



**The Actuarial Profession**  
making financial sense of the  
future

# **Reading List**

## **Risk management**

Faculty of Actuaries

Institute of Actuaries

June 2008

## FACULTY OF ACTUARIES

## INSTITUTE OF ACTUARIES

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OXFORD OX1 2AW

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The Faculty Library  
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Sally Grover / Fo Krabben

David Raymont

Peigi MacKillop

e-mail: [libraries@actuaries.org.uk](mailto:libraries@actuaries.org.uk)

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### THE NORWICH LIBRARY AND THE ROSS LIBRARY

The libraries contain a comprehensive collection of books, papers and periodicals relating to the actuarial profession today, together with a selection of material on insurance (life and non-life), pensions, investment, economics, mathematics and statistical methods. A database of all publications in stock is available at all sites.

*The Libraries reserve the right to restrict the availability of any service to members of the Faculty and Institute of Actuaries only.*

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The Libraries are open to all members of the Faculty and Institute. Opening hours are 9.00am to 5.00pm Monday to Friday. Access for non-members is by arrangement with the appropriate library staff. Please telephone in advance of visiting.

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Most publications may be borrowed by members only. Books can be posted to members, and returned to any site. If a particular item is not in stock, it can usually be obtained from elsewhere.

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The library staff are always happy to handle enquiries, and if unable to help can usually refer you to someone who can. Customised lists of references can be prepared from the computer database, while you wait or by return of post.

## **READING LISTS**

Reading lists on individual subjects contain details of books and papers published within the last 3-5 years and available from the Libraries. They are also available for downloading from the profession's web site: [www.actuaries.org.uk](http://www.actuaries.org.uk)

## **THE HISTORICAL COLLECTION**

The Institute's collection of historical material is housed at Staple Inn. This collection comprises all books published before 1870, those of historical interest published 1870 - 1959 and historical studies published subsequently. It also includes full sets of the *Journal of the Institute of Actuaries*, *Journal of the Staple Inn Actuarial Society*, *Transactions of the Faculty of Actuaries*, *Transactions of the International Congress of Actuaries*, the journals of many overseas actuarial bodies, copies of tuition material and a reference collection. Opening hours are 9.00am to 5.00pm. *Prospective visitors are advised to telephone in advance.*

Enterprise risk management. Seminar, 3 July 2006. 2007.

Shelved at: Online only (Institute); Online only (Faculty) [RKN: 37908]

Contents include:

A US perspective on Enterprise Risk Management, by Godfrey Perrott and Marc Slutzky

Enterprise risk management, by Rob Jones

Risk geographies. Understanding risk in n-dimensions, by Richard Baddon and Paul Coulthard

ERM - doing it for real, by Colin Forrest

RAMP - Analysis and Management for Projects, by Chris Lewin

Making strategic risk management work, by Neil Allan and Neil Cattle

Tying it all together, by Stuart Robinson

Available for downloading from:

[http://www.actuaries.org.uk/knowledge\\_services/publications\\_archive/conferences/ERM\\_2006](http://www.actuaries.org.uk/knowledge_services/publications_archive/conferences/ERM_2006)

ACHARYYA, MADHUSUDAN

The fundamentals of designing an integrated model of financial risk and operational risk within an Enterprise Risk Management framework; findings of an empirical study. - CAS ERM Symposium 2007. - CAS, 2007.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38236]

Abstract: The objective of this article is to identify and explore the fundamental issues necessary to design an integrated model of financial risk (hereinafter referred as "FR") and OR (hereinafter referred as OR") within the framework of Enterprise Risk Management (hereinafter referred as "ERM") for the insurance industry. The objective was achieved by conducting an exploratory study on four major European insurers in connection with their ERM practice. The result suggests that quantification of OR is itself complex and the aim to integrate OR with FR for diversification purpose is theoretically problematic given their nature in the insurance business. However, a balance between the quantitative and qualitative approaches towards the management OR could best serve the purpose.

Keywords: Enterprise Risk Management; Strategic Risk Management; Operational Risk

Management; Financial Risk Management; Risk Culture; Regulations; Interdisciplinary.

Available for downloading from:

<http://www.ermssymposium.org/2007/pdf/papers/Acharyya.pdf>

BEASLEY, MARK; PAGACH, DON; WARR, RICHARD

Information Conveyed in Hiring Announcements of Senior Executives Overseeing Enterprise-Wide Risk Management Processes. - CAS ERM symposium, 2007. - CAS, 2007.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38237]

Abstract: Enterprise risk management (ERM) is the process of analyzing the portfolio of risks facing the enterprise to ensure that the combined effect of such risks is within an acceptable tolerance. While ERM adoption is on the rise, little academic research exists about the costs and benefits of ERM. Proponents of ERM claim that ERM is designed to enhance shareholder value; however, portfolio theory suggests that costly ERM implementation would be unwelcome by shareholders who can use less costly diversification to eliminate idiosyncratic risk. This study examines equity market reactions to announcements of appointments of senior executive officers overseeing the enterprise's risk management processes. Based on a sample of 120 announcements from 1992-2003, we find that the univariate average two-day market response is not significant, suggesting that a broad definitive statement about the benefit or cost of implementing ERM is not possible.

However, our multivariate analysis reveals that market responses to such

appointments are significantly positively associated with a firm's size and prior earnings volatility, and negatively associated with the amount of cash on hand relative to liabilities and leverage on the balance sheet. These results are confined to non-financial firms, possibly be due to the regulatory requirements for enterprise risk management that already exist for financial firms. We conclude that the costs and benefits of ERM are firm-specific.

