respondents were freshmen, 14% were sophomores, 26% were juniors, and 47% were seniors. A little over 6% were either graduate students or non-degree seeking students. Sixty-two percent of the respondents were in the age range 17 – 23, 31% were in the age range of 24 -35, and 7% were over the age of 35. Females made up 42% of the respondents while 58% were males. Fifty-five percent of the respondents had taken an insurance class before completing the survey. Only 15% of the respondents indicated they had family members that work in the industry.

Forty-two percent of the respondents indicated they knew about career opportunities in insurance before they entered college. Approximately the same percentage indicated they knew about the insurance major before selecting their major. Eighty-five percent indicated they knew about business career opportunities before entering college. Seventy-five percent of the respondents knew about the insurance major before filling out the survey.

INSURANCE PROFESSION IMAGE

As shown in Table 1, mean responses to the questions related to the image of the insurance profession ranged from a high of 4.03 (Agree) to a low of 2.6 (Disagree). The item with the highest mean was “Insurance professionals must have good people skills.” This result is not surprising considering the importance of working with people in all business disciplines. The lowest mean reported was for the item “Insurance professionals are less respected than other business professionals.” This finding is reassuring in that the respondents did not seem to have a negative perception in regards to respect for professionals in insurance. Of interest was the average mean response (3.04) for the question “Insurance professionals are known for their ethical behavior” indicating that students really do not know whether most insurance professionals are ethical. This is of concern on the professional level because most of these students are also current and future buyers of insurance and, given the nature of the insurance transaction and the fiduciary responsibilities associated with insurance, it is important that insurance consumers view insurance professionals as being ethical. This is an important area for further research.

It is also worth noting the small standard deviation for all questions (ranging from 1.189 to .5448) and the fact that many mean values were very close to 3.0. This could be interpreted to mean that respondents are either neutral in their perceptions about the profession or have no strong feelings of agreement or disagreement with the statements. This finding is important, especially for questions related to job security, ethical behavior, respect, and job burnout. The responses could indicate that respondents do not have a

clear understanding of the profession or expectations and requirements of jobs available.

Table 1
Mean Responses to Image Statements

Statement	Mean	St Dev
Insurance professionals must have good people skills.	4.03	.8505
All business professionals should understand the nature of insurance.	3.82	.9736
Insurance professionals must have a strong background in business.	3.77	.7307
Insurance professionals are as respected as other business professionals.	3.54	.8896
Insurance professionals are active in the community.	3.49	.6855
Insurance professionals must have a strong background in math.	3.47	.7908
Insurance professionals are known for their professionalism.	3.20	.6499
Insurance professionals mainly sell insurance.	3.07	.9523
Insurance professionals are known for their ethical behavior.	3.04	.6360
Insurance salaries increase faster than most other business salaries.	3.02	.6330
Insurance careers offer more promotion opportunities than most business careers.	3.00	.5448
Insurance professionals have more job security than other business fields.	2.98	.6993
Insurance professionals work longer hours than other business professionals.	2.95	.7688
Insurance professionals suffer career burnout more than other business professionals.	2.90	.6087
I knew about the insurance major before starting college.	2.86	1.189
Insurance professionals are less respected than other business professionals.	2.60	.8362

As mentioned earlier, four general categories of student perceptions were used in this study: careers in insurance (hours of work, career burnout potential, promotion potential, rate of salary increase, job security); the background necessary for an insurance professional (math skills, general business knowledge, interpersonal skills); existing insurance professionals (respect, activity in the community, professionalism, ethical behavior) and; a general need for business professionals to understand insurance.

As illustrated in the results in Table 2, the highest reported mean was for a general need for business professionals to understand insurance, the item named “general need.” This one question was asked to determine if respondents thought that all business professionals needed to have some understanding of insurance. The mean of 3.82 (approaching 4.0,

which represents “Agree” on our scale) indicates that respondents believed all business professionals should have a general understanding of insurance. It is important to note that most business programs do not require an insurance class for most business majors, yet their customers, students, believe it to be important.

Table 2
Category Means

Category	Mean Response	St Dev
A general need	3.82	.655
Background	3.76	.822
Existing insurance professionals	3.32	.749
Careers in insurance	3.0	.973

The second highest mean reported was for the items named “background.” Students seemed to generally agree that insurance professionals need to have skills in math, general business knowledge, and interpersonal skills. The reported image of existing insurance professionals is somewhat disappointing. The mean response of 3.32 indicates respondents most likely do not know much about the profession or the professionals in the field. Questions in this category included: Insurance professionals are as respected as other business professionals, Insurance professionals are active in the business community, Insurance professionals are known for their professionalism, and Insurance professionals are known for their ethical behavior. The lowest mean (3.0) reported statistic was for the category “careers in insurance.” This category included questions such as: Insurance salaries increase faster than most other business salaries, Insurance professionals have more job security than other business professionals, and Insurance professionals work longer hours than other business professionals.

The insurance industry is made up of many different jobs and one aggregate measure of jobs within the industry is problematic. The responses to this survey indicate potential staffing problems for the industry as those who will be their future employees have less than glowing perceptions about insurance careers. More research in this area should be conducted.

INFLUENCE OF DEMOGRAPHIC VARIABLES

In addition to looking at all respondent's perceptions of the risk management and insurance profession, analysis was also conducted to investigate whether differences in perceptions existed between different groups of individuals. Specifically, analysis was conducted to determine if differences existed by gender and education (whether or not a respondent had formal insurance education in the form of a college class).

As shown in Table 3, several differences were identified between male and female respondents. Females had a higher mean average for "Insurance professionals must have good people skills" and "Insurance professionals must have a strong background in math."

Table 3
Differences by Gender

Statement	Female	Male	P-Value
Insurance professionals must have good people skills.	4.20	3.89	.0102
All business professionals should understand the nature of insurance.	3.81	3.83	.9132
Insurance professionals must have a strong background in business.	3.85	3.70	.1699
Insurance professionals are as respected as other business professionals.	3.60	3.49	.3816
Insurance professionals are active in the community.	3.54	3.45	.3344
Insurance professionals must have a strong background in math.	3.60	3.38	.0459
Insurance professionals are known for their professionalism.	3.29	3.13	.0868
Insurance professionals mainly sell insurance.	3.08	3.05	.8177
Insurance professionals are known for their ethical behavior.	3.09	3.00	.2860
Insurance salaries increase faster than most other business salaries.	3.06	2.98	.3995

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Insurance careers offer more promotion opportunities than most business careers.	3.0	3.00	.9149
Insurance professionals have more job security than other business fields.	3.03	2.95	.4444
Insurance professionals work longer hours than other business professionals.	2.97	2.92	.6802
Insurance professionals suffer career burnout more than other business professionals.	2.84	2.95	.2281

As shown in Table 4, respondents who had completed at least one insurance class had a higher mean response for nearly all statements, as expected. One would assume that individuals would have a better understanding of the insurance profession after completing an insurance course. For the statement “all business professionals should understand the nature of insurance”, students who had taken at least one insurance class reported a statistically significant higher level of agreement (4.07) when compared to students who had not completed an insurance course (3.53). Not surprisingly, students who had not completed any coursework in insurance had a statistically significant higher mean response for the question “Insurance professionals mainly sell insurance.” Interestingly, respondents who had not completed an insurance class also had a statistically higher mean response (3.07) for the statement “Insurance professionals suffer career burnout more than other business professionals.”

Table 4
Impact of Education

Statement	Course	No Course	P-Value
Insurance professionals must have good people skills.	3.05	2.97	.0811
All business professionals should understand the nature of insurance.	4.07	3.53	.0001
Insurance professionals must have a strong background in business.	3.83	3.52	.1844
Insurance professionals are as respected as other business professionals.	3.64	3.41	.0768
Insurance professionals are active in the community.	3.58	3.38	.0500
Insurance professionals must have a strong background in math.	3.5	3.44	.5819

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Insurance professionals are known for their professionalism.	3.25	3.14	.2151
Insurance professionals mainly sell insurance.	2.85	3.32	.0007
Insurance professionals are known for their ethical behavior.	2.92	2.89	.8908
Insurance salaries increase faster than most other business salaries.	3.05	2.98	.4451
Insurance careers offer more promotion opportunities than most business careers.	3.04	2.97	.3609
Insurance professionals have more job security than other business fields.	3.06	2.89	.0900
Insurance professionals work longer hours than other business professionals.	2.90	3.01	.3012
Insurance professionals suffer career burnout more than other business professionals.	2.76	3.07	.0005

CONCLUSIONS

Barrese, Gardner and Thrower (1998) find educating students about risk and insurance has a positive impact on student's attitudes towards insurance. Cassidy and Franklin (1990) found similar results regarding risk perceptions. The findings of this study indicating a lack of knowledge about insurance as a major and as a profession suggest therefore that insurance academics should increase their efforts to get students into their classes. Taking steps to market a "Principles of Risk and Insurance" course or encouraging a curriculum change making a principles course a requirement for other business majors would be a positive step in building the size and longevity of insurance programs in the U.S. and Canada. Other new and creative ways, including distance learning, to market insurance as careers and as a major should be researched, developed and delivered.

A caveat must be added here: academics in insurance and related fields should be prudent when marketing insurance as a major and as a career. They should be careful to ensure that they can deliver on promises made to or expectations set for their students. For example, additional research should be conducted to facilitate high placement rates of insurance majors into insurance careers. Berekson and Severns (1981) assess the value

industry executives place on insurance education finding a preponderantly negative reaction to the usefulness of insurance courses. Cassidy, Marshall, and Hollman (1998) investigated both the industry's propensity to hire insurance majors and compared the insurance industry's requisite professional skills to those perceived by insurance academics, noting some discrepancies. Assessments similar to these should be conducted on an ongoing basis to reevaluate risk and insurance program curricula and develop more meaningful programs. One of the best tools academics can use to market insurance as a major, minor, concentration or as a profession is a history of successful hires from their program. Or, for new programs, successful college /university alums and/or dynamic industry speakers can be used. The better academics are at assessing and developing programs that meet those needs, the more fruitful such programs will be.

