Contents

About the Authors ............................................. ix
Preface ......................................................... xiii

1 Overview of Enterprise Risk Management for Small &
Medium-Sized Enterprises ................................ 1
Jeyaraj “Jay” Vadiveloo, Ph.D., FSA, MAAA, CFA

Introduction
Definition of an SME
Societal Impact of SMEs
Failure Rates of SMEs
Implementation Steps
Case Study: Bagel Chain
Case Study: Children’s Museum
Conclusion
References

2 Internal Control: An Important Tool for Small and
Medium-Sized Enterprises ................................ 11
Mohamed E. Hussein, Ph.D.

Introduction
Definition of Internal Controls
Components of Internal Control
Accounting Controls
Special Problems of Small Businesses
Steps to Strengthen Small Businesses Internal Controls
Periodic Evaluation of Internal Controls
Operational Auditing as a Tool of Internal Control
Use of Operational Audit by Small and Medium-Sized Enterprises
The Human Element in Internal Control
Computerized Information Systems
Conclusion
References

3 Claim Cost Management for Property and Casualty Lines
of Business ................................................................. 23
Frank Ramsay

Introduction
The Claims Discipline
The Claims Cost Management Process
The Claims Process
Claims and Reserving Philosophies
Management Considerations
Qualitative Assessment
Quantitative Assessment
Other Measurements
Case Example
Conclusion

4 The Role of ERM in the Transition Stages of a Small or
Medium-Sized Enterprise ............................................. 37
Mercedes Aguirre & Anushri Bansal

Introduction
Definition and Fundamental Differences Between SMEs and Large
Corporations
Structures, Transitions and Risks
ERM and Balance Scorecards Provide Smooth Convergence of Strategy
and Risk Frameworks
Case Study: Starbucks
Conclusion
References

5 Small and Medium-Sized Enterprises and the Affordable
Care Act of 2010 .......................................................... 57
Andrew Whitman, Ph.D.

Introduction
A Risk Management Process for SMEs
Buying Health Insurance and Self-Insurance
New Insurance Markets for SMEs
Conclusion

6 Enterprise Risk Management for Small and Medium-Sized
Enterprises: Restaurants ............................................. 75
H. G. Parsa, Ph.D.

Introduction
Definition of a Small Business
Importance of Small Businesses
Restaurants as Small Businesses
Macrofactors Affecting Restaurant Failures
Microfactors and Restaurant Failures
Entrepreneurial Risk Factors in Restaurants
Conclusion
References

7 ERM of SME’s Intellectual Property ................................. 99
Andrew Whitman, Ph.D.

Introduction
Identify, Create and Sustain I.P. Value with ERM
Differentiating Intellectual Property: Patents, Copyright and Trademarks
New Laws and Opportunities to Work with Experts
Identifying a Path
ERM Process: Patents
ERM Process: Trademarks
ERM Process: Copyrights
Commercialize I.P. with a Startup or Existing Company
Creating I.P. Value: Steps to Commercialize Patents and Trademarks
I.P. Risk-Mitigation Strategies
University Student Case Description
Conclusion
References

8 Measuring Risk for Small and Medium-Sized Enterprises ...............119
Stephen A. Atlas, Ph.D.

Introduction: Why Track and Measure Risk Management
Measuring Risk Without Overly Burdening Small Business Operations
Tracking ERM Compliance
Measuring and Tracking an ERM Initiative Involving Multiple SMEs
Measuring SME Risk Can Increase Risk Tolerance (and How to Mitigate
This Concern)
Conclusion
References

9 Legal and Regulatory Aspects of Enterprise Risk Management for
Small and Medium-Sized Enterprises ................................. 129
Robert C. Bird & Stephen Kim Park

Introduction
Legal Risk Management as a Foundation of ERM
Special Challenges of ERM for SMEs
Applying ERM Regulation to SMEs
How Can SMEs Use LRM and ERM Regulation to More Effectively
Implement ERM?
Conclusion
References
10 How ERM Principles for Large Corporations Can be Adapted for Small and Medium-Sized Enterprises ................................................. 143
   Mercedes Aguirre & Anushri Bansal
   Introduction
   ERM in Large Corporations: An Overview
   What Fits and What Does Not Fit: Addressing SMEs' Needs with Adaptation of Large Corporation ERM Methodologies
   Closing the Gap: Alternatives for Those Needs and Challenges that Cannot be Addressed with Traditional Approaches
   Conclusion
   References

