

Draft: 10/7/19

Accelerated Underwriting (A) Working Group  
Conference Call  
Oct. 2, 2019

The Accelerated Underwriting (A) Working Group of the Life Insurance and Annuities (A) Committee met via conference call Oct. 2, 2019. The following Working Group members participated: Robert H. Muriel, Chair, Mike Chrysler, Vincent Tsang and Bruce Sartain (IL); Grace Arnold, Vice Chair, and John Robinson (MN); Jason Lapham (CO); Doug Ommen, Russ Gibson and Lindsay Bates (IA); Rich Piazza (LA); Cynthia Amann and Camille Anderson-Weddle (MO); Matt Holman (NE); Ross Hartley and Chris Aufenthie (ND); Jillian Froment and Peter Weber (OH); Elizabeth Kelleher Dwyer and Sarah Neil (RI); Scott Bird (WA); and Jerry DeArmand, Mary Kay Rodriguez, Sue Ezalarab and Lauren Van Buren (WI). Also participating were: Steve Ostlund and Gina Hunt (AL); Jacob Lauten (AK); Ted Chang (CA); Manny Hidalgo (CT); Teresa Winer (GA); Karl Knable (IN); Barbara Torkelson and Tate Flott (KS); Nour Benchaboun (MD); Kendall Cotton (MT); Denise Lamy, and Karen McCallister (NH); Seong-min Eom (NJ); Annette James (NV); Peter Dumar and Bill Carmello (NY); Brian Hoffmeister and Lorrie Brouse (TN); Mike Boerner (TX); Tomasz Serbinowski (UT); and James Young (VA).

1. Discussed its Draft Work Plan

The Working Group members introduced themselves. There were a variety of divisions within the departments represented, as well as varying areas of expertise, years of service and levels of familiarity with the topics of accelerated underwriting and big data. Director Muriel explained that the Working Group received its charge “to consider the use of external data and data analytics in accelerated life underwriting, including consideration of the ongoing work of the Life Actuarial (A) Task Force on the issue and, if appropriate, drafting guidance for the states” from the Life Insurance and Annuities (A) Committee at the Summer National Meeting in response to a referral from the Big Data (EX) Working Group. He explained that the Big Data (EX) Working Group looked at how the use of data models for life insurance underwriting has become more common and identified a couple of issues initially, such as: 1) whether state insurance regulators should be examining vendors that are supplying data to insurers; and 2) whether vendors are supplying similar data and models to multiple insurers. He said that the Life Actuarial (A) Task Force is also focusing on the actuarial soundness of the new data being used and potential long-term solvency issues.

Director Muriel said the draft work plan sets an ambitious schedule for the Accelerated Underwriting (A) Working Group to complete its charge by the 2020 Fall National Meeting. He explained that the work plan starts with the Working Group spending the time between the 2019 Fall National Meeting and the 2020 Spring National Meeting gathering information. He said this phase is critical to ensuring that everyone participating in the process has a certain level of understanding, especially given the make-up of this Working Group. He said the Working Group will start with hearing a presentation at the Fall National Meeting from Patrick L. Brockett (The University of Texas at Austin), an accomplished academic in this area. Following this initial meeting in Texas, Director Muriel said he anticipated hearing additional presentations offering different perspectives, such as actuarial, industry, consumer and also other states. He suggested reaching out to Jennifer Cook (NAIC) with any suggestions for presenters. Director Muriel said the second phase of the work plan, between the 2020 Spring National Meeting and 2020 Summer National Meeting, has the Working Group identifying issues and discussing whether or what issues need to be addressed and the best ways to address them, whether that is a white paper, model bulletin, model law or something else. He said the last phase of the work plan envisions the Working Group developing a work product to bring to the Life Insurance and Annuities (A) Committee by the 2020 Fall National Meeting.

Director Muriel referenced the comment letter on the work plan submitted by Birny Birnbaum (Center for Economic Justice—CEJ), which raised the concern that the work plan contemplates spending too much time gathering information and revisiting issues that have been the subject of presentations and discussions at other NAIC groups over the past several years. Director Muriel said he appreciates Mr. Birnbaum’s comments and said the timing contemplated in the work plan is flexible and can be adjusted if, for example, the information gathering phase progresses more quickly. Additionally, Director Muriel offered to have Ms. Cook post on the Working Group’s web page materials from other groups that have spent time working on this issue, such as the Big Data (EX) Working Group and the Life Actuarial (A) Task Force.

Mr. Crofton said this Working Group should coordinate with the Artificial Intelligence (EX) Working Group in case there are areas of overlap. Ms. Amann said she participated in an InsurTech conference where there were presentations from a number of start-up companies and suggested working with Denise Matthews (NAIC) to obtain some of the presentations that were particularly informative. Leonard Mangini (American Academy of Actuaries—Academy) said the Working Group should be

aware of activities going on in other NAIC groups that touch on accelerated underwriting, such as APF 2018-17, which was added to the *Valuation Manual* and says when aggregating mortality experience, that experience must be based on the same or similar underwriting processes. Mr. Robinson asked whether the Working Group anticipates developing a work product in conjunction with the Life Actuarial (A) Task Force since the Working Group's charge talks about coordination with the ongoing work of the Life Actuarial (A) Task Force.

Mr. Birnbaum explained his background and said that he has been involved in the myriad efforts at the NAIC in this area over the past several years. He asked the Working Group to consider moving more quickly than the time frames set out in the work plan. He said the Working Group should be able to gather sufficient information to get up to speed on these issues in a short amount of time because the practice of accelerated underwriting and the consumer issues implicated by the practice are well-known. He encouraged state insurance regulators to review the materials from the other NAIC groups that have been looking at these issues and move towards taking regulatory action as soon as possible.

Commissioner Ommen explained that this Working Group's charge is explicitly mindful of the fact that there are other NAIC groups working on this issue. He said this Working Group's charge has less to do with solvency, which is the purview of the Life Actuarial (A) Task Force, and more to do with equity and focusing beyond the responsibilities of the actuaries to evaluate whether consumers are being treated fairly. Commissioner Ommen said this Working Group has an important task, but he cautioned the group to do things correctly rather than just focus on moving quickly.

Having no further business, the Accelerated Underwriting (A) Working Group adjourned.

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## **PATRICK LEE BROCKETT**

**December 2018**

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### **CURRENT POSITIONS AT THE UNIVERSITY OF TEXAS AT AUSTIN**

Director, Risk Management and Insurance Program  
Gus S. Wortham Memorial Chair in Risk Management and Insurance  
Director, Center for Risk Management and Insurance  
Director of the Certificate in Risk Management program  
Professor with joint appointments in the Departments of Information, Risk and  
Operations Management; Finance; and Mathematics  
Global Research Fellow at the IC<sup>2</sup> Institute, University of Texas at Austin  
Affiliated Faculty Member, Division of Statistics + Scientific Computation  
Fellow of the Humanities Research Institute, UT Austin

### **OTHER POSITIONS**

Member of the Board of Directors, Texas Property and Casualty Guaranty  
Association  
Editor, *North American Actuarial Journal*  
Associate Editor, *Journal of Risk and Insurance*  
Board of Advisors of the Center of Insurance and Risk Management Studies  
(CIRMS), York University, Toronto, Canada

### **EDUCATION**

B.A. 1970, (Mathematics) California State University at Long Beach, California  
M.A. 1975, (Mathematics) University of California at Irvine, California  
Ph.D. 1975, (Mathematics) University of California at Irvine, California

### **EXTERNAL PROFESSIONAL HONORS AND AWARDS**

The American Risk and Insurance Association, ARIA, (the premier academic association in risk management and insurance in the world) has named a research award in my name. The Patrick Brockett & Arnold Shapiro Actuarial Research Award, is to be awarded for the article published in one of the Society of Actuaries or Casualty Actuarial Society's flagship academic journals (*North American Actuarial Journal* or *Variance*) that makes the best contribution of interest to ARIA risk management and insurance researchers. I served as Editor of *ARIA's Journal of Risk and*

*Insurance*, and as President of ARIA and am currently Editor of the *North American Actuarial Journal*.