Subject Areas: Enterprise risk management, chief risk officers (CROs), value creation

Available for downloading from:

<http://www.ermssymposium.org/2007/pdf/papers/Pagach.pdf>

**BODOFF, NEIL M**

Capital Allocation by Percentile Layer. - CAS ERM Symposium, 2007. 2007.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38238]

**Abstract:** Motivation. Capital allocation can have substantial ramifications upon measuring risk adjusted profitability as well as setting risk loads for pricing. Current allocation methods that emphasize the tail allocate too much capital to extreme events; "capital consumption" methods, which incorporate relative likelihood, tend to allocate insufficient capital to highly unlikely yet extremely severe losses.

**Method.** In this paper I develop a new formulation of the meaning of holding capital equal to the Value at Risk. The new formulation views the total capital of the firm as the sum of many percentile layers of capital. Thus capital allocation varies continuously by layer and the capital allocated to any particular loss scenario is the sum of allocated capital across many percentile layers.

**Results.** Capital Allocation by Percentile Layer produces capital allocations that differ significantly from other common methods such as VaR, TVaR, and coTVaR.

**Conclusions.** Capital Allocation by Percentile Layer has important advantages over existing methods. It highlights a new formulation of Value at Risk and other capital standards, recognizes the capital usage of losses that do not extend into the tail, and captures the disproportionate capital usage of severe losses.

**Keywords.** Capital Allocation; Percentile Layer of Capital; Value at Risk; Enterprise Risk Management; Risk Load; Risk Adjusted Profitability

Available for downloading from:

<http://www.ermssymposium.org/2007/pdf/papers/Bodoff.pdf>

**BOHN, CHRISTOPHER; KEMP, BRIAN**

Enterprise Risk Management Quantification - An Opportunity. - Casualty Actuarial Society,

Shelved at: online only (Institute); online only (Faculty) [RKN: 38224]

Available for downloading from:

<http://www.ermssymposium.org/2006/pdf/papers/Bohn%20paper.pdf>

**BOWSER, MARCUS; MACDONALD, JON**

The alchemy of risk.

Shelved at: Per: Actuary (Oxf); Per: Actuary (Lon) (Institute); [RKN: 38386]

The Actuary (2008) July: 30-31.

**Abstract:** Article on how insurers can manage risk effectively and use it to generate profit

Available for downloading from: <http://www.the-actuary.org.uk>

CAS ADVISORY COMMITTEE ON ENTERPRISE RISK MANAGEMENT  
Final report of the Advisory Committee on Enterprise Risk Management.  
Shelved at: Per: CAS Forum (Oxf) (Institute); [RKN: 33294]  
Casualty Actuarial Society Forum (2002) Winter: 153-250.

Available for downloading from: <http://www.casact.org/pubs/forum/>

CAS ENTERPRISE RISK MANAGEMENT COMMITTEE  
Overview of enterprise risk management.  
Shelved at: Per: CAS Forum (Oxf) (Institute); [RKN: 33281]  
Casualty Actuarial Society Forum (2003) Summer: 99-163.

Abstract: This document is intended primarily to further the risk management education of candidates for membership in the Casualty Actuarial Society (CAS). Current members of the CAS as well as other risk management professionals should also find this material of interest.

Photocopy cost: £6.60

Available for downloading from: <http://www.casact.org/pubs/forum/>

CHAPMAN, ROBERT J  
Simple Tools and Techniques for Enterprise Risk Management. - John Wiley & Sons Ltd, 2006. - 466 pages.  
Shelved at: EENA/UHG (Oxf) (Institute); [RKN: 38227]

Abstract: This book provides a readily understood description of the risk management process. It places this evolving methodology in context, by describing developments in both corporate governance and successive government sector publications. The book clearly recognises the importance of risk identification by describing the sources of risk, which are explored in detail. To provide easy navigation of the subjects covered, the book is divided into five parts.

Part 1 describes the catalysts for and developments in corporate governance

Part 2 examines the procurement of risk management services by a client together with the steps a consultant engages in

Part 3 describes the risk management process being composed of six stages. The inputs, outputs, constraints and enablers of each stage are described to aid implementation

Part 4 describes what are termed management applications, those sources of risk that to a large extent are under the control of any individual businesses

Part 5 describes the external influences on a business which present sources of risk which in the main are beyond the control of any one business.

CHRISTODOULAKIS, GEORGE (ED); SATCHELL, STEPHEN E (ED)  
The analytics of risk model validation. - Elsevier, 2008. - 201 pages.  
Shelved at: 519.2 CHR (Faculty) [RKN: 69115]

Contents include: About the editors - vii

About the contributors - ix

Preface - xiii

1. Determinants of small business default - 1

2. Validation of stress testing models - 13

3. The validity of credit risk model validation models - 27

4. A moments-based procedure for evaluating risk forecasting models - 45

5. Measuring concentration risk in credit portfolios - 59

6. A simple method for regulators to cross-check operational risk loss models for banks - 79

7. Of the credibility of mapping and benchmarking credit risk estimates for internal rating systems - 91

- 8. Analytic models of the ROC curve: applications to credit rating model validation - 113
- 9. The validation of the equity portfolio risk models - 135
- 10. Dynamic risk analysis and risk model evaluation - 149
- 11. Validation of internal rating systems and PD estimates - 169
- Index - 197

**COSO (THE COMMITTEE OF SPONSORING ORGANISATIONS OF THE TREADWAY COMMISSION)**

Enterprise Risk Management - Integrated Framework, Application Techniques. - COSO (The Committee of Sponsoring Organisations of the Treadway Commission), 2004.