11 Summary, Next Steps and Concluding Remarks on Enterprise Risk Management for Small & Medium-Sized Enterprises ................. 159
   Jeyaraj “Jay” Vadiveloo, Ph.D., FSA, MAAA, CFA
   Introduction
   Implementing ERM for SMEs on a Large Scale
   Conclusion
   References

Index .................................................................................................................. 165
About the Authors

**Jeyaraj “Jay” Vadiveloo, Ph.D., FSA, MAAA, CFA**, is professor and director of the Janet & Mark L. Goldenson Center for Actuarial Research at the University of Connecticut and works on applied actuarial research projects using teams of academics, students and industry professionals. He has a doctorate in statistics from the University of California, Berkeley, is a fellow of the Society of Actuaries, a member of the American Academy of Actuaries, and a Chartered Financial Analyst. He has over 25 years of experience working in senior-level management positions in the life insurance industry and more than 20 years of experience with UConn’s actuarial science program.

In addition to publishing articles in the actuarial literature and speaking at actuarial conferences, Vadiveloo recently patented a new algorithm (Replicated Stratified Sampling or RSS) for risk modeling that exponentially reduces processing time at a predetermined accuracy level for any complex actuarial modeling.

**Mercedes Aguirre** works as an economist at Towers Watson. She has more than eight years’ experience working in the financial sector and more than three years of experience in research in investment funds, insurance and risk management. As part of the Risk and Financial Services Segment, Aguirre provides research support in client projects, developing thought leadership and intellectual capital for the segment, in coordination with Towers Watson offices all around the world. In addition she has four years of experience as a professor in the finance department at ORT University of Uruguay.

Aguirre has a degree in economics and a Master of Science in finance and management from ORT University.
Stephen A. Atlas, Ph.D., is assistant professor of Marketing and Supply Chain Management at the University of Rhode Island. He researches behavioral factors that influence decisions involving risk and time such as mortgage defaults and contracts with recurring payment plans. He teaches courses on marketing research and customer analytics.

Atlas earned his doctorate in business from Columbia University. His dissertation was selected as winner of the Doctoral Dissertation Competition in Behavioral Pricing by the Pricing Center at Fordham University and was a finalist in the Mary Kay Doctoral Dissertation Competition awarded by the Academy of Marketing Science. He also received a Bachelor of Arts in economics from Brown University and a Master of Arts in economics from Tufts University, where he examined how social norms influence online financial choices. Previously, Atlas worked as a consultant with Deloitte and worked with several small and midsize businesses in a variety of capacities.

Anushri Bansal works as a senior economist at Towers Watson. She has more than six years of experience in research in insurance and risk management. In addition to that she leads research efforts in the Risk and Financial Services Segment, providing research support in client projects, developing thought leadership and intellectual capital for the segment, and people management across India, Uruguay and China.

Bansal has a Master of Science in economics from the London School of Economics and recently cleared both levels of the Financial Risk Management program by the Global Association of Risk Professionals (GARP).


He is the recipient of the Academy of Legal Studies in Business (ALSB) Best International Paper Award, Distinguished Proceedings Award, the Holmes-Cardozo Best Overall Conference Paper Award, and various other best paper awards. Bird was editor-in-chief of the American Business Law Journal in 2012-13, designing and publishing the 50th anniversary issue of the journal’s founding, and serving as its administrative editor, articles editor, senior articles editor, and managing editor from 2006 through 2012.

Mohamed E. Hussein, Ph.D., is professor and department head of Accounting at the University of Connecticut’s School of Business. He has served as interim dean
of the School of Business in 2006-2008, as resident director of UConn’s Program in European Studies at the University of Maastricht, the Netherlands, and was the Andersen Consulting Faculty Fellow at the University of Connecticut.

Hussein has taught in UConn’s undergraduate, MBA, EMBA, M.S. in accounting and doctoral programs. His research has been published in journals such as *Accounting, Organizations and Society; Auditing: A Journal of Practice & Theory; International Journal of Accounting; Journal of Accounting, Auditing, and Finance; Journal of Accounting & Public Policy; Research in Accounting Regulation; Connecticut CPA Quarterly; Financial Executive;* and the *International Journal of Management.*

**Stephen Kim Park** is an assistant professor of Business Law at the University of Connecticut’s School of Business. His research is in the areas of international financial regulation, international trade law, and corporate governance and corporate social responsibility, particularly concerning the roles of multinational enterprises in transnational and public-private governance regimes. Park holds a J.D. from Harvard Law School, an M.A.L.D. in international affairs from The Fletcher School at Tufts University, and a Bachelor of Arts in ethics, politics & economics from Yale University. At the University of Connecticut, he teaches a graduate course on legal and ethical issues in financial risk management.