These results should be of interest to the industry as well. With over two million employees, the insurance industry is a major employer in the United States yet the perceptions of the industry among potential employees is less than desired. If the industry is going to be a true player in the financial services arena it is going to have to improve its visibility with potential employees in order to recruit the best possible people.

LIMITATIONS AND FUTURE RESEARCH

The limitations of this paper provide for many research opportunities in the future. First, the survey instrument should be further tested. This step can be completed when a large enough sample size is used in future studies. Significant effort was made to improve the face and content validity of the instrument during this study. However, statistical tests

should be made to adequately assess the construct validity and reliability of the individual items used in the study.

An important question worth studying in the future is the perceptions of students who have already chosen insurance as a major. The results might be different than the ones reported for this study. Additionally, questions could be asked to determine the major factors that influenced their choice to pursue a degree in insurance. Students could be asked to respond to a question such as: I was influenced to major in insurance by: 1) family, 2) friends, 3) faculty, etc. Students would respond using a Likert scale similar to the one used in this study. Additional items could include, for example, high salary expectations, pleasant work environment, career advancement, and family working in the industry. Berry, Wood, and Rettenmayer (2000) conducted a similar survey to determine why students chose to major in computer information systems.

Also, the influence of demographic variables should be investigated in future studies. For example, researchers should investigate whether or not differences in perceptions exist between different age groups, majors, genders, college classification, or ethnicity.

Future studies should include a larger sample size and representation from more than two schools. This improvement will enhance the generalizability of the results and will provide useful information to industry professionals and insurance educators for their efforts to improve the image of the insurance professional and recruit the next generation of insurance professionals.

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INSURANCE STUDIES SURVEY

We are attempting to measure student impressions about the field of Insurance. Please provide only one response to the following questions. Your participation is completely voluntary and anonymous.

1.
What is your major? ACCT CIS GBA ECON FINA INSU MNGT MRKT OTHER
2.
What is your classification? FR SO JR SR OTHER
3.
INSU hours you have completed _____
INSU hours you are currently enrolled in _____
4.
What age range are you?
☐ 17 – 23 years
☐ 24 – 35 years ☐ over 35 years
5.
What is your gender? _____ Female _____ Male
6.
If you have worked in the insurance industry, how long? _____ Years _____ Months
7. What is your race? ____ Asian ____ African American, Black ____ Native American ____ White
 ____ Other
8. Does anyone in your immediate family work in the insurance industry?

☐ yes
☐ no
9. Before starting college, I knew about career opportunities in Insurance ☐ yes
☐ no
10. Before starting college, I knew about career opportunities in business ☐ yes
☐ no
11. I knew about the INSU major before I selected my major ☐ yes
☐ no
12. I knew about the INSU major before filling out this survey ☐ yes
☐ no

Please indicate your agreement or disagreement with the following set of statements:

SD = Strongly Disagree D = Disagree N = Neither Agree or Disagree A = Agree SA = Strongly Agree

1. INSU careers offer more promotion opportunities than most business careers SD
 D N
 A SA
2. INSU salaries increase faster than most other business salaries SD
 D N

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	A	SA
3.	INSU professionals mainly sell insurance.	SD
	D	N
	A	SA
4.	INSU professionals are as respected as other business professionals	SD
	D	N
	A	SA
5.	INSU professionals are less respected than other business professionals	SD
	D	N
	A	SA
6.	INSU professionals work longer hours than other business professionals	SD
	D	N
	A	SA
7.	INSU professionals are active in the community.	SD
	D	N
	A	SA
8.	All business professionals should understand the nature of Insurance	SD
	D	N
	A	SA
9.	I knew about the INSU major before starting college	SD
	D	N
	A	SA
10.	INSU professionals must have a strong background in math	SD
	D	N
	A	SA
11.	INSU professionals must have a strong background in business	SD
	D	N
	A	SA
12.	INSU professionals must have good people skills	SD
	D	N
	A	SA
13.	INSU professionals suffer career burnout more than other business professionals.	SD
	D	N
	A	SA
14.	INSU professionals are known for their professionalism.	SD
	D	N
	A	SA
15.	INSU professionals are known for their ethical behavior	SD
	D	N
	A	SA
16.	INSU professionals have more job security than other business fields.	SD
	D	N
	A	SA

When did you choose your current major?

- ☐ Before entering college
☐ Junior Year
☐ Senior Year
☐ Sophomore Year
☐ Freshman year

**CREATING LINKAGES WITH THE INSURANCE
AND RISK MANAGEMENT COMMUNITY**

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ABSTRACT

The authors describe how to increase enrollment in undergraduate insurance and risk management courses. They propose that creating linkages with the insurance and risk management community is a viable way to increase enrollment in these courses, and describe how a board composed of high-level representatives from the insurance and risk management community can be established for the purpose of creating these linkages. Data presented illustrate the impact of the establishment of such a board on the Insurance and Risk Management Program at a state assisted university. Transferability of this concept to other institutions requires only: 1) a faculty and administration that are committed to working with the insurance and risk management community, 2) a faculty and administration that are committed to preparing students for careers in insurance and risk management, and 3) geographic proximity to an employment market that has a significant need for entry-level insurance and risk management professionals.

INTRODUCTION

A persuasive case can be made that knowledge of the methods for analyzing and effectively dealing with exposure to risk is essential for those who hope to become competent organizational leaders¹. For this reason, the American Risk and Insurance Association, which is a group composed of primarily academics who have an interest in insurance and risk management education, has lobbied over the years for inclusion of an introductory insurance and risk management course in the core curriculum of an undergraduate business program. Unfortunately, for whatever reason, the American Assembly for Collegiate Schools of Business (AACSB), which is the principal accrediting agency for leading business schools in the U.S., has not responded favorably to the ARIA position. Most importantly, while the new curriculum standards adopted by the AACSB allow for considerable flexibility so that an institution can develop a core curriculum

consistent with its mission, the number of business courses that may be included in an undergraduate business degree program is limited to fifty percent of a student's coursework. In large measure, with the exception of perhaps a few institutions, this constraint has effectively prevented insurance and risk management professors from experiencing success in terms of persuading their respective institutions to include an insurance and risk management course in the core curriculum. Given the lack of such a course in the core curriculum, many insurance and risk management professors have experienced difficulty in terms of attracting students to their courses. In turn, as was the case historically at Ohio State University, the University of Iowa, the University of Oklahoma, Indiana University, and the University of Texas at Austin, lack of enrollment may be cited as the primary justification for not replacing these professors when they retire, die, or accept an offer from another institution. How can this enrollment problem be remedied so as to assure the long-term viability of insurance and risk management programs? Rabel correctly proposes that "professors can enhance their chances for success by ensuring that their programs are demanded by students and respected and supported by constituencies inside and outside their university."² In this article, the authors address issues pertaining to securing the support of constituencies outside the university.

A case is made that insurance and risk management community support in terms of scholarships, paid summer internships, and full-time employment opportunities following graduation for insurance and risk management students is a viable solution to this enrollment problem.³ More specifically, the creation of a board composed of high-level industry executives representing various constituencies in the insurance and risk management community is a vehicle through which the above-mentioned support can be

achieved. Data presented illustrate the impact of the creation of such a board on the Insurance and Risk Management Program at a state assisted university. The feasibility of forming such a board at other institutions is considered.

THE ENROLLMENT PROBLEM

Why does an enrollment problem exist at some institutions with respect to insurance and risk management courses? This enrollment problem can be attributed, at least in part, to the following factors.

*

Surveys of students enrolled in the introductory insurance and risk management course seem to consistently support the proposition that students are unaware of the diversity of employment opportunities that exist in insurance and risk management. Indeed, a perception of many students is that "door-to-door" commission sales is the most common entry-level position in the insurance industry.

*

Surveys of students enrolled in the introductory insurance and risk management course seem to consistently support the proposition that students do not perceive that completion of insurance and risk management courses will create a competitive advantage in terms of obtaining an entry-level professional position in the insurance and risk management field. Unfortunately, students may be correct in this perception. Oftentimes, when an insurance carrier advertises for an entry-level professional position in underwriting or claims, for example, a preference is not indicated in terms of major course of study. Often, the indication is that any business-related major is acceptable.

*

Surveys of students enrolled in the introductory insurance and risk management course seem to consistently support the proposition that students are not aware of the benefits (i.e., positive initial performance appraisals, rapid career advancement) that can be attained if they have a strong grounding in principles of insurance and risk management prior to entry in the insurance and risk management field following graduation.

*

Some students have experienced a negative first-time personal encounter with the insurance industry. These students may not comprehend why automobile insurance rates are high for youthful drivers and/or may perceive that they were treated unfairly when they filed a claim under an automobile insurance policy. More generally, the insurance industry arguably has a negative public image, which may be attributed, at least in part, to the mistaken perception that personal lines insurance (e.g., auto, homeowners) is highly profitable.

*

As alluded to above, unlike other disciplines within the business school including, for example, finance, accounting, marketing, management information systems, decision sciences, and management, the insurance and risk management discipline is often excluded from the core curriculum that must be completed by all business students. For this reason, insurance and risk management faculty are limited severely in terms of an opportunity to educate students concerning the diversity of career opportunities available in the insurance and risk management field and, more generally, the value of insurance and risk management courses in preparing for any business-related occupation.

Even at institutions that regularly offer at least one insurance and risk management course, many business school students graduate without having completed a single insurance and risk management course. Given the factors identified above, insurance and risk management faculties face a major challenge in terms of addressing this enrollment problem.

A PROPOSED SOLUTION TO THE ENROLLMENT PROBLEM:

creating linkages with the insurance and risk management community.

How can enrollment in insurance and risk management courses be increased? Support from the insurance and risk management community in terms of an active board that aggressively promotes scholarships, paid summer internships, and full-time professional employment opportunities following graduation for insurance and risk management students is essential for the following reasons.