Shelved at: [RKN: 38228]

**COSO (THE COMMITTEE OF SPONSORING ORGANISATIONS OF THE TREADWAY COMMISSION)**

Enterprise Risk Management - Integrated Framework, executive summary. - COSO (The Committee of Sponsoring Organisations of the Treadway Commission), 2004.

Shelved at: online only (Institute); [RKN: 38229]

Available for downloading from:

[http://www.coso.org/Publications/ERM/COSO\\_ERM\\_ExecutiveSummary.pdf](http://www.coso.org/Publications/ERM/COSO_ERM_ExecutiveSummary.pdf)

**CROUHY, MICHEL; GALAI, DAN; MARK, ROBERT**

The Essentials of Risk Management. - McGraw-Hill, 2006.

Shelved at: UHG/AZA (Oxf) (Institute); [RKN: 38230]

Abstract: This book is the first book to make even the most sophisticated risk management approaches accessible to both risk and non-risk professionals. You will learn how to:

- increase transparency of your risk management program to satisfy shareholders, employees, regulators and other important constituencies
- keep on top of the continuing evolution of best-practice risk policies and methodologies and associated risk infrastructures
- implement and efficiently communicate an organization-wide Enterprise Risk Management (ERM) approach that encompasses market, credit, liquidity, operational, legal and regulatory, business, strategic and reputation risks
- navigate complex areas including risk policies, risk methodologies, economic capital, regulatory capital, performance measurement, asset-liability management and more
- efficiently allocate limited corporate resources to comply with the new generation of risk regulation and corporate governance regulation.

**FACULTY OF ACTUARIES; INSTITUTE OF ACTUARIES**

Risk - the world conquest business. 5th Annual Younger Members Convention. Seminar, 4-5 December 2006. 2006.

Shelved at: Online only (Institute); Online only (Faculty) [RKN: 37915]

Contents include: The work of the Financial Reporting Council in overseeing the Actuarial Profession, by Paul Seymour

Scheme specific funding and my experience at the Pensions Regulator, by Vassos Vassou

Making sense of ICA, Solvency II and economic capital: building blocks and market developments, by Monet Villet

Gilts + 150bp. The optimal investment portfolio?, by Guy Cameron

Beating a gilt index, by Richard Williams

Will climate change your life?, by Anthony Day

PPF Levy - Current developments, by Sara Protheroe

The Treasurer and the Actuary. Jointly managing a company's risk, by John W Hawkins

A framework for assessing reserve uncertainty, by Eric Pizarro and Ofir Eyal

Stochastics and market consistent valuation, by Anthony Coughlan  
What tools will actuaries need to become risk managers of the future?, by Andrew Smith  
Pensions as a deal breaker, by John Hanratty and Pinsent Masons  
Dragon's promise: the introduction of the Chinese insurance market, by Jing Ping Zhang  
Operational risk - a practical guide, by Marcus Bowser  
Portable alpha: potent or pointless?, by Robert Hayes  
NLP - metaphorically speaking, by Margaret Abraham, Life Coach/Communication Coach  
Career maximisation and why to use a recruitment consultant, by Louis Manson  
The Actuary's toolkit, by James Orr and Trevor Maynard  
Lessons from politics, by Stephen Yeo  
Project management for actuaries: achieving the impossible?, by Kevin Denman and Philippe Guijarro

Available for downloading from:

[http://www.actuaries.org.uk/knowledge\\_services/publications\\_archive/conferences/YMC\\_2006](http://www.actuaries.org.uk/knowledge_services/publications_archive/conferences/YMC_2006)

#### FINANCIAL SERVICES AUTHORITY

Insurance Sector Briefing; Risk Management in Insurers. - Financial Services Authority, 2006. - 34 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38239]

Abstract: Thematic review of firms' progress in developing their risk management practices and to determining the extent to which Individual Capital Adequacy Standards (ICAS) had brought about improvements.

Available for downloading from: [http://www.fsa.gov.uk/pubs/other/isb\\_risk.pdf](http://www.fsa.gov.uk/pubs/other/isb_risk.pdf)

#### FREESTONE, TIM; GUTKOVICH, ROMAN; TARTAKOVSKI, ALEX

Enterprise Risk Model for P&C companies. 2006.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38240]

Abstract: This paper presents a VaR-based platform that allows for integration of assets and liabilities in a rigorous risk management framework. The Enterprise Risk Model measures all the major risks faced by Property & Casualty companies: insurance risk, interest rate risk, equity risk, credit risk, foreign exchange and operating risk.

Available for downloading from:

<http://www.ermssymposium.org/2006/pdf/papers/Freestone%20paper%204-7-06.pdf>

#### GATES, STEPHEN

Incorporating Strategic Risk into Enterprise Risk Management; XVème Conférence Internationale de Management Stratégique, Annecy / Genève. - XVème Conférence Internationale de Management Stratégique, Annecy / Genève. 2006. - 25 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38241]

Abstract: This paper explores the implications of enterprise risk management (ERM), for the management of strategic risks. The study uses data collected from a survey of 271 risk and financial executives in North American and European companies as well as current examples of company practice to investigate why enterprise risk management has become a priority. Descriptive statistics identify what the drivers and challenges are in implementing ERM. Chi-square analyses pinpoint which benefits early ERM adopters are reporting, and which tools and techniques they prefer. ERM is first defined and illustrated with specific examples of strategic risk management. Its prevalence and stages of implementation are documented.