In 2017 I was awarded the 2017 Spencer L. Kimball Prize from the National Association of Insurance Commissioners, for the best article in *the Journal of Insurance Regulation* important to regulators. This was given for the article: Ai, Jing, Patrick L. Brockett, Linda Golden and Utai Pitaktong (2015) "How to Set Rates if You Must: An Efficiency-Based Methodology for Setting Promulgated Insurance Rates with an Application to Title Insurance" *Journal of Insurance Regulation* 34(7) 167-205

In 2017 I was awarded the 2017 Best North American Actuarial Journal Article Award, from the Society of Actuaries for the article: Golden, Linda, Patrick Brockett, Jing Ai and Bruce Kellison, (2016), "Empirical Evidence on the Use of Credit Scoring for Predicting Insurance Losses with Psycho-Social and Biochemical Explanations" *North American Actuarial Journal* 20(3) 233-251.

In 2017 the article entitled "The *Journal of Risk and Insurance*: Authors of Influence" by Steven W. Pottier, Jianren Xu, and Joshua D. Frederick (*Risk Management and Insurance Review*, December 2017, Vol. 20, No. 3, 339-362, DOI: 10.1111/rmir.12089) looked at authors who have published in the top tier *Journal of Risk and Insurance* from 1989 to 2010 based on the number of citations to these articles from 1989 to 2014. I ranked #3 in the world in terms of number of citations of articles published there, and #3 among all JRI authors in the world in terms of the number of non-insurance journal citations received.

In 2014 I was appointed as member of the National Academy of Sciences, Medicine and Engineering's Committee to investigate affordability and availability in the National Flood Insurance Program (2014-2015)

In 2013 a paper entitled "The Most Prolific Contributing Authors to the Leading Risk Management and Insurance Journals: 1984-2013" by Jean Heck (Social Science Research Network) identified the most prolific contributors to the world's three most elite journals in Risk Management and Insurance. In terms of the number of appearances I was ranked #9 in the world over the last 30 years and when the impact factor of the journal was taken into account, I ranked #2 in the world over the 30 year history. Also analyzed was the past ten years of contribution. In this I ranked # 2 in the world overall, and once the impact factor of the journal was taken into account, I rose to #1 in the world.

In 2013 I was appointed as member of National Academy of Sciences' National Research Council Committee to investigate costs and benefits of reforms to the National Flood Insurance Program (2013-2014)

In 2011 I was awarded the American Risk and Insurance Association's Excellence in Teaching Award, August, 2011 at annual meeting in San Diego, California

In 2011 I was appointed as a member of National Academy of Sciences' Water Resources Board's panel to investigate risks in the levee systems in America and the National Flood Insurance Program (2011-2012)

In 2009 the article "Brockett, Patrick L., Richard Derrig, and Xiaohua Xia. "Using Kohonen's Self Organizing Feature Map to Uncover Automobile Bodily Injury Claim Fraud," *The Journal of Risk and Insurance*, June 1998. Vol. 65, No. 2, 245-274 was listed as tied with one other article in insurance, actuarial science, and finance for the 8<sup>th</sup> most cited *Journal of Risk and Insurance* article (See December 2009 issue *Journal of Risk and Insurance*, Table 8 p. 497).

Listed as the Top Ten Most Published Researcher in the World in the 75 year history of *The Journal of Risk and Insurance* (the premier academic journal in risk management and insurance in the world) in terms of the number of pages published. See Mary A. Weiss and Joseph Qiu (2008) "*The Journal of Risk and Insurance: A 75-Year Historical Perspective*," *The Journal of Risk and Insurance*, 2008, Vol. 75, No. 2, 253-274.

Ranked as the 12<sup>th</sup> most impactful scholar (non-tied ranking) among 1,376 management science (MS)/production and operations management (POM) professors in 225 American business schools in the USA according to the H-index of scholarly productivity and impact. The H-index is a citation based methodology for determining the impact of a scholar which does not place undue emphasis on the "one hit" authors, or people who churn out numerous papers which are never cited by others, as might a simple web of science citation count. The H-index quantifies both the actual scientific productivity and the apparent scientific impact of a scientist. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other people's publications. The index was suggested by the physicist Jorge E. Hirsch as a tool for determining theoretical physicists' relative quality, was published in the *Proceeding of the National Academy of Sciences*, and is sometimes called the Hirsch index or Hirsch number. The MS/POM scholarly impact study research, which took almost a year to complete, was conducted at DePaul University by Bin Jiang and I was informed of the results via email in 2008.

Casualty Actuarial Society's ARIA Research Prize 2008 given to "the author(s) of that paper published by the American Risk and Insurance Association (ARIA) which provides the most valuable contribution to casualty actuarial science" awarded by the Casualty Actuarial Society. For the paper by Patrick L. Brockett, and Linda L. Golden entitled "Biological and Psychobehavioral Correlates of Risk Taking, Credit Scores, and Automobile Insurance Losses: Toward an Explication of Why Credit Scoring Works," *The Journal of Risk and Insurance*, 74(1), March 2007. 23-63.

Elected Fellow of the Institute for Risk Management (2008)

American Risk and Insurance Association Outstanding Achievement Award, August 2006, for furthering the science of risk management through the promotion of education, research and communication during my nine year tenure as editor of *The Journal of Risk and Insurance* from 1998-2006.

Member of the Board of Directors, Board on Mathematical Sciences and their Applications, National Research Council, The National Academies of Science of the United States, 2005-2008.

Elected Member of the International Statistical Institute 2006. This is a very prestigious election of only a select few statisticians worldwide.

RMIR Perspectives Award for 2006 for the most outstanding perspectives article published in the *Risk Management and Insurance Review* during 2005, given by the American Risk and Insurance Association August 2006 for the paper by Patrick L. Brockett, Mulong Wang, and Chuanhou Yang (2005) "Weather Derivatives and Weather Risk Management," *Risk Management and Insurance Review* 8(1) 127-140.

Robert C. Witt Research Award 2005 for the most outstanding feature article published in *The Journal of Risk and Insurance* during 2004, given by the American Risk and Insurance Association August 2005 for the paper, by Patrick L. Brockett, John Semple, Ray Chang, John J. Rousseau, and Chuanhou Yang (2004) "A Comparison of HMO Efficiencies as a Function of Provider Autonomy," *The Journal of Risk and Insurance* 71, 1 (March), 1-13.

Robert I. Mehr Award 2004 given by the American Risk and Insurance Association August 2004 "for that journal article making a ten year lasting contribution to risk management" and having "withstood the test of time". Received for: Brockett, Patrick L., William W. Cooper, Linda L. Golden, and Utai Pitaktong (1994), "A Neural Network Method for Obtaining an Early Warning of Insurer Insolvency," *The Journal of Risk and Insurance*, September, 402-424

Casualty Actuarial Society's ARIA Research Prize 2003 given to "the author(s) of that paper published by the American Risk and Insurance Association (ARIA) which provides the most valuable contribution to casualty actuarial science" by the Casualty Actuarial Society. For the paper by Patrick L. Brockett, Richard A., Derrig, Linda L. Golden, Arnold Levine and Mark I. Alpert entitled "Fraud Classification Using Principal Component Analysis of RIDITs," *The Journal of Risk and Insurance*, 2002 69(3), 341-372.