* This support creates visibility for insurance and risk management programs on campus. Unquestionably, a "grapevine" exists on campus through which students enrolled in insurance and risk management courses informally share information concerning this support with other students. Also, high-level administrators are particularly sensitive to the existence of external financial support for a program and tend to cite a program with such support as a "model program" to be emulated by other academic programs on campus. In turn, this visibility translates into enrollment in the introductory course in insurance and risk management. The importance of this visibility is underscored because the core curriculum in business at most institutions does not include an insurance and risk management course. Given an opportunity to inform students concerning the diversity of

career opportunities available in insurance and risk management, the result will be increased enrollment in the advanced courses in insurance and risk management. Also, students that complete the introductory course in insurance and risk management will serve as ambassadors in terms of informing other students about the diversity of career opportunities available in insurance and risk management and, more generally, the value of an insurance and risk management course in preparing for any business-related occupation. Naturally, the result will be enhanced enrollment in all insurance and risk management courses.

* This support creates an incentive for students to not only enroll in the introductory course in insurance and risk management, but also to declare an insurance and risk management emphasis and participate actively in an extracurricular insurance and risk management club (i.e., Gamma Iota Sigma - the national collegiate insurance and risk management society - the purposes of which are to develop leadership skills in insurance and risk management students and educate these students concerning the diversity of career opportunities available in the insurance and risk management field). Eligibility for scholarships, internships, and inclusion in a resume book can be tied to completion of the introductory course in insurance and risk management, a declared emphasis in insurance and risk management, and/or active participation in the extracurricular insurance and risk management club. Naturally, the result is enhanced enrollment in insurance and risk management courses.

* This support conveys an unequivocal message to all students that the insurance and risk management community values insurance and risk management education. In turn, a perception is created that completion of insurance and risk management courses will

provide a student with a competitive advantage in terms of obtaining a professional entry-level position in insurance and risk management and will increase the likelihood of receiving positive initial performance appraisals and advancing rapidly in the insurance and risk management field. Naturally, the result is enhanced enrollment in insurance and risk management courses.

* This support creates a positive image for the insurance and risk management community on campus. The importance of a positive image is underscored in light of the fact that students oftentimes have a negative image of this community when they arrive on campus. A pro-active approach by this community in terms of creating a positive image conveys a message that they are customer service oriented and place a high priority on attracting quality people to this field. The result is increased enrollment in the introductory course in insurance and risk management.

* Internship support provides students with a greater awareness concerning the practical value of an insurance and risk management education and the diversity of career paths available in this field. The student is afforded the opportunity to apply knowledge gained in the classroom to the job and to learn first hand the diversity of career paths available in this field. Observations by the authors over the years of students who return for the fall term after completing a summer internship seem to support the proposition that an internship experience translates into a student that is excited about undertaking additional coursework in insurance and risk management, and the prospect of graduating with an emphasis in insurance and risk management and embarking on a career in this field. The student becomes a more effective ambassador in terms of informing other students about the practical value of an insurance and risk management education and the diversity of

career paths available in this field. Naturally, the result is enhanced enrollment in insurance and risk management courses.

Clearly, generous support from the insurance industry will result in increased enrollment in insurance and risk management courses.

THE CREATION OF A BOARD-

A vehicle for creating linkages with the insurance and risk management community

How can insurance and risk management faculty form linkages with the insurance and risk management community? The formation of a board composed of high-level executives is a vehicle through which linkages can be established. In turn, the authors address issues concerning composition of the board and how it can be structured to maximize its effectiveness.

Composition. In targeting executives who may be potential candidates that would serve on the board, the following considerations should be kept in mind:

* Different constituencies within the insurance and risk management community should be represented on the board. Executives employed within both the property/ liability and life/health sectors of the insurance industry should be included, as well as executives from both home and regional offices within the geographical market served by the university. Also, executives of major insurance agencies and insurance brokers should be considered.

Finally, prominent leaders in professional organizations (e.g., the Society of Chartered Property/Casualty Underwriters, the Society of Financial Service Professionals, the Risk and Insurance Management Society, the Fellow Life Management Institute Society) and agents' associations (e.g., the Independent Insurance Agents, the Professional Insurance Agents, the National Association of Insurance and Financial Advisors) should be considered.

* A significant percentage of board members should be based in a geographic area that is in close proximity to the university. At many institutions, a significant portion of the undergraduates have hometowns in this geographic area and generally are interested in obtaining full-time employment in this geographic area. Naturally, a board member may be more enthusiastic and committed if he or she perceives that some graduates will be interested in obtaining full-time employment with his or her organization. In general, insurance organizations also tend to be somewhat parochial and, therefore, are more likely to support an insurance and risk management program if it is "local." Finally, from a practical standpoint, a member is more likely to participate fully in Insurance and Risk Management Program activities (e.g., attend board meetings, attend student-related functions) if it is convenient to do so.

* Whether an executive is an alumnus or alumna of the university is an important consideration. Naturally, the bond between a graduate and the university may transcend, for example, a vested interest in identifying and recruiting entry-level professional employees. A graduate may bring a high-level of energy and enthusiasm to the board and may be more readily inclined to take a proactive stance regarding involvement in the program. This extra commitment adds a level of energy that invigorates other board

members.

* The extent to which an executive has access to resources within his or her organization is an important consideration. Oftentimes, an executive in a home office as opposed to a regional office has greater access to resources. Generally, higher level individuals naturally have more influence on decisions relating to financial support, creation of summer internship positions, and hiring of recent graduates for entry-level positions.

In summary, the board should be a diverse group of individuals committed to insurance and risk management education.

Structure. How should a board be structured? Generally, the establishment of committees with clearly defined objectives facilitates the active participation of board members. In establishing committees, the following considerations should be kept in mind:

* An active Insurance and Risk Management Program requires significant financial resources (e.g., postage, telephone, travel, wages for student workers). At most institutions, the financial resources required to maintain an active Insurance and Risk Management Program would exceed the financial resources provided by the institution. Thus, an Endowment Committee should be established for the purpose of securing resources for ongoing support of program activities. Naturally, the income generated from the endowment is utilized to address the shortfall between financial resources provided by the institution and financial resources required to fund an active Insurance and Risk Management Program. Members of this committee should be expected to secure significant contributions from their respective organizations and should be well respected in their respective insurance and risk management communities so that they can effectively

solicit funds from other insurance companies and organizations. In general, members who volunteer for assignment to this committee should have significant clout within their respective organizations and should be highly respected leaders in the field.

* Members of the board can provide valuable assistance in terms of identifying potential student summer internship sponsors. At a minimum, they can encourage their respective organizations to participate in the paid summer internship program. Also, they can provide information to peers in the insurance and risk management community concerning this program, and encourage these peers to support it. Thus, an Internship Committee should be established for the purpose of creating paid summer internship opportunities for students. Members of this committee should be expected to secure the participation of their respective organizations. In general, members assigned to this committee should be affiliated with organizations that have a significant need for professional entry-level personnel (i.e., a summer intern is a prospective employee). Naturally, larger organizations are more readily able to commit to one or more paid summer internships on an on-going basis.

* Members of the board can provide valuable assistance in terms of identifying potential scholarship donors. Thus, a Scholarship Committee should be established for the purpose of securing scholarship support. Members of this committee should be expected to secure the support of their respective organizations. Also, they should be expected to provide information to their peers in the insurance and risk management community concerning the Scholarship Program, and encourage these peers to support it. In general, members assigned to this committee should be affiliated with organizations that have a significant need for professional entry-level personnel or should be influential members of professional

organizations or trade associations.

The board should have a formal meeting periodically (i.e., one or two times per calendar year) during which each committee provides a progress report. Most importantly, for these committees to be effective, they must have an influential, enthusiastic chairperson who encourages each committee member to perform his or her responsibilities in a diligent fashion.

TRANSFERABILITY TO OTHER INSTITUTIONS

In this section, the authors present data that illustrates the impact creation of a board has had on the Insurance and Risk Management Program at a state assisted university. Also, the authors consider the feasibility of forming a board at other institutions.

The Experience. A board was formed at the institution that employs the authors in 1988. In 2004, the board was composed of twenty-three regular members and four ex-officio members. These members represented a wide range of constituencies within the insurance and risk management community. The following information illustrates the impact that creation of a board has had on the Insurance and Risk Management Program in these fifteen years.

* Prior to the creation of the board in 1988, this university did not have an insurance and risk management degree program. While several insurance and risk management courses were offered prior to 1988, a Bachelor of Science degree with an emphasis in Insurance and Risk Management was approved by the State Commission for Higher Education in

1989.

* The Insurance and Risk Management Program Endowment is approximately \$1,400,000.

* About 180 students currently enrolled at the institution have declared an insurance and risk management emphasis.

* The insurance and risk management curriculum consists of eleven insurance and risk management courses. All insurance and risk management majors are required to complete Introduction to Risk and Insurance, Life Insurance, Commercial Property Insurance, Health Insurance, Commercial Liability Insurance, Risk Management, and three other insurance and risk management elective courses. All insurance and risk management minors are required to complete Introduction to Risk and Insurance, and four insurance and risk management elective courses.

* In the 2003/04 academic year, Insurance and Risk Management Program scholarships totaling approximately \$46,000 were awarded to insurance and risk management students. Forty-two Insurance and Risk Management Program students received scholarships in amounts ranging from \$500 to \$2,000. Approximately 30 companies, agencies, and other insurance-related organizations participated in the Insurance and Risk Management Program scholarship program. In the 2003/04 academic year, twelve students received newly established scholarships totaling approximately \$60,000. Each of the twelve scholars received a scholarship in the amount of \$5,000 for the academic year, which are renewable for each academic year until the student graduates. In spring 1998, a member of the board, and his wife announced a personal contribution of \$5,000,000 to establish a center for insurance management development. The general purpose of this center is to increase the number of insurance and risk management students and address the

educational needs of the insurance and risk management community.

* In 2003, twenty graduating high school students participated in a two-week Summer Honors Course in Insurance and Risk Management. Each student was awarded a full scholarship that covered tuition, room and board, and supplies. The value of each scholarship was \$600. These scholarships were primarily funded by the Spencer Education Foundation.

* In 2003, insurance and risk management students participated in twenty-one paid summer internships in the insurance and risk management community. While most of the internship sponsors were the regional or home offices of insurance carriers and brokers, several students were selected to participate in nationally competitive summer internship programs (e.g., National Association of Professional Surplus Lines Offices).

* In the Fall 2003 semester, the local chapter of Gamma Iota Sigma had approximately 50 active members.

* In 2002/03, approximately 30 graduates of the Insurance and Risk Management Program were placed in various professional entry-level positions in the insurance and risk management community.