The primary drivers of ERM, ranked in order of importance, are shown to be as corporate governance requirements; gaining a greater understanding of strategic and operating risks; and regulatory pressures, including pressures from credit rating agencies. Case examples from BP and a round-table of board audit committee members illustrate how stronger corporate governance requires greater focus on risk management, including strategic risks. The most significant obstacles to implementing ERM, ranked in order of importance, are competing priorities, insufficient resources, and lack of consensus about ERM's benefits. Chi-square results show significantly less challenges for companies with advanced ERM systems than those with less advanced ERM systems, especially concerning the lack of consensus of ERM's benefits. Case examples from Bristol-Myers Squibb and Henkel illustrate how ERM can be integrated with other company-wide processes such as strategic planning. The benefits of full ERM implementation, ranked in order of importance, are better-informed decisions, greater management consensus, increased management accountability, and smoother governance practices. Chi-square analyses show that these benefits were significantly higher for companies with fully implemented ERM systems than for those companies that did not yet complete ERM implementation. Two Canadian companies, Terasen and Hydro One, illustrate the benefits of having an ERM process completely in place. The tools and techniques to measure the impact of strategic risks were shown to differ depending on the stage of ERM implementation. For advanced ERM companies, the most frequently used tools and techniques were key risk indicators, individual self assessments, and scenario analysis.

This paper also identifies issues for ERM effectiveness depending on whether the process owner is an auditor, chief risk officer or strategic planner. It concludes with a research agenda to study how strategic risks will be incorporated into ERM and its impact on strategy implementation.

Available for downloading from: <http://www.strategie-aims.com/aims06/www.irege.univ-savoie.fr/aims/Programme/pdf/SP26%20GATES.pdf>

GLOBAL RISK NETWORK; WORLD ECONOMIC FORUM; CITIGROUP; MARSH & MCLENNAN COMPANIES; SWISS RE; WHARTON SCHOOL RISK CENTER; ZURICH FINANCIAL SERVICES Global Risks 2008; A Global Risk Network Report. - World Economic Forum, 2008. - 54 pages. Shelved at: online only (Institute); online only (Faculty) [RKN: 69132]

Contents include: Introduction - 4  
Focus on Emerging Issues in Global Risk - 6  
Assessing Global Risks in 2008 - 20  
Networked World, Networked Risks - 25  
Financial Markets, Risk Transfer and Risk Mitigation - 30  
Structuring Mitigation at the State and International Level: Taking the Country Risk Officer Forward - 36  
Conclusion - 39  
Appendix 1: Taxonomy of Global Risk: Trends, Issues of Concern, Risks - 41  
Appendix 2: Risk Assessments - 45  
Contributors - 52  
Participants - 53

Available for downloading from: <http://www.weforum.org/pdf/globalrisk/report2008.pdf>

GORVETT, RICK; NAMBIAR, VIJENDRA

Setting Up the Enterprise Risk Management Office; CAS ERM Symposium. - CAS ERM Symposium. 2007. - 11 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38242]

Abstract: In this paper, the concept of an Enterprise Risk Management Office (ERMO) is examined. The ERMO concept is investigated relative to another recent enterprise-wide entity that has evolved in many corporations and public institutions: the Project Management Office (PMO). The PMO is analyzed for any guidance it can provide regarding the implementation and benefits of a potential enterprise-wide and holistic approach to risk management. Guidelines and best practices for an ERMO are suggested.

Available for downloading from:

<http://www.ermssymposium.org/2006/pdf/papers/Gorvett%20and%20Nambiar%20paper.pdf>

HARRINGTON, SCOTT E; NIEHAUS, GREGORY R

United Grain Growers; Enterprise risk management and weather risk.

Shelved at: RIS/MAN (Faculty) [RKN: 63316]

Risk Management and Insurance Review (2003) 6(2): 193-217.

Abstract: In August of 1999, Mike McAndless, the risk manager of United Grain Growers (UGG), was preparing for a meeting with the firm's chief financial officer, Peter Cox. Mike and Peter had spent considerable time over the past three years with representatives of the Willis Group Ltd., a large international insurance broker, identifying and measuring UGG's major sources of risk. The risk assessment process indicated that, although UGG hedged most of its currency and commodity price risk and purchased insurance against property and liability losses, the firm's earnings still exhibited substantial volatility. This volatility was, in large part, due to the weather. Mike and Peter had to decide whether to retain the risk or shift it to another party using one of two innovative contractual arrangements: weather derivatives or a new type of insurance contract.

Photocopy cost: £5.00

HOYT, ROBERT E; POWELL, LAWRENCE S; SOMMER, DAVID W

Computing value at risk: a simulation assignment to illustrate the value of enterprise risk management.

Shelved at: RIS/MAN (Faculty) [RKN: 69057]

Risk Management and Insurance Review (2007) 10 (2): 299-307.

Photocopy cost: 9 sheets = £1.80

INSTITUTE OF CHARTERED ACCOUNTANTS

Implementing Turnbull - A Boardroom Briefing. - The Institute of Chartered Accountants in England and Wales, 1999. - 33 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38243]

Abstract: If you are a director of a company which is listed on the London Stock Exchange, or is considering a listing, the guidance on internal control issued by the Working Party chaired by Nigel Turnbull should be near the top of your agenda. The purpose of this briefing is to set out a number of questions which you could be asking and some practical steps which you could take to meet the Working Party's recommendations. This briefing has been prepared for directors who wish to take straightforward steps towards achieving Turnbull or are interested in the practicalities of good risk management and internal control and in getting added value for their companies from the guidance. It may be of particular use to smaller listed companies and a number of the case studies, hot tips and examples which it contains are prepared with such companies in mind.