Casualty Actuarial Society's ARIA Research Prize 2001 given to "the author(s) of that paper published by the American Risk and Insurance Association (ARIA) which provides the most valuable contribution to casualty actuarial science" by the Casualty Actuarial Society. For the paper Brockett, Patrick L., Hung-Gay Fung, Gene C. Lai, Richard D. MacMinn, and Robert C. Witt. December 2000. "Great (and not so Great) Expectations: An Endogenous Economic Explication of Insurance Cycles and Liability Crises," *The Journal of Risk and Insurance*, Vol. 67, No. 4. (Dec., 2000), pp. 617-652

International Brian Hey Prize (Second Place) 2000 Competition held by the Institute of Actuaries in England and the Scottish Faculty of Actuaries, Second Prize. October, 2000. For the paper Brockett, Patrick L., Hung-Gay Fung, Gene C. Lai, Richard D. MacMinn, and Robert C. Witt. December 2000. "Great (and not so Great) Expectations: An Endogenous Economic Explication of Insurance Cycles and

Liability Crises," *The Journal of Risk and Insurance*, Vol. 67, No. 4. (Dec., 2000), pp. 617-652

David Rist Prize 1999 (Finalist) Competition is for the most outstanding paper on military operations research, by the Military Operations Society, 1999, for the paper Brockett, Patrick L., B. Golany, J. J. Rousseau, D.A. Thomas, and L. Zhou. 1997. "Forecasting and Allocation of US Army Recruiting Resources," *Military Operations Research*, Vol. 3 No. 3, pp. 13-29.

Holder of the Thomas Boles Chair in Actuarial Science, Georgia State University, Atlanta, Georgia, 1998

Society of Actuaries Annual Prize, 1996 winner of Annual Prize for the Best Paper of the Year for 1996 from the Society of Actuaries for the article Brockett, Patrick L., S. Cox, B. Golany, F. Phillips, and Yun Song. 1996. "Actuarial Uses of Grouped Data: An Information Theoretic Approach to Incorporating Secondary Data," *Transactions, of the Society of Actuaries*, Vol. 17, 75-99.

Franz Edelman Competition (Semi-finalist) for the most outstanding application of management science techniques in practice, Institute for Operations Research and the Management Sciences (INFORMS), 1995 for our work on US Army recruiting subsequently summarized in the paper Brockett, Patrick L., B. Golany, J. J. Rousseau, D.A. Thomas, and L. Zhou. 1997. "Forecasting and Allocation of US Army Recruiting Resources," *Military Operations Research*, Vol. 3 No. 3, pp. 13-29.

Winner of the "Best Paper Award" for 1994 from the International Insurance Society, June 19-23, 1994 Madrid, Spain for the paper Brockett, Patrick L., G. C. Lai, S. W. Pottier, and R. C. Witt. June 19-23, 1994. "Ambiguity, Risk Charges, and Insurance Pricing," *Proceeding of the International Insurance Society*, Madrid, Spain, pp. 298-311.

The Halmsted Prize for the Most Outstanding English Language Publication in Actuarial Science in the World (1993)," presented by The Society of Actuaries for my article "Information Theoretic Approach to Actuarial Science: A Unification and Extension of Relevant Theory and Applications," *Transactions of the Society of Actuaries*, Vol. 43, 73-135.

American Statistical Association Award for "Most Outstanding Statistical Application Article Published in any Journal, in any Field, and in any Language During 1990 or 1991," presented by the American Statistical Association (1992) for my article "Information Theoretic Approach to Actuarial Science: A Unification and Extension of Relevant Theory and Applications," *Transactions of the Society of Actuaries*, Vol. 43, 73-135.

American Risk and Insurance Association's Award for "Outstanding Feature Article" Published during 1986 in *The Journal of Risk and Insurance*" presented by the American Risk and Insurance Association for the article Brockett, Patrick L., S. H. Cox, Jr., and R.C. Witt. June 1986. "Insurance Versus Self-Insurance: A Risk Management Perspective," *The Journal of Risk and Insurance*, Vol. 53, 242-257.

American Risk and Insurance Association's Award for "Outstanding Communication"

Published During 1983 in *The Journal of Risk and Insurance* presented by the American Risk and Insurance Association for the article Brockett, Patrick L. December 1983. "On the Misuse of the Central Limit Theorem in Some Risk Calculations," *The Journal of Risk and Insurance*, Vol. 50, No. 4, 727-731.

**ELECTED PROFESSIONAL SOCIETY FELLOWSHIPS AND HONORS**

The Institute of Risk Management (**Elected Fellow**)  
International Statistical Institute (**Elected Member**)  
The American Association for the Advancement of Science (**Elected Fellow**)  
The Institute of Mathematical Statistics (**Elected Fellow**)  
The American Statistical Association (**Elected Fellow**)  
The Royal Statistical Society Fellow  
(also elected Chartered Statistician by RSS)  
The Operations Research Society of America (now INFORMS) (elected Full Member when it was ORSA)

**OTHER PROFESSIONAL SOCIETY MEMBERSHIPS**

Academy of Marketing Science  
American Marketing Association  
American Risk and Insurance Association (Past President)  
Asia Pacific Risk and Insurance Association  
Casualty Actuarial Society (Academic Corresponding Member)  
Institute for Operations Research and Management Sciences (INFORMS)  
International Actuarial Association (Individual Life Member, ASTIN section)  
Society for Marketing Advancements  
Southern Risk and Insurance Association  
Western Risk and Insurance Association

**CURRENT EDITORIAL POSITIONS**

2014-            Editor, *North American Actuarial Journal* (Society of Actuaries' flagship journal and one of the top two actuarial journals worldwide)  
2007-2019      Associate Editor, *The Journal of Risk and Insurance* (American Risk and Insurance Association's flagship journal and the very top journal worldwide)

**PREVIOUS EDITORIAL POSITIONS**

2008-2015      Editorial Board Member, *Journal of International Business and Entrepreneurship*



- 2000 -2014 Member of Distinguished Honorary Editorial Board, *North American Actuarial Journal*. This position is for a selected few who not only serve on the Editorial Board, but also have been chosen to give advice on strategy and directions to the Editor.
- 2011 Special Guest Editor of the *North American Actuarial Journal* Special Issue (January) on Longevity Risk and Capital Market Solutions (with David Blake, Samuel Cox, Richard MacMinn) Volume 15 Issue 2.
- 1984-2008 Associate Editor, *Insurance: Mathematics and Economics*, one of the very top journals in actuarial science and insurance mathematics published in Europe
- 1998-2007 Editor, *The Journal of Risk and Insurance*, the flagship journal of the American Risk and Insurance Association and the most prestigious academic journal in risk management and insurance in the world
- 2000-2004 Member of the Editorial Board, *Applied Stochastic Models in Business and Industry* (formerly *Applied Stochastic Models and Data Analysis*)
- 1999 Special Guest Editor of the *North American Actuarial Journal* Special Issue (January) on Genetic Testing and its Impact on the Insurance Industry
- 1997 Co-Editor (with W.W. Cooper, A. Berger, and J. Pastor) Special Issue of the *European Journal of Operations Research* on new methodologies and directions in the evaluation of financial institutions.
- 1995- 2000 Associate Editor, *North American Actuarial Journal*, the flagship journal of the Society of Actuaries and the most prestigious academic journal in actuarial science in North America
- 1995-1998 Associate Editor for Book Reviews, *North American Actuarial Journal*
- 1991-1993 Associate Editor, *Naval Research Logistics*
- 1979-1980 Associate Editor, Book Review Section, *Journal of the American Statistical Association*

## UNIVERSITY PROFESSIONAL HONORS AND AWARDS RECEIVED

Global Research Fellow IC<sup>2</sup> Institute, University of Texas

Fellow of the Humanities Research Institute at the University of Texas (2011)

Deans Fellow: McCombs School of Business (Spring 2010)

Deans Fellow: McCombs School of Business (Spring 2005)

Dean's Fellow 1998, University of Texas at Austin College and Graduate School of Business

Outstanding Graduate Teacher Award (University-wide competition), by The University of Texas at Austin Graduate School, 1995.