* In fall 2002, the Lilly Endowment announced a major contribution of \$20,000,000 to fund various initiatives related to the financial services industry. Among other initiatives, this contribution is funding a financial services Scholarship Program for incoming College of Business students. At least two members of the board, including the board member responsible for the \$5,000,000 gift, alluded to above, were instrumental in bringing about this major contribution.

Clearly, the board has had a major impact on not only the Insurance and Risk Management Program, but also the College of Business and university as a whole.

Transferability to Other Institutions. Generally, the following two requirements must be met for an institution to create linkages with the insurance and risk management community through the establishment of a board.

* Insurance and risk management faculty must be significantly involved in all Insurance and Risk Management Program activities (e.g., participating in the extracurricular insurance and risk management club, raising scholarship funds, meeting with student summer internship sponsors). While a board can provide assistance in terms of financial resources, advice, and contacts, insurance and risk management faculty must be committed to working intensively with the insurance and risk management community and students. For this reason, faculty members should be applied in terms of their orientation and have experience in the industry. Also, the administration of the business school (e.g., dean, department chairperson) must be committed to insurance and risk management education. As the program matures, secretarial support increasingly must be made available to the program. Finally, as a practical matter, a senior, tenured professor with minimal competing research and service responsibilities must be willing to serve as an administrator of the program.

* Clearly, one benefit to the companies and other insurance-related organizations represented on the board is a quality pool of prospective entry-level insurance and risk management professionals. Thus, a significant need must exist for entry-level professional

personnel in the geographic market that is served by the institution. Indeed, in the absence of a significant industry presence in the region served by the institution that employs the authors, the development of a successful Insurance and Risk Management Program at this institution would not have been possible.

While the nature of the industry constituency (e.g., agencies, insurance carriers, insurance brokers, third-party administrators) will vary depending on the geographic market served by the institution, the primary constraint for most institutions in terms of the development of a successful Insurance and Risk Management Program is the commitment of the faculty and administration to insurance and risk management education. Most importantly, a quality program cannot be "built" overnight, but rather comes into fruition gradually through the (1) development and nurturing of long-term relationships with board members, and (2) achievements of graduates of the program in the insurance and risk management community.

¹See "Risk Management: An Essential Part of the Common Body of Knowledge for Business." This position paper, which was drafted by the American Risk and Insurance Association (ARIA) in November 1990, and other relevant information is posted at <http://www.aria.org/riskpos.htm>.

²Rabel, William H., Ph.D., FLMI, CLU, A Manual on How to Manage an Effective Collegiate Program in Risk Management and Insurance, <http://aria.org/rabel.htm>

³While insurance and risk management community support is a viable solution to the enrollment problem, an institution must be careful to avoid pitfalls that can arise when a partnership is forged between academia and the insurance and risk management community. See William J. Warfel and Peter J. Mikolaj, "Forging Partnerships Between Academia and the Insurance and Risk Management Community: Opportunities and Pitfalls," CPCU eJournal, September 2002, pp. 1-4.

Did we Miss the Boat or is it Time to Set Sail?

Steven Tippins⁴

ABSTRACT

Should RMI programs be housed in finance-related departments? Do we fit better in management departments? This paper begins the discussion as to where RMI programs should be located. While no definitive answers are given, the paper should serve as a starting point for discussion.

Introduction

“May you live in interesting times,” a quote that many are familiar with may be particularly appropriate now for academics in the field risk management and insurance. For at least the last twenty years our profession has been fighting a battle with our academic brethren and the industry over our legitimacy. Interestingly, that fight has not usually been waged with students as once they take one of our classes they seem to “get it.”

The history of risk management and insurance (RMI) programs is one of change, not only in material covered but in location as well. Other than a few large programs, RMI programs seem to have caught on at smaller, regional universities and colleges. There is also a history of a program running for the duration of an individual's stay, only to die out when that person leaves. Interestingly, when a program dies out, another seems to arise within the same region but at another school. This said there seems to be a small but consistent level of RMI education throughout the country.

The dominant support organization for RMI academics is the American Risk and

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Insurance Association (ARIA). ARIA supports its members in many ways. One of the most visible areas is in the field of research. With excellent journals such as the Journal of Risk and Insurance and Risk Management and Insurance Review and its annual conference, ARIA provides a research outlet that is valuable for many members.

Another area in which ARIA tries to help its members is in the area of, for lack of a better term, academic acceptance. ARIA has been a major force in the attempt to get the AACSB to accept the field of RMI as one of its core levels of competency. To date that fight has not been successful but they have been fighting the good fight. Success here would increase the visibility of RMI as well as increase the demand for professors in the field.

A Sea Change

When we are not at one of the large schools, and even at some of these, those of us in the RMI field are most likely to be housed within a variation of the traditional Finance Department. Whether it is called a FIRE (Finance, Insurance, and Real Estate) Department or a Financial Services Department is usually irrelevant as those from the field of finance normally dominate the department. In many instances this leaves RMI as an afterthought. As a minority discipline we fight an uphill battle and can be overruled easily. In some cases the RMI professor has been there long enough and been through enough battles to build up a sufficient number of IOUs to get some programmatic priority.

Over the last few years it has been whispered by some people that perhaps RMI programs/classes would be better located in Management Departments. This intriguing option is explored in this paper.

Since the catastrophe of September 11, many RMI academics have been called

upon by colleagues, friends, and the media to give our professional opinion of the tragic events. In some cases questions have had to do with insurance coverage (was it one event or two?) while in others, perhaps most, the questions centered around the management of risk in general and specifically for catastrophes. In a way, our discipline has gotten much more attention since the tragic event.

Most of the attention has been centered around the management of risk. Few of the questions have had to do with technical concerns such as risk mapping or esoteric risk financing schemes. It seems that the potential loss of \$70 billion has brought with it the realization that risks may be pervasive and there may be something that can be done about these risks.

For years we have been teaching the risk management process to future insurance company employees and a few potential risk managers. In a way, we have been preaching to the choir. These are the people who will go into the world with the technical knowledge needed to put together reinsurance treaties, deal with brokers, and underwrite all lines of insurance. They are not usually the people who will be making the major strategic decisions for a firm or even heavily involved in implementing those decisions on a day to day basis.

It is interesting to note that in many undergraduate programs the risk management course is considered the final or capstone course. In that class all of the material from previous classes such as insurance law, property and liability insurance, life insurance, employee benefits, etc. are brought together to show how a typical firm manages all of these areas. Many professors have reported that once students find out about risk management as a career option they know that is what they want. The profession is a very

noble one full of good, hard working people and the influx of new talent is welcomed. However, these same students are usually told that while risk management is a great profession, it is a very difficult one in which to start and there is no easy way to do so. There are probably fewer than 20 undergraduate students a year across the country who get hired into entry level risk management programs. While 20 is a guess, it is probably a higher number but even if the number is 100, it is hard to justify the 70 plus schools that say that they have RMI programs.

While there may be very few entry level risk management programs, there are thousands of new management hires every year. In each of those jobs knowledge of the concepts of risk management would help the employees and the firm.

Enterprise Risk Management

The advent of Enterprise Risk Management (ERM) or its previous iterations known at various times as global and wholistic risk management was envisioned by some to be a savior for risk managers and risk management education. After all, to whom could they turn for knowledge about risk management? Of course it had to be existing risk managers and RMI professors. While those of us on the traditional risk management side were waiting for the others to wake up and realize how smart we are, our friends on the finance side saw an opening and, being good capitalists, leapt to fill it. Today, the mention of risk management is just as likely, if not more likely, to mean concepts such as derivatives and swaps as it is to be about insurance and safety concerns.

For a number of years those within the risk management field, including academics, have been trying to show that financial risk management is akin to traditional risk management and that the concepts are similar. It is just the tools that are different. While

this is true we have to remember to whom we have been singing this song.

Most risk managers report somewhere in the corporate ladder through the finance/treasurer side of things. Many RMI faculty, especially the small programs, are in some way part of a group of finance faculty. In other words, they own the playing field and the ball too. So, if we can show that risk management is a good tool and it is useful, then it is their tool. Enterprise risk management in specific and risk management in general will most likely become part of the finance field.

For some in the RMI field this may be a preferred outcome but others may bristle at this. It may seem limiting to cast our lot with finance. The concepts of finance, while fine and honorable, do not fully encompass the tenants of traditional risk management. In fact, it could be argued that finance is a subset of risk management but that is for another day. What appears to be true is that the field of finance has more people, more money, and more glamour. In frank terms, no matter how hard we fight and how clear our logic, we will lose.

But, all is not lost. If we play on their field we cannot win. Finance is a profession and discipline that has long been recognized as important and worthy of time and money. There are few, if any, academic programs in the field of business that do not have students take at least one course in finance. So how do we fight a juggernaut like finance? We don't.

Most military strategists would agree that to directly take on an opponent who is many times stronger in terms of manpower, resources, and public perception is a recipe for failure. However, since at least the Revolutionary War, there have been ways to level or even change the playing field to one's advantage. The same is true here.

Finance is a wonderful discipline but it is not the only thing with which a risk manager is concerned. A big problem for many risk managers is getting their plans and ideas implemented. They have to use whatever means available, especially since most of them are in staff positions, to get those with direct line responsibilities to implement something like a loss prevention program that will have no guaranteed payback where the bottomline is concerned.

The job of a risk manager and the field of risk management is truly that of management. It has always been part of the name but we have been afraid to emphasize its true importance. Effective risk managers must be in tune with all parts of the firm and on every level. A good risk manager is a strategic manager.

So, where does this leave us? If this logic holds up perhaps we should be casting our lot in with our brethren in management departments. Since management departments have taken control of the big picture and over the capstone course at many institutions, it can be argued that risk management, and its tools, belong here. If the management field were to adopt risk management then it may get the attention within the firm that will help bring risk management to an entire organization where it can be truly effective.

This idea may not be as radical as it sounds. Most practitioners and many academics now say that good risk management is good management. So, if good risk management is good management then getting this message and the tools of risk management into the hands of future corporate managers is a good idea.