It is assumed that readers will also study the Working Party's guidance in full and therefore does not go into the detail of the guidance. Indeed, this briefing should be read in conjunction with the guidance. However, the briefing does guide you through the issues raised when complying with Turnbull. Clearly the process that needs to be followed must fit the circumstances of the company. Directors may therefore decide that only some of the suggested practices are appropriate to their circumstances. This briefing is not intended to suggest that the practices described should be adopted in their totality.

KAUFMAN, CHRISTY

A Strategy for Incorporating Risk Assessment in the Compliance and Ethics Agenda. 2006.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38244]

Abstract: Since the publicity of numerous corporate scandals, the interest in compliance and ethics has created an important role for senior management to incorporate preventive maintenance measures for risk assessment and ethical violations. This is a change for senior management because past responsibility was placed upon the legal department. Most recently, some of the guidelines and mandates listed below from the federal government and ethics groups are helping to drive the interest even further. Aon's compliance and ethics risk assessment process includes four phases. First, risk identification is used to recognize risks by performing internal interviews with various personnel to get input on what risks may emerge and who they feel should be responsible for risk management. Second, risk prioritization is used to map out serious threats. Third, critical risk analysis takes risks a step further by evaluating anything that may be threatening and using the information for decision making. Finally, the last phase or implementation is used as Aon's main strategy for compliance and ethics management.

Available for downloading from:

<http://www.mgt.ncsu.edu/documents/IntegratingComplianceandEthics.pdf>

KLEFFNER, ANNE E; LEE, RYAN B; MCGANNON, BILL

The effect of corporate governance on the use of enterprise risk management: evidence from Canada.

Shelved at: RIS/MAN (Faculty) [RKN: 69003]

Risk Management and Insurance Review (2003) 6 (1): 53-74.

Abstract: This article examines the use of enterprise risk management (ERM) by companies in Canada, the characteristics that are associated with the use of ERM, what obstacles companies face in implementing ERM, and what role, if any, corporate governance guidelines have played in the decision to adopt ERM. We obtained our data from the responses to a mail survey sent to Canadian Risk and Insurance Management Society members as well as telephone interviews with 19 of the respondents. The results indicate that 31 percent of the sample had adopted ERM and that reasons for adopting ERM include the influence of the risk manager (61 percent), encouragement from the board of directors (51 percent), and compliance with Toronto Stock Exchange (TSE) guidelines (37 percent). The major deterrents to ERM were an organizational structure that discourages ERM and an overall resistance to change. Although only about one-third of companies indicated that they had adopted an ERM approach, evidence was clear that a larger portion of the sample was moving in that direction, as indicated by what changes they had observed in their companies in the past three years. These include the development of company-wide guidelines for risk management (45 percent), an increased awareness of nonoperational risks by operational risk management personnel and an increased awareness of operational risks by nonoperational risk management personnel (49 percent), more coordination with different areas responsible for risk management (64 percent), and more involvement and interaction in the decision making of other departments.

Contrary to what we expected, there was not a significant difference between firms that are listed on the TSE versus those that are not in terms of the propensity to use ERM. However, the fact that 37 percent of firms indicated that the TSE guidelines were influential in their decision to adopt ERM provides some evidence that the guidelines are influencing companies' risk management strategies.

Photocopy cost: 22 sheets = £4.40

LAM, JAMES

Enterprise risk management; From incentives to controls. - John Wiley & Sons, 2003. - xvi, 319 pages.

Shelved at: UHG/AA (Oxf) (Institute); 658.15 LAM (Faculty) [RKN: 37816]

Abstract: Enterprise risk management is a complex yet critical issue that all companies must deal with as they head into the twenty-first century. It empowers you to balance risks with rewards as well as people with processes. But to master the numerous aspects of enterprise risk management, you must first realize that this approach is not only driven by sound theory but also by sound practice. No one knows this better than risk management expert James Lam. In this book he distills twenty years' worth of experience in this field to give you a clear understanding of both the art and science of enterprise risk management. Organized into four comprehensive sections, the book offers in-depth insights, practical advice, and real world case studies that explore every aspect of this important field. Section I: Risk Management in Context lays a solid foundation for understanding the role of enterprise risk management in today's business environment. Section II: The Enterprise Risk Management Framework offers an executive education on the business rationale for integrating risk management processes. Section III: Risk Management Applications discusses the applications of risk management in two dimensions - functions and industries. Section IV: A Look to the Future rounds out this comprehensive discussion of enterprise risk management by examining emerging topics in risk management with respect to people and technology.

LEWIN, CHRISTOPHER G

Enterprise risk management and civil engineering.

Shelved at: EENA/UHG pam (Oxf) (Institute); [RKN: 36809]

Civil Engineering (2006) 159 (special issue 2): 4-9.

Abstract: Discusses enterprise risk management and shows why it is important to civil engineers. Its three component parts are strategic risk management, project appraisal and operational risk management. Enterprise risk management is holistic and complex. It is best carried out within a structured framework, enabling each person involved to play their part. The aim is to accept risk at appropriate levels for the risk tolerance of the business as a whole and to manage risk efficiently in ways which will optimise the chances of overall business success.

LIEBENBERG, ANDRE P.; HOYT, ROBERT E

The determinants of enterprise risk management: evidence from the appointment of chief risk officers.

Shelved at: RIS/MAN (Faculty) [RKN: 69002]

Risk Management and Insurance Review (2003) 6 (1): 37-52.

Abstract: Enterprise risk management (ERM) has captured the attention of risk management professionals and academics worldwide. Unlike the traditional "silo-based" approach to corporate risk management, ERM enables firms to benefit from an integrated approach to managing risk that shifts the focus of the risk management function from primarily defensive to increasingly offensive and strategic. Despite the heightened interest in ERM, little empirical research has been conducted on the topic. This study provides an initial attempt at identifying the determinants of ERM adoption.