Award for Research Excellence, presented by The University of Texas CBA Foundation Advisory Council (1992)

Faculty Research Assignment, University of Texas Graduate School (Spring 1991)

Award for Research Excellence, presented by The University of Texas CBA Foundation Advisory Council (1984)

### **OTHER UNIVERSITY PROFESSIONAL AWARD NOMINATIONS**

Information, Risk and Operations Management Department Nominee for College-wide Career Award for Outstanding Research Contributions (2015)

Information, Risk and Operations Management Department Nominee for College-wide Career Award for Outstanding Research Contributions (2014)

Management Science and Information Systems Department Nominee for College-wide Award for Outstanding Research Contributions (2006)

Management Science and Information Systems Department Nominee for University-wide Outstanding Graduate Teacher Award (1993)

Finance Department Nominee for College-wide Award for Research Excellence, (1991)

Nominated for Outstanding Professor Award, The Graduate Business Council (1987)

Nominated for Friar Society Teaching Award (1987)

Finance Department Nominee for University-wide Outstanding Graduate Teacher Award, (1989, 1992, and 1993)

Nominated for Outstanding Researcher Award, Golden Key National Honor Society (1987)

Nominated for Outstanding Teacher Award, Golden Key National Honor Society (1985)

### **OFFICES IN PROFESSIONAL ORGANIZATIONS AND PROFESSIONAL SERVICE**

2000-2020     Member of Board of Directors, Texas Property and Liability Insurance Guaranty Association (Appointed as a Public Member by the Texas State Commissioner of Insurance)

2010-2013     Member of the Theory of Risk Committee of the Casualty Actuarial Society,

2009-2018     Chair, ARIA Actuarial Research Award Committee, American Risk and Insurance Association. Raise funds for award

Co-Organizer 6<sup>th</sup> Longevity Risk and Capital Market Solutions Conference, Sydney, Australia, September 2010

Member of the Committee to determine the Robert I. Meir Award for the most outstanding article published in *The Journal of Risk and Insurance*

- ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
- 2009 Member of the Theory of Risk Committee of the Casualty Actuarial Society, 2009
- Chair, Ad hoc committee on ARIA Actuarial Research Award, American Risk and Insurance Association
- Co-Organizer 5<sup>th</sup> Longevity Risk and Capital Market Solutions Conference, New York, New York September 2009
- Member of the Committee to determine the Robert I. Meir Award for the most outstanding article published in *The Journal of Risk and Insurance* ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
- 2008 Member of the Theory of Risk Committee of the Casualty Actuarial Society, 2008
- Member of the Wright –Kulp Book Award Committee to determine the most outstanding contribution to the risk management literature, sponsored by the American Risk and Insurance Association
- Completed (with Professor Richard MacMinn) the raising of funds for the American Risk and Insurance Association (ARIA) to establish an endowment for a research award titled “The Robert C. Witt Award” for the most outstanding feature article published each year in the *Journal of Risk and Insurance*. This Award is given by ARIA in honor of former UT risk management and insurance professor Robert C. Witt.
- Member of the Committee to determine the Robert I. Meir Award for the most outstanding article published in *The Journal of Risk and Insurance* ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
- 2004-2007 Member of the Board of Directors, Board on Mathematical Sciences and their Applications, National Research Council, The National Academies of the United States
- 2007 Member of the Committee to determine the Robert I. Meir Award for the most outstanding article published in *The Journal of Risk and Insurance* ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
- 1998-2006 Co-Chair (with Richard MacMinn) of the Meir Award for the most outstanding article published in *The Journal of Risk and Insurance* ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
- 2002-2003 Immediate Past President, American Risk and Insurance Association.
- 1999- 2003 Executive Committee Member for the Board of Directors, American Risk and Insurance Association.

2001-2002	President, American Risk and Insurance Association.
2002-2003	Chair, Officer Nomination Committee, American Risk and Insurance Association.
2000-2001	Chair, Finance Committee, American Risk and Insurance Association
2000-2001	Chair, Strategic Planning Committee, American Risk and Insurance Association
2000-2001	President-Elect, American Risk and Insurance Association
1999- 2000	Member of the Society of Actuaries Task Force on Education and Qualifications 20005
2000-2006	Liaison, Society of Actuaries with the American Association for the Advancement of Science
2000	Organizer of International Annual Convention, American Risk and Insurance Association (2000)
1999 –2000	Vice President, American Risk and Insurance Association
1996-2001	Member of Board of Directors, American Risk and Insurance Association
1998-2006	Co-Chair (with Richard MacMinn) of the Meir Award for the most outstanding article published in <i>The Journal of Risk and Insurance</i> ten years previously which has “withstood the test of time”, given by the American Risk and Insurance Association
2002-2003	Co-Chair (with Richard MacMinn) of the Robert C. Witt Award for the most outstanding article published in <i>The Journal of Risk and Insurance</i> during the previous year, by the American Risk and Insurance Association
1998	Organizer, Bowles Symposium on Genetic Technology and its Impact on Insurance Underwriting, Georgia State University, March 1998
1991	Member of the Committee to determine Kulp-Wright book awards given by the American Risk and Insurance Association
1990	Member of the Committee to Determine Stickler Teaching Innovation Award given by the American Risk and Insurance Association
1987-1988	Member of the Nominating Committee for the American Risk and Insurance Association
1985, 90, 92, 2008, 2009	Member of the Committee to Determine Awards for the <i>Journal of Risk and Insurance</i> , American Risk and Insurance Association.
1986-1988	Supervisor and organizer of the Society of Actuaries examinations for the Austin, Texas examination center
1985-1989	Member of the National Science Foundation Measurement Methods and Data Improvement Advisory Panel
1985	Member of the Program Coordinating Committee for the Annual Meeting of the American Risk and Insurance Association

- 1985-95      Member of the Society of Actuaries Committee on Relations With Statistical Societies
- 1984          Co-organizer (with S.H. Cox), Twentieth Annual Actuarial Research Conference, sponsored by the Society of Actuaries
- 1979          President, Austin Chapter of the American Statistical Association
- 1978          Vice President, Austin Chapter of the American Statistical Association

## **PUBLICATIONS**

### **Books**

- Brockett, Patrick L., and A. Levine. 1984. *Statistics, Probability and Their Applications*, W. B. Saunders Publishing Co., (Reprinted in Japan, by HRW International, 1986).
- Baranoff, Etti G, Patrick Brockett and Yehuda Kahane, *Risk Management for the Enterprise and Individuals*, Flatworld Knowledge Publisher, Spring 2009.  
<http://www.flatworldknowledge.com/>

### **Monographs**

- Aird, Paul, Patrick Brockett, and Robert C. Witt. 1993. *An Analysis of Pricing and Availability Problems in the Texas Automobile Insurance Market*, National Association of Independent Insurers.
- Brockett, Patrick L. and Patricia Arnold 2004 "Deregulation, Pricing and Availability Issues in the Texas Homeowners Insurance Market" (Fall) 2004 monograph, *Texas Public Policy Foundation*
- National Research Council of the National Academy of Sciences. *Levees and the National Flood Insurance Program: Improving Policies and Practices*. Washington, DC: The National Academies Press, 2013 (I was part of National Research Council committee that wrote the monograph)
- National Research Council of the National Academy of Sciences. *Affordability of National Flood Insurance Program Premiums -- Report 1*, Washington, DC: The National Academies Press, 2014 (I was part of National Research Council committee that wrote the monograph)
- National Research Council of the National Academy of Sciences. *Affordability of National Flood Insurance Program Premiums -- Report 2*, Washington, DC: The National Academies Press, 2015 (I was part of National Research Council committee that wrote the monograph)

### **Articles on Risk Management and Insurance**

- Bertrand, W., Patrick L. Brockett, and A. Levine. 1979. "A Methodology for Determining High Risk Components in Urban Environments," *International Journal of Epidemiology*, Vol. 8, No. 2, 161-166.
- Brockett, Patrick L., and R. C. Witt. December 1982. "The Underwriting Risk and Return Paradox Revisited," *The Journal of Risk and Insurance*, Vol. 49, No. 4, 621-627.