In addition to risk management, many of the other tradition RMI topics will fit well under the management rubric. Of course employee benefits classes fit here well but courses in traditional insurance areas such as property and liability insurance and life

insurance could fit as well as it is the manager whom must actually make the ultimate decision as to what type of insurance program a firm will implement.

Summary

RMI programs reside predominantly in finance-related departments. Is this because of inertia, because it is the right place to be, or some other reason? Should our home be in a management department especially since the M in RMI stands for management? If we missed the boat then the field of finance has taken our thunder and we have a long journey ahead of us to right the ship. To continue the analogy, if we need to jump ship then management may be our safe port. While one paper is not going to solve this question it can serve as a catalyst for the beginning of a discussion as to where our skills, knowledge, and talents belong academically and within the firm. The purpose herein has not been to answer the question posed but to bring the idea to the forefront. A healthy discussion on this and other topics can only strengthen our position and make us stronger as a discipline.

ENTERPRISE RISK MANAGEMENT:

The New Language of Risk

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ABSTRACT

Hazard risk management deals with managing pure risks – containing risk's downside. However, with the changing environment risk managers are broadening their view to manage many different types of risks. Various parties refer to this new approach as integrated risk management, total risk management, strategic risk management, holistic risk management, or enterprise risk management. The authors selected and discuss the most accepted name – Enterprise Risk Management (ERM). There is a myriad of definitions and descriptions in the literature of ERM and its components but there is no standardization. The non-standardized nomenclature has potentially stifled the adoption of ERM. Hence, the authors propose new terminology for ERM. Socrates suggested the definition of wisdom lies in the definition of terms.

INTRODUCTION

Students of risk management usually focus on pure or operational risks, sometimes called hazard risks. These are events that result in loss or no change. Many words used in risk management have become universally accepted by risk management academics and in industry, for example exposures, perils, and hazards. Recently, some risk managers also began to manage speculative risks. Speculative risks are events that involve the possibility of gain as well as loss. However, there appears to be a myriad of speculative risk

terms and a lack of universal acceptance by academics and those who practice risk management. Moreover, there does not appear to be the terminology to bridge the pure (hazard) and speculative (financial) risk management disciplines. The authors propose that this is stifling the development, understanding, and implementation of Enterprise Risk Management (ERM).

As ERM develops, new terms-of-art are needed. Academics have an opportunity and obligation to lead the way in proposing new terms. The purposes of this paper are to: 1) examine the literature for ERM terminology, 2) define the scope of ERM, and 3) propose a standard ERM terminology. The benefits of a standardized language are expected to promote ERM, allow a better understanding of ERM by students, and therefore future risk managers.

This paper proposes several new terms to enable risk management students to better discuss and understand all the enterprise's risks. To describe speculative risks we propose terms, to be merged with the usual pure risk terms, into a common set of ERM terms.

LITERATURE REVIEW

Over a decade ago, visionaries such as George Head and Felix Kloman proposed that risk managers should not only focus on pure risk but also bridge the gap to speculative risk management (Head, et al, 1991; Kloman, 1992). These scholars suggested a holistic approach and perspective to managing the firm's risks. In support of this notion, Robert Cenicerros (1995) states, "Enterprise risk managers are increasing their value and their influence on their employer's bottom line by looking beyond 'pure' risks to managing 'speculative' risks." In 1999 Marsh coined the term enterprise risk management (Marsh,

1999). The intention was to package services for clients who needed pure and speculative risk management services. Sometimes this took the form of simply combining insurance products into a common insurance policy package. For example, combining property insurance, liability insurance, employee benefits, and commodity hedges all in one portfolio. This practical application of ERM set the stage for a new breed of risk managers.

Corporate risk managers traditionally focused only on pure risks of the firm (also known as operational or hazard risks). The firm's pure risks were often transferred to the insurance and reinsurance markets. Meanwhile, the financial risks were managed by a different unit within the firm which also had "risk managers" or "chief risk officers.". Now modern risk managers of large corporations are reportedly becoming more sophisticated with regard to their risk financing strategies (Otis, 1991; Schachner, 1995; Wojcik, 1996). Some are now giving more attention to the management of non-operational, strategic, and financial risks.

Quinn (1999) proposes that ERM is beginning to spark the interest of risk managers as more corporations look to package all of their risks, including those once considered uninsurable, into single multi-year insurance policies. According to Ciccarelli (1998), some companies are now taking a more enterprise wide view and are managing a firm's value rather than just avoiding or transferring risk. Busman and Van Zuiden (1998) suggest a fundamental change is taking place in the way organizations manage risk. They say this new approach allows organizations to achieve competitive and strategic advantages through farsighted anticipation of critical events and rapid implementation of optimal decisions. Janet Nelson, the Chief Risk Officer at The St. Paul Companies, states, "Risk is opportunity. Traditional risk management is all about risk being avoided, but when you

look at risk from a more strategic or opportunistic point of view, capital providers take risks to get rewards” (Ciccarelli, 2001). Risk managers have begun to creatively remedy the problem of inefficiencies in risk management approaches, particularly in the management of specific financial and hazard risk exposures (Sanderson and Koritzinsky, 1999).

Tillinghast-Towers Perin conducted a survey for the Institute of Internal Auditors (IIA) research foundation in cooperation with the conference board of Canada (Merkley, 2001). In this survey, chief financial officers, chief risk officers (CROs), chief audit executives, and others from over 130 leading organizations throughout the world revealed an increasing recognition of importance of earnings consistency (that is, earnings risk management). Sixty-seven percent of respondents indicated that they believe that ERM would help address the important issue of earnings consistency. However, the respondents also indicated that two potential barriers to implementing ERM activities within their organization were 1) organizational culture and 2) that ERM was still not perceived as a priority by senior management.

Similarly, Young (2001) states that ERM exists in two dimensions that are highly related but separate. First, ERM is a management methodology or function. This is the dimension related to CROs, organizational design, and the operation of risk management functions (reporting relationships, management practices, and technical applications). Second, ERM is a value, which means ERM is a way of thinking about and valuing risk and its relationship to the organizations - which highly depends on the organizational culture. Young further states that the companies are assessing the success of ERM on the first dimension only (mainly the role of CROs) and the second dimension is being neglected. Trieschmann, Gustavson, and Hoyt (2001) propose that the traditional risk management

goal has been to minimize the cost of pure risk to the company. But with ERM, according to Randy Nornes, managing director at Aon Risk Services, “In the new world, risk is neither good or bad. You look at all risks like a portfolio from a central point. It opens up new possibilities” (Green, 2001). As firms broaden the ways that they view and manage risk, the need for new terminology has become apparent. The terms ‘integrated risk management’ and ‘enterprise risk management’ reflect the intent to manage all forms of risk, regardless of type.

DIVERSE ERM DEFINITIONS

We propose that one impediment to integrating ERM into an organization’s culture is the myriad of definitions found in the literature for ERM. Some of the ways ERM has been defined are mentioned below:

- ERM can be defined as integrated handling of credit, financial, market, and operational exposures (Lam, 2001a).
- ERM is a paradigm shift for many companies and its goal is to create, protect, and enhance shareholder value by managing the uncertainties that should either negatively or positively influence achievements of the organization’s objectives (Barton, Shenkir, and Walker, 2001).
- ERM is a ‘holistic’ approach in order to add value to the entire investment process, gather more information on risk and return, use technology to manipulate the information, provide it to the investment professionals, and to ultimately better manage firm wide risk (Martens, 2000) .

- ERM is “systematically and comprehensively identifying critical risks, quantifying their impacts, and implementing integrated risk management strategies to maximize enterprise value” (Zignorski, 2001).
- ERM is “a comprehensive risk management program that addresses an organization’s pure risks, speculative risks, strategic risks, and operational risks” (Rejda, 2001) .
- Enterprise risk management “is a relatively new notion that calls for firms to treat all sources of risk equally and to manage them together on a truly company-wide basis. With an enterprise approach, firms have to undergo a sweeping philosophical change and accept that one unit of risk is the same as any other, no matter where it comes from. All these risks are then gathered into a basket and managed together, creating a portfolio effect, with one risk often offsetting another. This makes the cost of risk less volatile” (Wood, 2000).
- “Enterprise-wide risk management is a structured and disciplined approach: it aligns strategy, processes, people, technology, and knowledge with the purpose of evaluating and managing the uncertainties the enterprise faces as it creates value (Meagher and O’Neil, 2000).

While there are many good thoughts and definitions concerning ERM in the literature, they fail to describe ERM in a simple way using standard terminology. Later in the paper, we combine the best parts of these definitions and propose an ERM definition so that the complex concept is easily understood.

ERM METHODOLOGY & TERMS

In addition to the many definitions and descriptions of ERM, there are also many suggestions on the methodology to carry out the ERM process. However, as with the case of multiple definitions of ERM, there is not one consistent methodology for executing ERM. For example Cassidy, et al (2001) suggest a three step approach. A second approach is suggested by Meagher and O'Neil (2000) called the Arthur Andersen business risk management process; it involves seven steps. A third approach is suggested by Busman and Van Zuiden (1998). He proposes an integrated approach to managing risk comprising three organizational systems: strategic, management, and process. A fourth approach is suggested by Zignorski (2001), managing director of MMC Enterprise Risk. Establishing a standard ERM methodology is left for further research. This is because prior to a standard methodology, a standard terminology may be needed.

As observed in the above literature summary, there is an increasing consideration of ERM by organizations. However, companies and service providers alike have described and defined ERM in various ways and suggested several different methodologies for applying ERM. This adds to the confusion and makes it difficult to pinpoint what ERM is exactly. Before a standard methodology can be adopted students must have standard terms. As risk management evolves into enterprise-wide risk management we believe it is important to have a consistent set of terms describing the variables we intend to manage. However, no specific terminology has been suggested so far for describing speculative risks and also for bridging the pure and speculative risk management disciplines. We suggest that this non-universal nomenclature may have stifled the adoption of ERM. We intend to explore the extent of this in a later survey/study. For now, we propose a nomenclature that can be used universally to define and describe ERM (developing a

standard methodology is also left for further research). Having standard terms may facilitate risk management in academic institutions and permit risk management students to better understand ERM. As these ERM students become CROs, they will be better able to explain the importance of ERM to other senior management officials. In the long term, students who become risk managers will benefit by communicating more efficiently with CEOs, CFOs, and others. Ultimately these benefits will enhance the firm's ability to attain its goal of achieving the desired risk and return at some desired time.