We construct a sample of firms that have signaled their use of ERM by appointing a Chief Risk Officer (CRO) who is charged with the responsibility of implementing and managing the ERM program. We use a logistic regression framework to compare these firms to a size- and industry-matched control sample. While our results suggest a general absence of differences in the financial and ownership characteristics of sample and control firms, we find that firms with greater financial leverage are more likely to appoint a CRO. This finding is consistent with the hypothesis that firms appoint CROs to reduce information asymmetry regarding the firm's current and expected risk profile.

Photocopy cost: 16 sheets = £3.20

MCCONNELL, PATRICK

A 'Standards Based' approach to Operational Risk Management under Basel II. - M-Bryonic solutions, 2004. - 17 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 28247]

Abstract: Convergence of Capital Measurement and Capital Standards' - in effect, the definitive Basel II proposals on Operational Risk. During the three years prior to final publication, consultation with the industry had resulted in a pronounced switch in emphasis, away from a mainly quantitative, towards a more qualitative, approach to the management of Operational Risk. This paper argues that:

The wording of Basel II is sufficiently vague that banks are in danger of developing internal ORM systems that run the risk of not complying with interpretations of Basel II by local supervisors.

However, there are mature frameworks<sup>2</sup> from other industries upon which the processes of Operational Risk Management could be based.

In particular, there are two risk management standards - AS/NZS 4360/2004 and COSO/ERM – that, alone or in combination, could satisfy the requirements of Basel II for systems that are 'conceptually sound'; and

The adoption of operational risk management processes that are based on proven, practical and usable standards, should reduce the overall costs to the industry of complying with Basel II.

Available for downloading from: <http://www.m-bryonic.co.uk/library/ORStandards.pdf>

MICCOLIS, JERRY

Enterprise Risk Management in the Financial Services Industry; Still a long way to go. 2000.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38248]

Abstract: The promise of ERM for financial services managers is that it can help them systematically make business decisions that contemplate all types of risk (e.g., event risks, operational risks, and financial risks). But, how close is this industry to realizing the promise of ERM? A recent Tillinghast-Towers Perrin survey reveals the answer.

Available for downloading from:

<http://www.irmi.com/expert/Articles/2000/Miccolis08.aspx>

MICCOLIS, JERRY

Enterprise Risk Management in the Financial Services Industry: From Concept to Management Process. - International Risk Management Institute, 2000.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38245]

Abstract: ERM can provide a rigorous approach in managing risks from all sources that threaten the strategic and financial objectives or that represent opportunities for competitive advantage. Nonetheless, only a relatively small number of companies, especially in the insurance sector, have actually fully implemented ERM. This paper shows how financial service companies, in particular insurers, can remedy their dissatisfaction by following a systematic management process that will help them both shape risk and exploit risk for their enterprise.

Available for downloading from:

<http://jobfunctions.bnet.com/abstract.aspx?docid=62296>

NIKONOV, RAN

Efficient Project Portfolio as a Tool for Enterprise Risk Management. - 21 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38249]

Abstract: Risks of different types are embedded into every business process and every business activity no matter what the business of the organization. At the same time, today all organizations seeking for sustainable growth simultaneously manage a number of projects: endeavors that are even riskier than their usual daily routine. Examples are projects for the development of a new product or service, investment activities, implementation of an information system, entering a new market, re-branding and many others. All projects of an organization constitute a project portfolio. Since projects are realized within one organization, they are subject to all types of risks that the organization has. And each project at the same time has its own risks that appear from the project's scope and uncertainties. Project Portfolio captures all the risks that the organization is subject to along with the risks of the projects. These risks interact with and influence each other, and have a strong impact on the project portfolio realization and organization's overall business performance. That is why a tool for managing project portfolio risks should be an indispensable part of an Enterprise Risk Management system.

A tool for managing organization's project portfolio risks is introduced in the paper. This tool is based on the approaches of H. Markowitz Portfolio Theory with the main idea of the organization's portfolio risk diversification. The H. Markowitz theory was developed to help an investor build an efficient investment portfolio (portfolio of securities). However today we would hardly find organization that invests only in equity market. Organizations invest in securities and at the same time invest in projects of different types.

In the report we introduce a generalization of H. Markowitz Theory and apply it to project portfolios (that could contain investments in securities). The idea remains the same: we suggest that analyzing the profitability (utility) and risks of every project in the portfolio is important but insufficient; the correlations of the project's risks and the influence that the project has on risks of other projects and project portfolio should be considered in order to build an efficient project portfolio.

An efficient project portfolio term is introduced in the presentation. The term means a project portfolio that is built in order to achieve the organization's strategic goals with minimal risks under the conditions of limited resources.

We also consider a mathematical model for building an efficient project portfolio along with an algorithm based on the model. In order to create the model, we have to consider a number of tasks that are described in the paper. We present the formalization of the characteristics of a project and specify the differences between project portfolio and portfolio of securities. That makes it clear that the differences between defining and formalizing risks of a security and risks of a project are substantial. A new approach for defining a project risk should be offered. The description of this approach follows; a way to determine a project portfolio risk is also presented.

Based on this approach to quantifying the risks of the projects, we offer a new concept of the interference of projects within a portfolio. The interference can be determined through the creation of a risk matrix of a simultaneous realization of projects. The description of the model for building an efficient project portfolio, based on Markowitz theory, completes the theoretical part of the presentation. Then the algorithm is introduced along with the results of its approbation in one of Russian financial institutions.