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- Golden, Linda L., Patrick L. Brockett and Anji Song, (2017), "Developments in Mobile Commerce: Marketing Opportunities Create the Need for Risk Awareness and Management" Chapter 5 in the book *Special Topics in Economics & Management*, E. C. Foster, N. Tzempelikos, C. Sakellariou & P. Andrikopoulos, Eds., Atiner Institute for Education & Research, Athens, Greece
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### **Book Reviews**

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- Brockett, Patrick L., and Linda L. Golden. June 2001. *Law of the Internet* by George B. Delta and Jeffrey H. Matsuura, Aspen Law & Business Publishers 1999, Reviewed in *The Journal of Risk and Insurance* Vol. 68, No. 2, pp.372-374.

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- Brockett, Patrick L. May 1988. *Model Selection*, by H. Linhart and W. Zucchini, John Wiley and Sons, Reviewed in *Journal of Marketing Research*, Vol. 25, 214-215.
- Brockett, Patrick L., and S. H. Cox Jr. 1984. *Stochastic Methods in Economics and Finance*, by A. Malliaris and W. Brock, Reviewed in *Journal of the American Statistical Association*, Vol. 80, 236-237.
- Brockett, Patrick L. 1983. *Comparative Statistical Inference (2nd edition)*, by Vic Barnett, Reviewed in *Journal of the American Statistical Association*, Vol. 78, No. 382, 503.

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- Brockett, Patrick L. 1980. *The Asymptotic Theory of Extreme Order Statistics*, by Janos Galambos, John Wiley Interscience (1978), Reviewed in *Journal of the American Statistical Association*, Vol. 75, 473-474.
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- Brockett, Patrick L. 1978. *Characterizations of the Normal Probability Law*, by A. M. Mathai and G. Pederzole, Halsted Press, Reviewed in *Journal of the American Statistical Association*, Vol. 73, 896.
- Brockett, Patrick L. 1978. *Two Essays on Entropy*, by Rudolf Carnap, University of California Press, Reviewed in *Journal of the American Statistical Association*, Vol. 73, 896.

## GRANTS AND CONTRACTS RECEIVED

- |              |   |
|--------------|---|
| 2013         | Securities and Exchange Commission, 16 hours of lectures on insurance and capital markets   |
| 2013    2015 | Received AARP grant to study Medicare Fraud   |
| 2009-2013    | Insurance Council of Texas, \$4,500 each year for faculty research support in risk management   |
| 2004-5       | Graduate Student Research Support for Legislatively Mandated Credit Scoring and Insurance Study Texas Department of Insurance, about \$60,000               |
|              | Faculty Research Support for Legislatively Mandated Credit Scoring and Insurance Study, given by Texas Department of Insurance, about \$40,000              |
|              | Psychological and biological correlates of risk taking, given by Actuarial Education and Research Foundation (AERF). (with Linda L. Golden co-PI), \$22,500 |
|              | Research on Detection of Insurance Fraud in Insurance in Spain, given by the Spanish Government, about 15,000 Euros.  |

- 2002-3 Statistical Analysis of Credit Scoring and Insurance Losses, given by the Texas State Lt Governor's Office, about \$55,000 plus equipment (with Bruce Kellison).
- 1997-1998 Genetic Testing and Insurance." Granting Organization: Actuarial Education and Research Fund (AERF), Society of Actuaries
- 1994-1995 "Revalidation and Upgrade of the Enhanced FAARS-SHARE Model." Granting Organization: U.S. Army Research Office
- "Alternative Technical Methods for Predicting Insolvency of Life and Health Companies" (with James Jarrett), from the Texas Department of Insurance
- "A Validation of the Texas Early Warning System" (with James Jarrett), from the Texas Department of Insurance
- 1991 "Reserve Forecasting and Allocation of Army Recruiting Resources Study -- Sequential Hierarchical Allocation of Resource Elements (FAARS-SHARE) Systems." Granting Organization: U.S. Army Research Office
- 1999-1993 "Development of a Vector Extremal Model for the Navy's Awaiting Instruction Problem," (with Gang Yu). Granting Organization: Office of Naval Research
- 1993-1994 "An Analysis of Pricing and Availability Problems in the Texas Auto Insurance Market" (with Bob Witt). Granting Organization: National Association of Independent Insurers
- Research Grant from The Actuarial Education and Research Fund of The Society of Actuaries for "Operations Research in Insurance"
- 1990-1991 "An Analysis Focused Taxonomy of Risk, Uncertainty, Ambiguity and Incomplete Information in Modeling and Decision Making in Insurance Operations." Granting Organization: College of Business Administration Summer Research Award
- University Research Institute-Small Research Grant (\$500)  
University Research Institute - Faculty Research Assignment (One semester off with pay for Spring 1991)
- "Statistical Models for Early Warning Systems of Insurance Company Insolvencies," (with W.W. Cooper). Granting Organization: Texas State Auditor's Office



- 1989-1990 CBA Faculty Academic Development and Research Committee - Summer research award
- University Research Institute-Small Research Grant (\$500)
- “Information Theoretic Unification of Solutions of Problems in Actuarial Science: Research and Study Note.” Granting Organization: Actuarial Education and Research Fund (AERF), Society of Actuaries
- 1988-1989 CBA Faculty Academic Development and Research Committee - Summer research award
- 1987-1988 “Chebychev Systems of Functions as a Unifying Technique for some problems in Finance, Economics, and Insurance.” College of Business Administration Summer Research Award
- 1986-1987 “Information Theoretic Analysis of Discrete Data.” Granting Organization: College of Business Administration Summer Research Award
- 1986-1987 “Computation of Information Theoretic Statistics.” Granting Organization: University Research Institute
- 1986-1987 “Computation of Information Theoretic Statistics.” Granting Organization: IBM Project Quest (joint with L. L. Golden and R.A. Peterson)
- 1984-1987 “Non Gaussian Ocean Surveillance” (with the Applied Research Laboratories, The University of Texas at Austin). Sponsor: Office of Naval Research
- 1980-1984 “Characterization of Non-Gaussian Stochastic Processes in Underwater Acoustics and Development of Signal Processing Algorithms.” (Joint effort with C. Baker, University of North Carolina, and the Applied Research Laboratories, The University of Texas at Austin). Sponsor: Office of Naval Research
- 1978-1980 “Statistical Tools for Determining Fitness to Fly.” Contracting Organization: U.S. Air Force (Brooks Air Force School of Aerospace Medicine, San Antonio, Texas). Co-Principal Investigator: G. Shea
- 1978 “Statistical Analysis of Stochastic Processes with Independent Increments.” Granting Organization: National Science Foundation

- 1976 "Admissible Transformations of Measures on Locally Compact Groups."  
Granting Organization: Tulane University Committee on Faculty Research