NEED FOR ENTERPRISE RISK MANAGEMENT

The fast changing business environment puts risk management at the strategic center of business. Without risk one really cannot have a business⁵. Is there any such thing as a risk free business? Effectively coordinating and financing all facets of organizational risk is critical to optimize success. Gone are the days when risks could be comfortably compartmentalized into risk silos. In these silos, the risk manager dealt with hazard risks, the treasurer dealt with financial risks, the board dealt with strategic risks, marketing focused on reputational risk, division managers developed controls for operational risks, and human resource departments addressed employment risks. The result of this compartmentalization is that it creates opportunities for inconsistencies and inefficiencies. More diverse or widespread operations have a greater chance of creating conflicting risk policies and new governance risks. These conflicts may result in an inadvertent hedge

⁵ See the Capital Asset Pricing Model, Harry Markowitz and William Sharpe, 1990. A model that proposes a stock's required rate of return is equal to the risk-free rate of return plus a risk premium that reflects the business risk remaining after diversification.

which diminishes the desired level of speculative risks. Thus, the firm may fail to meet its overall strategic level of desired risk and return at the desired time.

ERM is being considered by more organizations as they recognize that embedding a consistent culture of risk management throughout the enterprise can improve its ability to change rapidly as well as to manage more effectively its overall risk management strategies. Factors that have motivated organizations to react and adapt more rapidly include: increased customer demands, a global market place, continuous and accelerating technological advances, changes in the regulatory environment, merger integration problems, competitive disadvantage and litigation caused by product failure, business interruption, credit loss, emerging competition in the market and political problems (Busman and Van Zuiden, 1998).

ERM is an improved approach to risk management and can facilitate the ability of companies to more successfully adapt to change. Several authors recognize the benefits of ERM. Busman and Van Zuiden (1998) suggests it has the following characteristics:

- ***Positive and proactive:*** It openly acknowledges risk and encourages a positive risk management culture, focused on opportunity, mindful of uncertainty.
- ***Value-based and broadly-focused:*** It focuses on measuring the value of upside and downside exposures relating to all assets and value drivers – tangible and intangible – and on assessing the sources of uncertainty that affect them.
- ***Embedded in a process:*** It systematically considers risk within day-to-day operational activities and is an integral part of the enterprise mindset, providing an early warning system for poorly managed risk; it also provides a standard to monitor successfully managed risks.

- ***Integrated into strategy:*** It sits at the heart of strategic business and operations planning, operational processes and information systems, making for swifter, more informed decision making. Integration on an enterprise-wide basis means seeing the big picture, dealing with risks as a portfolio, not individually.
- ***Continuous:*** It adapts to changes in the business environment and is always ready to respond to new challenges, risks, and opportunities.

Barton, Shenkir, and Walker (2001) reveal three reasons that are driving companies to adopt ERM: First, a desire to manage risks strategically and avoid catastrophes; second, the need to increase shareholder value; and third, a belief by many executives that risks are greater than ever before. In fact, even being a chief executive is risky. Barton further reports that in the month of October, 2000, 129 U.S. chief executives left their companies. Executives know the risks are there, but they are not sure what to do to manage them. Hence, many executives welcome ERM.

Lam (2001b) suggests additional benefits of ERM, “there are many success stories that demonstrate the tangible benefits a company can achieve through enterprise risk management.” He suggests that ERM will also produce intangible benefits. The tangible or quantifiable benefits of ERM include:

- 1) Reduced losses and earnings volatility,
- 2) Lower costs of risk transfer programs, and
- 3) Improved return on equity and shareholder value.

Some of the intangible benefits suggested by Lam include:

- 1) A stronger risk culture - by establishing a more independent and powerful risk function,

- 2) A higher risk awareness among all employees - resulting from communication and educational programs,
- 3) A more effective and integrated organizational structure - that breaks down the traditional risk silos,
- 4) A clearer risk acceptance criteria - that enables the taking of greater and more intelligent business risks,
- 5) An improved risk transparency - through risk reporting and communication, and
- 6) Fewer surprises - given early risk identification and resolution.

Based on the above discussion, we can infer that there exists today a view that organizations would be well served if the management of risk was conducted on an enterprise- wide basis.

DEFINITION AND TERMS USED FOR ENTERPRISE RISK MANAGEMENT

The nomenclature for this idea is still a matter of some contention . Each term claims some support from various groups. However each group is working in isolation. As we have shown, there is neither a standard definition to ERM nor a standard terminology for discussing the ERM approach. Thus, given the various benefits of ERM and the apparent demand for ERM, important research is being done in the new field of ERM. To promote this work, the authors advance the following definitions and terminology for ERM. The definitions are basic and simple. It is the authors' hopes that this will promote the understanding and adoption of ERM.

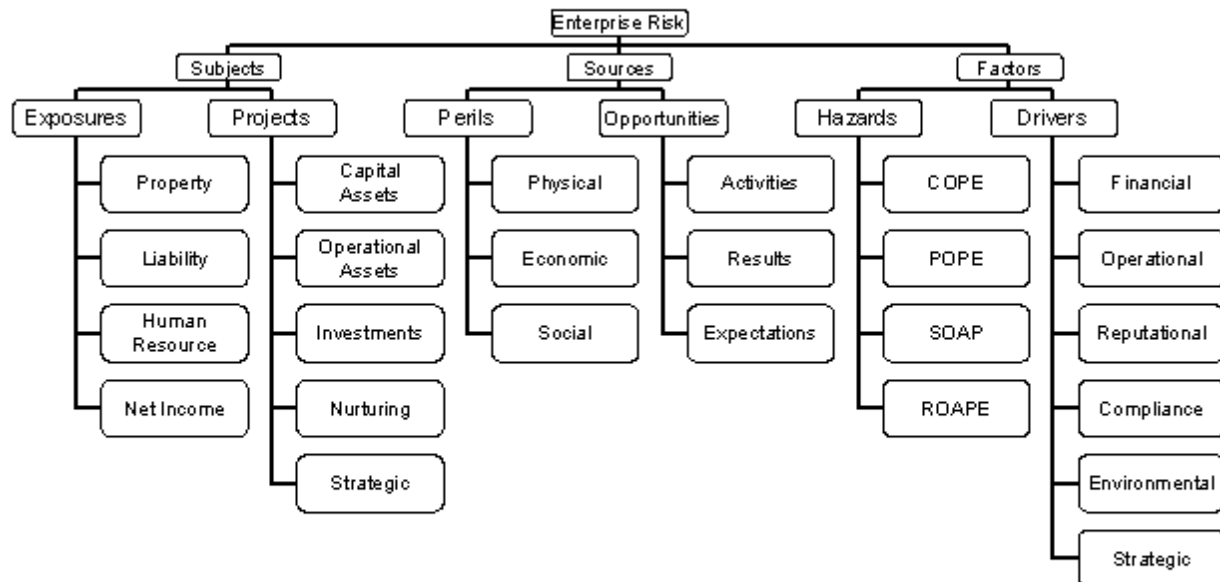
Definition Of Enterprise Risk Management (ERM):

Enterprise risk management (ERM) is the combined management of all risks: both pure and speculative. Managing pure risk will help an organization to minimize or avoid

loss-producing events and managing speculative risks creates opportunities for the organization to achieve gains.

Proposed Terminology For ERM:

Exhibit 1: *Components of Enterprise Risks* shows the terminology proposed to explain the ERM approach to bridging pure risk and speculative risk management. Where possible the terms are named and grouped in categories that enables the creation of learning enhancing acronyms.



Acronyms:

COPE (Property): Construction, Occupancy, Protection, Environment

POPE (Liability): Premises, Operations, Products, Everything else

SOAP (HR): Specialized skills, Organizational Chart, Available Labor, Personal demographics

ROAPE (NI): Repair/Restore time, Occupation/class, Available assets, Payment timing, Economy

Exhibit 1: Components of Enterprise Risks

SUBJECTS: Loss exposures (pure risks) and investment projects (speculative risks).

Exposures: In teaching pure risk management the term **exposures** is used to describe people, places, or things (nouns) that are subject to losses (see for example, Vaughan & Vaughan, 2003). A building, for example, is a *place* which may have a decrease in value because of a fire. The emphasis in pure risk management is to identify exposures (a pure risk subject) which could have a reduction in value. Pure risk exposures can be grouped into four categories: **property**, **liability**, **human resource**, and **net income** exposures (Williams and Heins, 1989). Some authors consider net income exposures to be a subset of property exposures. The authors submit that property, liability, and human resource

losses may also result in consequential losses, but the occurrence of a direct loss is not a requisite event for a net income loss. For example, 9/11 caused many businesses in Manhattan to close down for six months; but they did not suffer a property, liability, nor human resource direct loss.

Projects: In contrast, in speculative risk management we typically use the term *investment projects* to describe subjects which have the possibility of a loss or gain in value. For example, a financial manager will describe a building as an investment, which, because of operations may either lose value or gain value. In capital budgeting, projects are sometimes grouped by the time horizon, or expected life, of the investment. Each project is analyzed, often using a Net Present Value (NPV) analysis, based in part upon the expected life of the investment. Such investments may produce a positive or a negative NPV. In the case of negative NPV, the investment is actually a speculative loss exposure. It is evident that there is overlap between investments and exposures. Therefore, the authors propose that students of ERM adopt the term ***projects*** to describe speculative risk subjects. That is, ERM students identify *projects* that may have a change in value (up or down). The student will then examine procedures to create the desired change in value. A *project* is a person, place, or thing that is subject to a positive (or negative) change in value.

Projects can be divided into four categories: **Capital Assets**, **Operating Assets**, **Investments**, **Nurtured Assets**, and **Strategic assets**. The acronym COINS assists the student in recalling the speculative project categories. *Capital Asset* projects are sometimes called “real assets” and include financial investments that are depreciable. Examples include buildings and machinery. *Operating asset* projects include expenditures for all other property such as inventory, patents, and working capital. *Investments* (sometimes called

financial assets) include fixed income securities, equity, and derivative products. *Nurturing* projects are efforts to develop the firm's human resources. Examples include training projects and employee benefits. *Strategic* assets are long term projects that create long-term returns such as capital gains from issuing bonds.