We believe that the approach described in the paper could help organizations build balanced and efficient project portfolios, thus minimizing the risks. That, in turn, is a necessary condition for achieving strategic objectives and sustainable growth.

Keywords: project portfolio management, project management, modern portfolio theory

Available for downloading from:

<http://www.ermssymposium.org/2007/pdf/papers/Nikonov.pdf>

NYCE, CHARLES

Incorporating enterprise risk management into the curriculum; The Delta Air Lines case study.

Shelved at: RIS/MAN (Faculty) [RKN: 62922]

Risk Management and Insurance Review (2002) 5 (1) Spring: 67-73.

Abstract: This article describes a group project that was designed and implemented in an MBA-level corporate risk management class. The primary objective of this project is to integrate the concepts of enterprise risk management into the graduate-level risk management and insurance curriculum. This project combines both traditional and innovative risk management techniques into one semester-long group case study. The Delta Air Lines case study was divided into three segments to focus on three distinct objectives. The first component, identification of Delta's horizon risks, is designed to spur creative thinking among the groups. The second component, analysis of workers' compensation claims, is a very traditional risk management exercise in risk evaluation designed to utilize traditional statistical analysis techniques (specifically, trending). The third component is estimating both total loss distributions and layers of loss due to airline crashes for potential capital market risk financing alternatives. This component involves more innovative financial risk management techniques (ie distribution fitting and simulation analysis). The objective is to familiarise students with the current techniques being used to evaluate risks that are currently (or potentially) being securitized in the capital markets.

ORROS, GEORGE

ERM Literature reviews. - Giro 2007 convention. 2007. - 37 pages.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38275]

Abstract: to provide an introduction to ERM and to suggest a reading list that might be appropriate for general insurance actuaries (and actuarial students) who would like to have a synopsis of introductory ERM publications and references. We have also prepared a list of 60 web sites that purport to be about ERM capabilities and where the reader can find, review and/or download further documents, information and web links in connection with ERM capabilities, skills and associated tools.

Available for downloading from: [http://www.actuaries.asn.au/NR/rdonlyres/1C5D0157-1B4E-4059-B75E-32F751723D99/2811/ERM\\_LitRev\\_Main\\_180807.pdf](http://www.actuaries.asn.au/NR/rdonlyres/1C5D0157-1B4E-4059-B75E-32F751723D99/2811/ERM_LitRev_Main_180807.pdf)

PANJER, HARRY H

Enterprise risk management. - John Wiley & Sons, 2006.

Shelved at: [RKN: 63658]

POWERS, MICHAEL R

Using aumann-shapley values to allocate insurance risk: the case of inhomogeneous losses. - 15 pages.

Shelved at: Per: NAAJ (Oxf); Per NAAJ (Lon) (Institute); NOR/AME (Faculty) [RKN: 68936]  
North American Actuarial Journal (2007) 11 (3): 113-127.

Abstract: The problem of allocating responsibility for risk among members of a portfolio arises in a variety of financial and risk-management contexts. Examples are particularly prominent in the insurance sector, where actuaries have long sought methods for distributing capital (net worth) across a number of distinct exposure units or accounts according to their relative contributions to the total "risk" of an insurer's portfolio. Although substantial work has been done on this problem, no satisfactory solution has yet been presented for the case of inhomogeneous loss distributions—that is, losses  $X_t(x)$  such that  $F_{X_t}(x) = F_{X_0}(x)$  for some  $t > 0$ . The purpose of this article is to show that the value-assignment method of nonatomic cooperative games proposed in 1974 by Aumann and Shapley may be used to solve risk-allocation problems involving losses of this type. This technique is illustrated by providing analytical solutions for a useful class of multivariate normal loss distributions.

Photocopy cost: 15 sheets = £3.00

Available for downloading from: <http://www.soa.org/news-and-publications/publications/journals/naaj/naaj-detail.aspx>

RECH, JAMES E

Enterprise Risk Management for Insurers; Actuarial theory in Practice. - American Academy of Actuaries, 2005.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38276]  
Contingencies (2005) Nov/Dec:

Abstract: Actuaries are rapidly gearing up for, and helping to develop, the future of ERM. The leadership of the North American Actuarial Council (NAAC) has moved beyond the discussion of actuaries in ERM to actively supporting this career path. The profession is also enhancing actuarial education, changing the organizational structure of its societies, outlining communication issues, and changing the actuarial profession's public image. ERM is the future, and actuaries are its caretakers.

Contents include: Changing situations  
Actuaries and ERM  
Actuarial skills sets in ERM  
Actuarial responses to ERM

Available for downloading from:  
[http://www.contingencies.org/novdec05/enterprise\\_1105.asp](http://www.contingencies.org/novdec05/enterprise_1105.asp)

REN, JIANDONG

The discounted joint distribution of the surplus prior to ruin and the deficit at ruin in a spare andersen model. - 10 pages.

Shelved at: Per: NAAJ (Oxf); Per NAAJ (Lon) (Institute); NOR/AME (Faculty) [RKN: 68937]  
North American Actuarial Journal (2007) 11 (3): 128-137.

Abstract: In this article, we consider the risk model with phase-type interclaim times. We first derive a simple matrix-form expression for the discounted joint density of the surplus prior to ruin and the deficit at ruin when the initial surplus is zero. Then we express the discounted joint density in terms of certain expected discounted penalty functions when the initial surplus is greater than zero. This result generalizes that in Gerber and Shiu (1997).