### INVITED ADDRESSES, LECTURES, AND PAPERS PRESENTED

- 1974 "An Index for Convergence of Sums of Independent Random Variables,"  
November 1974 meeting of the American Mathematical Society at the University of Southern California
- 1975 "A Methodology for Inverting Mixing Distributions," April 1975, University of Wisconsin-Parkside Mathematics Department
- "Estimating Mixing Distribution Functions via Moments," Tulane University Mathematics Department, New Orleans, April 1975
- 1976 "Limit Distributions of Sums Under Mixing of the Scale Parameter," Invited talk at March 1976 meeting of the Institute of Mathematical Statistics held at Texas A & M University
- "Admissible Transformations of Measures," January 1976 meeting of the American Mathematical Society in San Antonio, Texas
- "Support of Infinitely Divisible Measures on Hilbert Space," special session on probability and statistics, November 1976, meeting of American Mathematical Statistics in Albuquerque, New Mexico
- 1977 "Design and Mathematical Analysis of Questionnaires," Colloquium Lecture, Department of General Business, December 1977, The University of Texas at Austin
- 1978 "Approximating Moment Sequences to Obtain Consistent Estimates of Distribution Functions," January 1978 Annual Meeting of American Mathematical Society in Atlanta, Georgia.
- Chairman, session on Probability Theory and Stochastic Processes, January 5, 1978 Annual Meeting of American Mathematical Society, Atlanta, Georgia
- "A Methodology for the Analysis of Categorical Questionnaires," January 1978 lecture, Brooks Air Force Base, Biomedical Computation Division, San Antonio, Texas
- "A Characterization of Information Divergence with an Application to Questionnaire Information," American Mathematical Society Meeting, April 1978, San Francisco, California
- "A Mathematical Analysis of Questionnaires," Austin Chapter of the American Statistical Association, May 1978
- "Zeros of the Densities of Infinitely Divisible Probability Measures," Colloquium, Mathematics Department, Tulane University, October 1978

- “Information Theory and Statistics,” Mathematics Department Colloquium, Tulane University, October 1978
- 1979 “Recognition of Trends in Health Monitoring Systems with Low Reliability Data,” Austin Chapter, American Statistical Association, January 1979 meeting
- “Discriminant Analysis with Categorical Information,” invited talk, April 30, 1979 meeting, Operations Research Society of America, New Orleans
- “Non-parametric Tests for Trends,” Department of Mathematics Colloquium Lecture, Tulane University, May 1979
- “Information Theoretic Discrete Variable Selection,” June 1979 meeting of the Institute of Mathematical Statistics, Los Angeles
- “Minimum Discrimination Information Estimation via Unconstrained dual Convex Programming,” September 1979, Fifth Congress of the National Academy of Engineering of Mexico (National Academy of Sciences of Mexico), Morelia, Mexico
- “Monitoring Adverse Reactions to Drugs by Non-parametric Statistical Methods,” October 1979, Colloquium, University of Louisville, Louisville, Kentucky
- 1980 “Discrimination Without Training Samples, with Applications to World Health Organization Data,” February 1980, Department of Statistics Colloquium, University of California, Riverside
- “High-Low Discriminant Analysis of Categorical Data Using RIDITS,” invited presentation for session on discriminant analysis, Biometric Society Meeting, March 1980, Charleston, South Carolina
- “Statistical Techniques for Determining Fitness to Fly,” March 1980, Brooks Air Force School of Aerospace Medicine, San Antonio, Texas
- “Statistical Model for Survival Incorporating Time Dependent Covariates,” Austin Chapter, American Statistical Association, May 1980
- “Unimodality of High Convolutions,” Department of Mathematics Colloquium, October 1980, University of California, Riverside
- “Using Time Dependent Covariates to Assess Survival Probabilities with an Application to Heart Disease,” December 1980, Colloquium, University of California, Irvine, Community & Environmental Medicine, and Southern Occupational Health Center
- 1981 “Analysis of Categorical Questionnaires with an Application to Marketing Research,” Seminar in the Finance Workshop, January 1981, Graduate School of Management, University of California, Irvine
- “A Periodic Check Up Statistical Model for Heart Disease in Air Force Fliers,” February 1981 Colloquium, California State University at Long Beach
- “Periodic Check Up Survival Analysis Model,” April 1981 Colloquium, Department of Statistics, University of California, Riverside

- 1982 "Self Insurance and Regret," April 1982, Risk Theory Seminar (Sponsored by the American Risk and Insurance Association), Columbus, Ohio
- "Identifiability of Competing Risk Models," June 1982, Institute of Mathematical Statistics, San Diego, California
- 1983 "Self Insurance and Disutility," Southwestern Risk and Insurance Association, January 1983, Newport Beach, California
- "Likelihood Detection for Infinitely Divisible Processes," February 1983, Department of Mathematics Colloquium, Tulane University
- "Non-Parametric Density Estimation," June-July 1983, Non Gaussian Signal Processing Conference (sponsored by the Office of Naval Research)
- "Optimal Choice Among Risky Assets for a Class of Utilities Containing All Common Utility Functions," Operations Research Society of America, November 1983 Special Session on Quantitative Methods in Financial Decision Analysis
- "On Market Efficiency and the Lognormal Distribution of Returns," Operations Research Society of America, November 1983 Special Session on Quantitative Methods in Financial Decision Analysis
- Organizer and chairman of Special Session on Quantitative Methods in Financial Decision Analysis, Operations Research Society of America, November 1983
- 1984 "Bispectral Analysis of Underwater Acoustical Data," Non-Gaussian Signal Processing Conference, Princeton, N. J., March 1984, sponsored by the Office of Naval Research
- "Constructing a Unimodal Prior Distribution," National Academy of Engineering of Mexico, Ciudad Obregon, Sonora, Mexico, September 1984
- "A Method for Constructing a Unimodal Prior Density," Actuarial Research Conference, Society of Actuaries, Berkeley, California, October 1984
- 1985 "An Empirical Statistical Test of the Linear and Gaussian Time Series Models for Interest Rate Series," May 1985 Symposia on Statistics and Festschrift for Joshi, London Ontario, Canada
- "Information Theoretic Methods for Insurance Calculations," August 1985, American Risk And Insurance Association annual meeting, Vancouver, British Columbia, Canada
- 1986 "Financial Consideration of Risk--Pluses and Minuses," Operations Research Society of America, November 1986, Special Session on Quantitative Methods in Financial Decision Analysis
- 1987 "Comparison of Risk Characteristics of Individual Decision Makers," (invited) International Risk Theory Symposium, Mathematics Institute, Oberwolfach, Germany
- "The Contributions of A. Charnes to Statistical Thought," (with L. Seiford), Symposium Honoring A. Charnes on his Seventieth Birthday, Austin Texas