SOURCES: perils (pure risks) and opportunities (speculative risks).

Perils: In pure risk management the term **perils** is used to describe the causes of loss (see for example, Pritchett et al, 1996). A fall, for example, may be the cause of a human resource (employee) injury. The employer will, at a minimum, pay the cost of medical expenses, but may also incur consequential costs of lost time and production due to the employee being off the job. Pure risk *perils* are sometimes grouped into categories. Typical categories are **physical** (natural), **economic**, and **social** (man-made) (Williams and Heins, 1989). A hurricane is an example of a physical peril. A recession is an example of an economic peril. Arson is an example of a social peril. The process of grouping pure risk *perils* sometimes helps the risk management student better understand and treat the *perils*.

Opportunities: But what shall we call sources of gain? No single word appears to be currently in popular use. So, the authors propose the term **opportunities** to describe the sources of gain. Just as we group perils into categories to better manage pure risks, we also separate *opportunities* into three groups: **Activities**, **Results**, and **Expectations** (ARE). The useful acronym ARE will help the ERM students remember what the opportunities ARE.

Activities are opportunities that cause the value of a project to increase. For example, good planning and goal setting may be the cause of the increase in firm's value.

Likewise, research and development, and sub-sequential innovations, may be the cause of increased consumer demand, and eventual profit. A third example is a firm investing in safety training. This may cause an increase in employee morale, production, and profit.

Results are opportunities that may cause a gain in value. Examples include announcements (positive signals to the marketplace), financial statement releases (which may cause the stock price to rise), product development (which may signal future demand), and acquisitions or mergers (which may suggest a competitive advantage).

Expectations are opportunities that may also cause a gain in value. Expectations usually are forecasts of future performance. Examples include next year's expected stock price (P_1), next year's expected dividend (d_1), and next year's expected market share. Other expectations likewise may cause a gain in the value of the firm.

We can now say the enterprise risk manager is faced with *perils* and *opportunities* - sources of loss and gain. This distinction enables the risk manager to better understand and manage the origins of the change in *subject (exposure or project)* value.

FACTORS: Hazards (pure risks) and Drivers (speculative risks).

Hazards: In pure risk management we describe those events or conditions which increase the probability of loss and/or increase the severity of loss as ***hazards*** (Williams et al, 1998). A *hazard* is a condition or circumstance that makes a loss more likely or more severe (Head and Horn, 1997). Like *exposures* and *perils*, teachers of risk management have divided *hazards* into groups so that the hazards might better understood and managed. One taxonomy for grouping *hazards* is to separate the *hazards* based on the hazard's source. A series of student friendly acronyms makes the hazard groups easy to remember: COPE, POPE, SOAP, and ROAPE. The letters stand for the following conditions:

For property exposures: **COPE**: *Construction, Occupancy, Protection, and Environment*;

For liability exposures: **POPE**: *Premises, Operations, Products, and Everything else*;

For human resources: **SOAP**: *Specialized skill, Organizational Chart, Available labor, and Physical demographics*; and

For net income: **ROAPE**: *Repair/restore time, Occupation/class, Available assets, Payment timing, and Economy*.

Each of these *hazards*, may increase the probability and/or severity of a loss. For example, the type of *construction* (e.g., frame) may increase the severity of property loss. The type of *product* manufactured (e.g., baby toys) may increase the probability of a product liability suit. The chosen *organizational structure* (e.g., one manager in charge of several divisions) may increase the severity of a human resource loss. Finally, the general *economic* condition (e.g., hyperinflation) may increase the severity of a net income loss. Each of these conditions or events is a *hazard*, which may make more likely or intensify the loss.

Drivers: Once again, there does not appear to be a popular speculative risk term coined to describe conditions or events which increase the probability and/or the value of a gain.

We propose to adopt the term used by some authors (e.g., Williams, 2001) who propose the term ***drivers*** to describe these factors. *Drivers* enhance the likelihood of the gain or *drivers* may intensify the NPV of the investment project. The authors propose the following taxonomy of drivers. Once again, an acronym, FORCES, assists the student in remembering the drivers. The letters stand for the following *drivers*: **Financial, Operational, Reputational, Compliance, Environmental, and Strategic**. Examples of each *driver* serve to clarify the groupings. *Financial drivers* include capital structuring (leverage) decisions. Increasing leverage may cause an increase in financial gain. Other

financial *drivers* include capital budgeting decisions and working capital management decision. *Operational drivers* include production decisions or Just-In-Time inventory management. *Reputational drivers* include advertising policies, warranties, and service policies. *Compliance drivers* include legal decisions (e.g., OSHA compliance), peer group compliance, and other social group compliance decisions. *Environmental drivers* include facility location, delivery routing (logistics), and marketing location decisions. Finally, *strategic drivers* include decisions regarding market share, ownership structure, joint ventures, and competition. Decisions in each of these factors (which we call *speculative drivers*) intensifies the probability and/or value of the gain.

With this proposed terminology for enterprise risks, the ERM approach can be explained more effectively and the student of enterprise risk management will be positioned to perform their ERM functions more efficiently.

CONCLUSION

The goal of traditional risk management has been to minimize the cost of pure risk to the company. But as firms broaden the ways that they view and manage many different types of risk, the need for new vocabulary has become apparent. ERM reflects the intent to manage all forms of risk: pure and speculative. It is a dynamic model that can keep up with the changing nature of risk, effectively contain risk's downside, and take advantage of risk's opportunities. Many companies have recognized the importance of ERM, however the description, definition, and vocabulary for ERM have not been standardized. Thus, the non-universal nomenclature and process may have stifled the adoption and success of ERM. The authors propose a standard nomenclature for enterprise risks that may be used

universally by academic institutions. The risk management students of these academic institutions will enhance their skills and be better able to face challenges when they become risk managers or CROs. Colquit, Hoyt, and Lee (1999) have rightly mentioned that risk management educators must expand the content of their courses and curricula to provide the wider range of skills needed by enterprise risk managers.

The authors suggest that a standardized ERM vocabulary may be the key to the success for future risk managers. Students of risk management who adopt this new language of risk will be better able to create support for the company's vision and strategy, improve cooperation within the company, improve decision making, have a greater likelihood of success in meeting objectives, and reduce the cost of risk. This may optimize the value of their company, which, in essence, is the goal of ERM.

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A Risk Pooling Demonstration for Beginning Risk and Insurance Students

Peter M. Ellis, Ph.D.⁶

Abstract

These three computer program modules develop a sequence of Monte Carlo simulations of loss experience for beginning risk and insurance students. The modules avoid any introduction of challenging and theoretical loss distributions such as the binomial, Poisson or compound Poisson. Instead, losses are established as the outcome of rolling a die. Students can thereby more easily envision actual losses from each member of such a risk group, and they can also easily comprehend the average loss per group member. First, individual losses are obtained for a risk pool having 15 members. Students next observe total losses and average losses for a group size that they specify. This permits observing that larger group sizes produce a more stable total or average loss pattern. Finally, the simulation is run to obtain average losses for a group of 1000 members, and this is repeated 1000 times to show that average losses quite reliably conform to the normal probability distribution, as is expected from the Central Limit Theorem.

INTRODUCTION

There are many new concepts that face beginning risk and insurance students. The course has unusual challenges for students because it embraces a great number of issues that span human experience. Students are asked to evaluate risk propensity, legal equity, societal needs, contract provisions, negligent and fraudulent conduct, insurability, risk classes and probability and statistical theory all in one introductory course. This work aims at just one of these concerns, the need for the establishment of an adequate premium level to cover expected losses. A homogeneous risk group is to be formed for the purpose of providing loss protection for all group members. The individual premium amount needs to

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be sufficient to cover the loss experience of the group.

The actual determination of a satisfactory premium level for a risk group is a complex statistical problem. Loss distributions can incorporate difficult formulas involving the binomial, Poisson, gamma and normal probability distributions, as well as other even more abstract distributions. Random walk theory is used to describe remaining loss reserves. Leading beginning students through this will frustrate most of them and also leave them with negative feelings about the entire subject matter of risk and insurance. Even so, students do need to understand that risk pooling creates reserves that are available to cover losses within the group.

The approach taken here creates a simple hypothetical homogeneous risk group where in the established time period each group member might have a loss of 0, 1, 2, 3, 4 or 5, all with equal probability. These loss amounts are set by rolling a die. The loss amount will be one less than the amount showing on the face of the die. This demonstration is easy for students to understand, whereas trying to show a loss pattern with theoretical or even empirical loss distributions will almost surely be incomprehensible to many students.

Monte Carlo simulation is used to generate individual loss amounts for each group member. These individual losses are totaled and then averaged so that students can see that a pure premium equal to the average loss must be assessed to each group member. In this simple portrayal there is no beginning loss reserve, so all losses must be covered only through premium assessment. The risk group is taken to be homogeneous with equal loss probabilities for each member.

Three Monte Carlo simulation computer program modules are used sequentially here to fully develop the portrayal. The first one creates a small risk group to show the pure premium needed to protect the group from the total loss experience. Monte Carlo simulation is used to generate the individual loss amounts. The second module allows the user to specify the group size and then carries out the Monte Carlo simulation to generate total and average losses for the group. This permits the user to see that average loss per group member tends to not vary much away from the expected value of \$2.50 as the group size becomes larger. The third module uses the Monte Carlo simulation to generate average losses for a large group, then repeats this a large number of times to show with a histogram that the expected loss tends toward following the normal probability distribution. This is really nothing more than a validation of the Central Limit Theorem applied to risk and insurance.