Photocopy cost: 10 sheets = £2.00

Available for downloading from: <http://www.soa.org/news-and-publications/publications/journals/naaj/naaj-detail.aspx>

ROSS, CHRISTINE F; RASMUSSEN, MICHAEL

The Forrester Wave TM: Enterprise Risk Management Consultant : Evaluation Of Top ERM Consultants Across 37 Criteria. - Forrester Research Inc., 2005.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38246]

Forrester Wave (2005) Q4:

Abstract: Today, clients look at risk from short-term tactical perspectives, such as regulatory compliance, or from siloed perspectives where each business unit within a large company develops independent risk initiatives. Clients will not gain the full business benefits they hope to achieve until they take an enterprisewide approach to risk: enterprise risk management (ERM). Because most companies don't know how to achieve ERM, they will hire consultants to help. In this document Forrester grades the most well known ERM consultants across 37 criteria, judging services capabilities, prior client experiences, and ability to handle risk engagements in multiple geographies.

STANDARD & POOR'S

Insurance Criteria: Evaluating The Enterprise Risk Management Practices of Insurance Companies. - McGraw Hill, 2005.

Shelved at: online only (Institute); [RKN: 38233]

Available for downloading from: [http://www.actuaries.org.hk/doc/ET060808\\_Ref3.pdf](http://www.actuaries.org.hk/doc/ET060808_Ref3.pdf)

TRIPP, MICHAEL H; CHAN, C; HARIA, SEJAL; HILARY, NEIL; MORGAN, KATHRYN A; ORROS, GEORGE C; PERRY, GEOFF; TAHIR-THOMSON, KARTINA

Enterprise risk management from the general insurance actuarial perspective. - Institute of Actuaries and Faculty of Actuaries, 2008. - 93 pages.

Shelved at: ifp 04/08 (Oxf); UHG/AA/BX pam (Oxf) (Institute); JOU/INS (Faculty) [RKN: 69341]

Abstract: The authors have reviewed over 60 texts on the subject of Enterprise Risk Management (ERM). In this paper they set out a summary of ERM based on three of those sources, selected for their relevance and breadth of view. The paper observes that the approaches described vary widely in nature. A separate 'on-line' source is provided which summarises key reading from the 60 texts. Combining findings from these texts with the authors' own experiences, the paper suggests some best practice checklists, designed to enable organisations to take stock of their current ERM framework. It discusses other aspects of ERM for practitioners, including extreme events, opportunity management and the link with corporate strategy. The paper looks at immediate and longer-term implications for actuaries in the United Kingdom, and then poses questions about future professional development and education. It suggests an emerging role for the 'ERM Actuary', and finally it suggests future work to progress the development of ERM and the actuaries' role.

Available for downloading from:

[http://www.actuaries.org.uk/\\_\\_data/assets/pdf\\_file/0017/132038/sm20080428.pdf](http://www.actuaries.org.uk/__data/assets/pdf_file/0017/132038/sm20080428.pdf)

WANG, SHAUN; FABER, ROBERT

Enterprise Risk Management for Property-Casualty Insurance Companies; Jointly sponsored by CAS, ERM Institute International Ltd and joint CAS/SOA Risk Management Section, USA. 2006.

Shelved at: online only (Institute); [RKN: 38231]

Available for downloading from:

[http://www.ermii.org/Research/downloads/erm\\_paper080106.pdf](http://www.ermii.org/Research/downloads/erm_paper080106.pdf)

WHELAN, S F

Defining and measuring investment risk in defined benefit pension funds.

Shelved at: Per: AAS (Oxf); Per: AAS (Lon) (Institute); [RKN: 38310]

Annals of Actuarial Science (2007) 2(1): 51-66.

Abstract: A formal definition of investment risk in actuarial investigations is given. Case studies estimating the investment risk associated with different investment strategies for defined benefit pension funds using historic market data are presented. It is shown that a few decades ago, when bond markets only extended in depth to 20-year maturities, the investment risk of investing in equities was of the same order of magnitude as the investment risk introduced by the duration mismatch from investing in bonds for immature schemes. It is shown that now, with the extension of the term of bond markets and introduction of strippable bonds, the least risk portfolio for the same pension liability is a bond portfolio of suitable duration. It is argued that investment risk voluntarily undertaken in defined benefit pension plans has grown markedly in recent decades, at a time when the ability to bear the investment risk has diminished. Investment risk in pension funds is quite different to investment risk for other investors, which leads to the possibility that current portfolios are not optimised — that is, there exist portfolios which increase the expected surplus without increasing risk. The formalising of our intuitive concept of investment risk in actuarial applications is a first step in the identification of more efficient portfolios.

Keywords: Investment Risk; Defined Benefit Pension Funds; Investment Strategies; Risk in Actuarial Applications

Photocopy cost: £1.80

Available for downloading from:

[http://www.actuaries.org.uk/knowledge\\_services/publications\\_archive/annals](http://www.actuaries.org.uk/knowledge_services/publications_archive/annals)

ZHANG, YINGJIE

Why Should an Insurance Firm Charge for Frictional Costs? - CAS ERM Symposium. 2007.

Shelved at: online only (Institute); online only (Faculty) [RKN: 38247]

Abstract: In this paper, we establish a premium principle that calculates the premium as the sum of present values of claim liability, normal business expense, income tax and frictional cost. The principle provides a fair premium in the sense that it generates a fair return on capital. In other words, it automatically produces the correct cost of equity capital without knowing its value. The frictional cost is defined as the sum of all expenses incurred by the firm that exceed the normal level or category. We discuss the sources of frictional costs and techniques for quantifying them. If a firm manages its market cap instead of book value, the frictional cost needs to be restated by incorporating its impact on the franchise value.

Available for downloading from:

<http://www.ermssymposium.org/2007/pdf/papers/Zhang.pdf>