- 1989 "A New Method for Identifying Asymmetric Relationships Among Variables: Information Theory Applied to Affect, Location Convenience and Patronage Frequency," (with Linda L. Golden and Mary R. Zimmer), Winter Educator's Conference of the American Marketing Association, February 1989, St. Petersburg, Florida
- 1990 "Linear and Nonlinear Time Series Models in the Financial Theory of Insurance Companies," (co-authored with Robert C. Witt), Invited lecturer at the American Statistical Association Annual Meeting, Anaheim, California. This session was jointly sponsored by the Business and Economic Statistics section of the ASA and by the Society of Actuaries
- "Stochastic Process Models for Ventured Capital Decisions," (with Samuel Cox, and James Gerberman), Business and Economic Statistic section of the American Statistical Association annual meeting, Anaheim, California
- "Risk, Return, Skewness and Preference," (with Yehuda Kahane), August 1990, The American Risk and Insurance Association Annual Meeting in Orlando, Florida
- Discussant of the paper "Fuzzy Trends in Automobile Insurance," by J. David Cummins and Richard Derrig, at the American Risk and Insurance Association Annual Meeting in Orlando, Florida
- 1991 "Fun With Moment Problems--The Schmitter Problem," (invited) International Risk Theory Symposium, Mathematics Institute, Oberwolfach, Germany
- "A Reexamination of the Relationship Between Moment Preferences And Utility," April 1991, the Risk Theory Seminar of the American Risk and Insurance Association, Penn State University
- "Event Frequency Modeling: A Unification of the Mixed And Compound Poisson Distributions With Application To Purchase Frequency Events," (with Linda Golden and Harry Panjer), invited presentation, July 1991, ORSA/TIMS/SOBRAPO Joint International Conference, Rio de Janeiro, Brazil
- "A Chance Constrained Programming Approach To Pension Plan Management," (with Abraham Charnes and Li Sun), August 1991, American Risk and Insurance Association Annual Meeting
- 1992 "Venture Capital Financing," Instituto Tecnologico De Monterey, April 10-11, 1992, Mexico City, Mexico
- 1993 "Superfund Reforms and the Impact on the Insurance Industry," July 1993, National Conference of Insurance Legislators (invited), Washington D.C.
- "The Genetics Revolution, Economics, Ethics, and Insurance," (with E. Susan Tankersley) August 1993, American Risk and Insurance Association Annual Meeting, San Francisco California
- "Using Neural Networks to Detect Early Warnings of Insurance Company Insolvencies," (with Linda L. Golden, Utai Pitaktong, and W.W. Cooper), August

- 1993, American Risk and Insurance Association Annual Meeting, San Francisco, California
- "Environmental Liability: The Role of Insurance," American Public Power Association (invited), October 1993, Austin, Texas
- Selected member of an eight-person international group of medical informatics specialists to go to Hungary (Budapest and Szeged) and Russia (Moscow and St. Petersburg) and meet with academic and scientific colleagues, and members of the Academy of Sciences in these countries
- Chairman of session on Issues in Business Education, Fourth Symposium on Cross-Cultural Consumer and Business Studies, December 1993, Kahuku, Hawaii.
- 1994 "New Approach to Event Study Methodology with an Application to Proposition 103," August 1994, American Risk and Insurance Association Meeting
- "Stochastic Process Models for Financial Time Series in Insurance," Meeting on Risk Theory, September 18-14, 1994, Mathematics Research Institute, Oberwolfach, Germany
- "Information Theoretic Applications to Actuarial Science," Meeting on Risk Theory, September 18-14, 1994, Mathematics Research Institute, Oberwolfach, Germany
- "Ambiguity, Risk Charges, and Insurance Pricing," (with G. C. Lai, S. W. Pottier, and R. C. Witt ) the International Insurance Society, June 19-23, 1994 Madrid, Spain . This won the "Best Paper Award" at the conference.
- 1995 "Claims Made versus Occurrence: Debunking Some Myths and Developing Some Finance Pricing Models," January 1995, Western Risk and Insurance Meeting, Las Vegas, Nevada
- "Kohonen Feature Maps for Detecting Bodily Injury Fraud Claims in Automobile Insurance," January 1995, Massachusetts Automobile Insurance Bureau, Boston, Massachusetts
- "Risk Management for Software Development Companies," American Defense Preparedness Association Test & Evaluation Symposium XI, January 31, 1995, held at the IC<sup>2</sup> Institute, Austin, Texas
- "Rank Statistical Methods for Detecting Efficiency Differences in Intertemporal DEA Analysis," Computational Economics Society Meeting, May 1995 Austin, Texas
- "Information Asymmetries and Insurance Futures Options," The Bowles Symposium on the Securitization of Insurance Risks, May 24-26, 1995 Georgia State University, Atlanta, Georgia
- "Pattern Recognition Methodology: A New Approach for Identifying Fraudulent Claims in Government Programs," the National State Auditors Association Annual Conference, June 8-10, Phoenix, Arizona.

- “Information Asymmetries and Insurance Futures Options, American Risk and Insurance Association Annual Meeting, August 1995, Seattle, Washington.
- "Kohonen Feature Maps for Detecting Bodily Injury Fraud Claims in Automobile Insurance," American Risk and Insurance Association Annual Meeting, August 1995, Seattle, Washington.
- 1996 “An Application of Rank Statistics to DEA and OECD Country Productivity” (with Linda L. Golden and Shan Li) Presented to the Northeast Decision Sciences Institute annual meeting, St. Croix, V.I., April 1996.
- “The Use and Impact of Information Technology and the Internet on Risk Management and Insurance,” Presented to the Austin Chapter of the CPCU, 1996
- “The Effect of Provider Autonomy and the Efficiency of HMOs,” (with John Rousseau and J. Semple) August, 1996, American Risk and Insurance Association Annual Meeting, Philadelphia, Penn
- Houston Marine Insurance Seminar, attended and received \$10,000 in scholarships for students in Risk Management and Insurance, Houston, Texas September, 1996
- “Provider Autonomy and the Efficiency of HMOs,” 1996, Health Care Management Seminar, University of Texas at Austin
- “Risk Management and Business Risk”, October 1996, Videotaped Interview for a PBS film documentary to be aired in 1997
- Society of Actuaries Annual Meeting, attended and received Annual Prize for most outstanding publication in the *Transactions of the Society of Actuaries* for the year 1996, Orlando, Florida, November 1996
- "Issues in the Deregulation of Commercial Lines of Insurance," presented to NCOIL (National Conference of Insurance Legislators) Annual Meeting in Austin, Texas, November 18, 1996.
- 1997 “An Evaluation of the Efficiency of Different Marketing Distribution Systems in the Insurance Industry” (With Linda Golden, John Rousseau and Yuying Wang), Western Risk and Insurance Association Annual Meeting, Santa Barbara, California, January 1997
- 2000 "Fraud Classification Using Principal Component Analysis of RIDITs" August, 2000, American Risk and Insurance Association Annual Meeting, Boston, Mass. August, 2000
- “Current Issues and Research Topics in Risk Management,” Actuaries Club of the Southwest, November 2000
- 2001 "Fraud Classification Using Principal Component Analysis of RIDITs" July, international Insurance Mathematics and Economics conference, invited Plenary Keynote address, Penn State University, State University Penn.
- "DEA Evaluation of Efficiency of Marketing Distribution Systems in the U.S. Property-Liability Insurance Industry: A Financial Intermediary Approach"

Western Risk and Insurance Association annual Meeting, January, 2001, Santa Barbara, Calif.

"Modeling and Predicting Automobile Insurance Fraud" Western Risk and Insurance Association Annual Meeting, January, 2001, Santa Barbara, Calif.

"An Analysis of the Efficiency of Joint Service Advertising Versus Service Specific Advertising for Recruiting Success" (with William W. Cooper, Linda L. Golden, and Michael Kwinn) Military Operations Research Conference, West Point, June, 2001

"The History and Future of Risk Research" Invited Presidential Address, American Risk and Insurance Association Annual Meeting, Indianapolis, IN. August, 2001

- 2002 "Mediation as a Cost Containment Mechanism in Insurance: Public Perceptions and Insurer Benefits," (with Linda Golden) presented to the Western Risk and Insurance Association Annual Meeting, January.

"Assessing Fraud with Unsupervised Learning," (with Richard Derrig, Linda L. Golden, Arnold Levine), presented to the Conference on "Insurance Claim Fraud: Developing the Models and Mining the Data," sponsored by the Insurance Fraud Bureau of Massachusetts and the Coalition Against Insurance Fraud and the Insurance Research Council, Newport, Rhode Island, November, invited.

"Genetic Testing and Insurance" (with Richard MacMinn), Center for Risk and Insurance of the University of Nottingham Conference, London, England, April (Invited)

"Efficiency and Title Insurance" (with W.W.Cooper and U.Pitaktong) presented to the Western Risk and Insurance Association Annual Meeting, January.