The demonstrations included here are necessarily simplified because they intend to provide beginning students with an understanding of the broad and general principles of risk pricing. The first such principle is that the premium level must be sufficient to cover the expected loss. Further, rates should not be excessive. Therefore, it is often necessary to base the premium upon some statistical principles. Losses need to be related to a probability distribution. This process is usually quite difficult, sometimes involving separate probability distributions for the frequency and the severity of loss. The resulting compound probability distribution will have such properties as a mean and variance or standard deviation. These properties can be used to establish premium levels for all group members so that the principles of being both adequate and not excessive can be met. Actual rating

procedures developed in accordance with these principles include class rating and merit rating. Rejda ([5], chapter 27, pp. 546 - 551) illustrates this fundamental rate making process. This is further amplified by Webb, et al. ([6], chapter 10). Harrington and Niehaus ([3], pp. 269 - 271) extend the discussion on frequency and severity of loss with an illustration using the mean and standard deviation of total loss for several kinds of risk exposure in property - casualty insurance. They also develop a total loss distribution with a Monte Carlo simulation ([3], pp. 283 - 289) that incorporates Poisson loss frequency and lognormal loss severity. Because of the complexity of the undertaking they avoid any presentation of these two probability distribution formulas. Introductory readers will not understand the mechanism by which simulated total losses are thereby generated. Their portrayal uses the mean plus some designated number of standard deviations of the total loss probability distribution to establish the desired limit of covered losses.

THE FIRST MONTE CARLO SIMULATION MODULE

The computer program presented here is called POOL. It written in QuickBasic and is listed in the appendix. It allows the user to choose any of three included modules. The first one of these creates a risk group with 15 members. In the established fixed time period each group member might sustain a loss of 0, 1, 2, 3, 4 or 5 (\$units). These amounts are equally probable. The students can think of this as being set randomly by rolling a die and subtracting 1 from the face value showing. The computer program actually sets the integer values from 0 to 5 using the uniform probability distribution. Loss amounts for each pool member are displayed, then the computer program calculates the total loss and the average loss per group member. As the user runs the simulation several times it will be

observed that average losses are not very consistent. When the actual losses are equally likely to be an integer amount between 0 and 5 the average loss is easily seen to be \$2.50. It would not be surprising to have simulated average losses vary by as much as \$.20 or more away from the expected \$2.50 amount. This portrays a real hazard of risk pooling. Group experience becomes more consistent and more reliable only as the group size becomes larger.

MONTE CARLO SIMULATION IN THE SECOND PROGRAM MODULE

The second module is designed to illustrate the important concept that average loss per group member becomes more predictable as the number of members in the group increases. It is still assumed that there is a fixed time period over which losses might be experienced, the group is homogeneous, has no preexisting reserves and individual loss amounts are uniformly distributed as integer amounts of 0, 1, 2, 3, 4 or 5. The student user will be asked to input a desired group size as an integer number between 2 and 10,000. The module Monte Carlo simulation will generate individual loss amounts for each group member, as well as the group average loss and standard deviation of individual losses. With the standard formula for the mean of a probability distribution it is seen that the mean of this loss distribution is \$2.50 per group member. As the module is run with different specified group sizes the average loss per group member will likely be close to \$2.50. The standard deviation of individual losses should be approximately equal to the theoretically derived standard deviation for the uniform probability distribution, which is \$1.7078. The standard deviation should be somewhat close to this theoretical value regardless of the group size. The standard deviation is roughly an average amount by which individual losses

might differ from the expected \$2.50 amount. This average difference per observation will not change with the sample or group size.

The average individual loss is expected to approach the theoretical \$2.50 average as the number of members in the group increases. This is explained with the sample standard error. The standard deviation of individual losses is identified with the Greek symbol σ . In our scenario we have $\sigma = 1.7078$. The standard error is the standard deviation of the average of the individual sample observations. If average losses are obtained from an entire set of different samples, then the standard deviation of these average losses will be given as σ / \sqrt{n} , and is called the standard error. This obviously becomes smaller as n increases. That fact is very important for risk groups. It means that the collective group loss experience will have an individual average loss that is very close to the theoretical expected individual loss as the group size becomes large.

The user is asked in module 2 to input a desired group size. When the program output is obtained it should be noted that the standard error of average losses does indeed become smaller as larger group sizes are designated. This will happen even though the standard deviation of individual losses will remain approximately equal to \$1.70.

THE THIRD MODULE

The third module illustrates the application of the central limit theorem to insurance groups. The central limit theorem states that for a sample of n data values arising from a

theoretical probability distribution with mean μ and standard deviation σ the sample mean will tend to conform to the normal probability distribution with mean μ and standard deviation σ / \sqrt{n} as the sample size n approaches infinity. This can be helpful in the risk pooling setting because the original probability distribution of dollar loss amounts can be very complex. Total losses for a group might very well have a probability distribution that is skewed to the right, indicating the presence of a large probability of very large losses.

For a group with n members, let the loss experience of group member i be denoted as x_i . When possible losses for any member i are uniformly distributed over the integers from 0 to 5, then the total losses for the group are given as $\sum x_i$. Then the average loss per group member is $= (\sum x_i)/n$. The central limit theorem states that as n becomes large, this average loss will tend toward following the normal probability distribution, even though the individual losses are uniformly distributed. This approach avoids having to obtain the expected total group loss probability distribution and then transform total loss to individual loss.

The module retains the previous assumptions. There is no initial loss fund available. The group is homogeneous and individual loss amounts over the fixed time period are uniformly distributed with possible values 0, 1, 2, 3, 4 and 5. The Monte Carlo simulation will create 1000 risk groups, and each group will consist of 1000 members. Individual losses will be generated for each member of a group and the average loss per member for the entire group will be calculated. This will be repeated for each of the 1000 groups. The

1000 average losses will be grouped into a histogram. It is expected that the histogram

will approximately conform to the familiar bell shape of the normal probability distribution. The grand mean of the 1000 group means should be very close to the theoretically correct value of \$2.50. The standard deviation of the 1000 means should be close to the theoretically correct value of $\frac{1.7078}{\sqrt{1000}} = .054$.

The premium needed to cover expected losses is called the pure premium. The total premium consists of the premium assessment to cover expected or average losses, plus an additional risk or safety premium loading to cover the possibility that losses might be larger than average and also an additional expense loading that is intended to cover operating expenses and profit. An individual pure premium assessment of \$2.50 may or may not be sufficient to cover losses because average losses might turn out to be larger than \$2.50, in conformance with the normal probability distribution. The risk group will need to agree upon a maximally acceptable probability level that the actual average loss exceed a given level. This probability must be small enough to be mutually acceptable throughout the group. The probability that the pure premium, consisting of the expected loss plus the additional risk loading will then be adequate to cover losses is $1 - \alpha$.

This approach to premium establishment is quite traditional. Beard, et al. ([2], pp. 138 - 139) established the surplus from operations as $(1 + \alpha)P - L$, where P is total premium collections needed to cover expected losses, L is actual total losses and α is the safety loading. The safety loading is the extra premium volume needed to reduce the probability of having inadequate premium volume to less than α . An equivalent presentation is given in Hossack, et al. ([4], pp. 246). Also, Buhlmann ([1], pp. 88 - 89) shows the required

premium volume as $P(x) = E(x) + z \cdot \sigma$. This is the method used in the simulation of module 3. The parameter z is the number of standard deviations to add, and σ is the standard deviation of group losses. $E(x)$ is the expected loss amount. The risk premium is thereby $z \cdot \sigma$. This premium establishment method is called the standard deviation principle.

Since average individual losses follow the normal probability distribution, the total pure premium is easily obtained with the z - statistic of the normal probability distribution. This is $z = (x - \mu) / (\sigma / \sqrt{n})$, where μ is the expected individual loss and σ is the actual average loss, or the individual premium level needed to cover all group losses. The normal probability table is used to convert a z value into an x - value.

As an example, assume that the group in this scenario mutually agrees that it is willing to accept a 1% probability of not being able to cover all losses from available premiums. The normal table shows that the associated z - value is 2.33. Then, $2.33 = (x - 2.50) / (.054)$. The equation is solved for to obtain $x = 2.50 + (2.33 \cdot .054) = \2.6258 . Of this total the \$2.50 is the premium needed to cover average or expected losses and the additional \$0.1258 is the risk loading that is needed to provide a 99% probability that losses will be covered from the available premium collections. Module 3 presents the needed pure premium amount necessary to provide a 1 - α probability level that premium collections will adequately cover losses for several α values.

RUNNING THE POOL COMPUTER PROGRAM

The user must create a file on some chosen drive in the computer. Load the computer program and QuickBasic into the file. The file is opened and the QB icon is clicked. When QB is opened, the user clicks File - Open - POOL - ok. The program then runs when the user pushes the F5 key. When the session is finished the user clicks File - Exit.

CONCLUSION

This work presents a computer program consisting of three modules. These are designed to illustrate to beginning risk and insurance students that a risk group faces losses that must be covered by adequate individual premium assessments. The first module is used to show that total or average losses per risk pool member are quite variable for a small risk group consisting of just 15 members. The second module shows that average losses are likely to be close to the theoretically expected individual loss as the group size becomes large. The third module shows that the central limit theorem is conveniently applicable to a risk group. This makes premium calculation for a large risk group easy to do because the well - known normal probability distribution can be applied to total or average individual losses, especially if the theoretically correct probability distribution of losses is otherwise computationally intractable.

The POOL simulation is designed to be understandable to beginning risk and insurance students through portraying individual losses as the outcome of throwing a die and subtracting 1 from the outcome, which leaves an individual loss over the fixed time period as 0, 1, 2, 3, 4 or 5 dollars, uniformly distributed. The individual expected loss is then \$2.50 and the standard deviation is \$1.7078. Monte Carlo simulation is used to create

individual losses for each group member. As students run the simulation modules several times they will be able to observe that individual average losses are quite variable when the group size is small, but when group sizes get larger the individual expected loss is nearly always quite close to \$2.50. Finally, the computer program shows that average losses for the group closely conform to the normal probability distribution when the group size gets very large. This permits using the normal probability distribution in the calculation of pure loss premium.

Interested readers are invited to contact the author to obtain a free copy of the computer program.

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5. Rejda, G., Principles of Risk Management and Insurance, 8th ed., Addison-Wesley, Boston, 2003.
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APPENDIX

A listing of the POOL QuickBasic Computer Program is available from the author upon request.

Book Reviews

There may be books with which you are familiar that would be very beneficial to your peers in developing and enhancing their teaching skills. The books need not be specific to the risk management and insurance discipline; instead, the books may be general or related to some other study. However, they may contain techniques that we all could use. If you are aware of some and would like to write a brief review please contact the editor.

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