**H.G. Parsa, Ph.D., FMP,** is Barron Hilton Chair in Lodging, Daniels College of Business, University of Denver. He is a recipient of Fulbright Visiting Scholar Fellowship in 2005. He is an associate editor of *Journal of Hospitality and Tourism Research* and the founding editor and honorable editor-in-chief of *Journal of Foodservice Business Research.* He serves on the editorial boards of nine national and international academic journals. His research was quoted in the national media including *Wall Street Journal, Fortune, NPR, PBS television, BusinessWeek, Chicago Tribune, USA Today* and over 55 regional newspapers. He has consulted for several major hospitality companies including Marriott, McDonald’s and White Castle.

In his career Parsa has won several awards, including John Wiley & Son’s Lifetime Research Excellence Award (2010); Michael Olsen Research Award (2013); Bradford Wiley Best Paper Award from ICHRIE (2001, 2006); Best Paper Award at the Euro-CHRIE (2005); John Wiley & Sons Award for Teaching Innovation (2001); President’s Award for Excellence in Research and Creativity (1997); Faculty of the Year Award four times (1997, 2002, 2005 and 2012).

**Frank Ramsay** is the leader of the Towers Watson Claims Management Practice, effectively assisting primary and excess carriers, reinsurers, self-insureds and captives, both nationally and internationally, in quantitative case reserving assessment studies, qualitative claim best practices reviews, claim organizational and workflow effectiveness analyses and process redesign.
Ramsay has 30 years of technical and senior management experience in various claims organizations and has also been a featured speaker on topics including consistent communications within insurance organizations, effective negotiations, and development and implementation of claim best practices. He has written articles regarding the impact to the claims industry response in the wake of Hurricane Katrina, and combating fraud during recessionary times.

Andrew F. Whitman, Ph.D., J.D., MBA, is professor of Insurance in the University of Minnesota School of Management; director/owner of Risk Management, Inc.; and is on the boards of the Minnesota State Risk Management Department and Missions, Inc. He was awarded volunteer of the year in 2014 by the Professional Activity Directors Association of Minnesota. Whitman is an attorney admitted to practice in Minnesota, and was deputy commissioner and acting chief counsel for the Pennsylvania Insurance Department. He has served as an insurance consultant to corporations and government; as chair of the Finance, Real Estate & Law Department, College of Business, Cal Poly University, Pomona, California; as a special assistant in the Wisconsin Insurance Department; and as a life insurance agent. He holds the professional designations of CPCU, CLU and CFP. Whitman has published in academic and professional books and journals, and teaches risk management, insurance, employee benefits and personal finance. As a consultant to attorneys, and as an expert witness, he has participated in many insurance cases and has provided in-court testimony in 10 states: California, Colorado, Iowa, Michigan, Minnesota, New Jersey, New Mexico, New York, South Dakota and Wisconsin.
This text has taken almost two years to put together and the concept of enterprise risk management (ERM) for small and medium-sized enterprises (SMEs) goes back even further with the inception of the Goldenson Center for Actuarial Research at the University of Connecticut in 2008. While the idea for the text was originated by the work done at the Goldenson Center—the development of ERM for small businesses into an integrated discipline through a series of ERM projects—it could not have been accomplished without the collective efforts of the contributing authors. Now that the book is completed, the effort has been well worth it.

This text can serve as:

- A reference and a tool for providing education and training for small business owners
- A text for students of ERM
- A means for large corporations to improve their overall ERM practices by focusing on developing ERM principles for the various SMEs supporting them
- A fertile area of future research by academicians and ERM professionals on various risks facing small and medium-sized enterprises

But, most importantly, this text is the first time ERM has been explored in a comprehensive manner for the largest, most important and fastest growing business segment in the United States, namely SMEs. Having the Society of Actuaries as the publisher clearly indicates the support of the actuarial profession in expanding its ERM leadership role to the untapped area of small and medium-sized enterprises. However, like any other pioneering text on as broad a topic as ERM for SMEs, we realize there may be several important aspects the text has not covered. We therefore hope this text will stimulate further discussion and research into these unexplored areas so ERM for small and medium-sized enterprises will be an integral part of business practice and continue to grow and develop as a unique discipline in academia.
Every pioneering text needs a source of inspiration to get started. My inspiration has been my dear wife, T.J., who has always encouraged me to write this book as a lasting legacy for something I so strongly believe in. I am glad I listened!

*Jeyaraj “Jay” Vadiveloo*