"Technology and Risk Management" Session Chair at the Western Risk and Insurance Association Annual Meeting, January.

"The Role of Howard Tucker in Graduate Education" at Festschrift for Howard Tucker's 80<sup>th</sup> birthday Celebration, Irvine, California, October

- 2003 "Risky Business: Targeting The Chronically Uninformed in Risk Communication Campaigns," (with Anderson, Ronald and Linda L. Golden), Western Decision Sciences Institute Annual Conference, Kauai, Hawaii, April 15-19, 2003, (refereed) in the "Consumer Behavior and Marketing Mix" tract
- "Genetic Testing and Adverse Selection" (with Richard MacMinn) Western Risk and Insurance Association annual Meeting, January, 2003, Maui, Hawaii.
- "Genetic Testing and Adverse Selection" (with Richard MacMinn and J.A. Raeburn) presented at the Southern Risk and Insurance Association Meetings in Clearwater, 2003,



- “Genetic Testing and Adverse Selection” (with Richard MacMinn and J.A. Raeburn) presented at the Asia-Pacific Risk and Insurance Association Meetings in Bangkok, 2003.
- “Economic Aspects of Genetic Testing” (with Richard MacMinn) presented at the European Group of Insurance Economist meeting, Zurich, Switzerland September 2003
- “Ethics, Genetic Testing and Insurance Underwriting” Invited Plenary talk, American Risk and Insurance Association Annual Meeting, August, 2003. Denver, Colorado.
- “Credit Scoring and Insurance Underwriting” Testimony before the Texas Senate, February, 2003
- “Credit Scoring and Insurance” Automobile Agents of Texas annual meeting, Keynote speech, San Antonio, TX
- 2004 “Heavy Tailed Distributions’ Use in Enterprise Risk Management,” at conference on Enterprise Risk Management, National Academy of Sciences, January 2004, Washington DC (Sponsored by the Conference Board on Mathematical Science and their Applications)
- National Academy of Sciences Moderator of Session on “Heavy Tailed Distributions” at conference on Enterprise Risk Management, National Academy of Sciences, January 2004, Washington DC
- “Up coming issues in insurance,” Annual Policy Orientation Symposium for the Texas Legislators, sponsored by the Texas Public Policy Research Foundation Austin, Texas, January 2004
- “Fraud Classification Using Principal Component Analysis of RIDITs,” Casualty Actuarial Society Annual Conference, May, 2004 (invited to present our ARIA Award winning paper), Colorado Springs, Colorado.
- “Chance Constrained Programming Approach to Pension Plan Management Using Heavy Tailed Distributions,” The Second Erich L. Lehmann Symposium on Statistics, May 19-22, 2004, Rice University, Houston, Texas
- “Detecting Insurance Fraud using Principal Component Analysis of RIDITS,” Presented to the Austin Chapter of the American Statistical Association, Austin Texas 2004
- 2005 “Legislative Issues in insurance Regulation” 4<sup>th</sup> Annual Policy Orientation for the Texas Legislature, sponsored by the Texas Public Policy Research Foundation, Austin, TX, January 2005
- “Information Theoretic Approach to Statistical Theory and Probabilistic Understanding” Austin Chapter, American Statistical Association, February 24, 2005
- “Education and Research Directions in Actuarial Science in the United States” University of Valencia, Spain, March 2005

- “Information Theoretic Approach to Statistical Reasoning with Applications to Actuarial Science” University of Barcelona, Spain, April 2005
- “Overview of Trends in the US Insurance Market on Insurance Research” Tsinghua University, China, May 23, 2005
- “The Relevance of Information Theory for Risk Analysis” A Unifying Philosophical Approach to Thought and Risk”, Tsinghua University, China, May 23, 2005
- “Introduction to and Overview of Data Envelopment Analysis” Tsinghua University, May 24, 2005
- “Using DEA to Assess the Efficiency of the Insurance Market” Tsinghua University, May 24, 2005
- “Detecting Consumer Fraud using PRIDIT Analysis” Fudan University, China, May 23, 2005
- “Biological and Psychological Influences on Risk Taking” (with Linda L. Golden and Sandra Dunn), presented to the World Risk and Insurance Economics Conference held in Salt Lake City, August 2005. Papers are competitively reviewed.
- Chaired session and served as Discussant on paper on securitization of longevity risk at World Risk and Insurance Economics Conference held in Salt Lake City, August 2005.
- 2006- “The After-Effect of Deregulation of Insurance in Texas” Texas Public Policy Research Foundation Austin, Texas, January 2006 (Conference to prepare Texas Legislators on Issues in Texas)
- “Weather Derivatives and Risk Management,” in special invited session on Financial Engineering at the International Workshop on Applied Probability (IWAP), University of Connecticut, Storrs, Connecticut, May 15-22, 2006
- Chaired Invited Session at the 2006 Enterprise Risk Management Symposium and 8th Bowles Symposium, sponsored by the Society of Actuaries and the American Risk and Insurance Association, Chicago, Illinois, April 23-25, 2006
- 2007 “Biological and Psychobehavioral Correlates of Risk Taking, Credit Scores, and Automobile Insurance Losses: Toward an Explication of Why Credit Scoring Works,” in a special invited session at the Casualty Actuarial Society’s Predictive Modeling Seminar, Las Vegas, Nevada, October 10-12, 2007
- “A Psychological and Biological Explanation of Why Credit Scoring Works,” Faculty Research Presentation to McCombs students, November 6, 2007 (joint with Linda L Golden).
- “Active Fraud Detection”(with Jing Ai, and Linda L. Golden), presented at the INFORMS Meeting, Seattle, WA, November, 2007.
- 2008 “Quantifying Enterprise Risk Management using Chance Constrained Programming” (with Jing Ai, Linda Golden and William Cooper) Keynote

- address at the International Actuarial Conference honoring Harry Panjer's retirement, University of Waterloo, Waterloo Ontario, Canada April 11-13, 2008
- "Biological and Psychobehavioral Correlates of Risk Taking and Credit Scores, Why Credit Scoring Works" (with Linda Golden) IMPACT 2008, conference by Fair Isaac, April 27-30, 2008 San Francisco, California
- "Quantifying Enterprise Risk Management Using Chance Constrained Programming" (with Jing Ai, Linda Golden and William Cooper) Seminar presentation at the University of North Carolina, Charlotte, North Carolina June 9, 2008.
- "Addressing Credit and Basis Risk Arising From Hedging Weather-related Risk with Weather Derivatives" (with Linda Golden, Charles Yang and Hong Zou) ASTIN 2008 Symposium of the International Actuarial Institute, Manchester, England July 12-16, 2008.
- "Enterprise Risk Management", Invited academic conference on Enterprise Risk Management sponsored by the American Risk and Insurance Association and the Griffiths Foundation for Insurance Education, at Ohio State University, August 21-23, 2008
- "Weather Derivatives for Mitigating Weather Related Risks" (with Linda Golden, Charles Yang and Hong Zou) invited lecture at the 5<sup>th</sup> Conference in Actuarial Science and Finance, University of the Aegean, Samos, Greece September 1-6, 2008.
- "Sociopsychological and Biological Influences on Risk Taking: A Consumer Finance Perspective" (with Linda L. Golden) invited seminar presentation at the University of New Mexico School of Business, Albuquerque, New Mexico, November 7, 2008.
- "The Financial Crisis," Guest Lecturer in the Korean Energy Power Company (KEPCO) executive marketing management course for IC<sup>2</sup> (Fall, 2008).
- 2009 "Biological and Psychobehavioral Correlates of Risk-taking," (with Linda L. Golden) *Casualty Actuarial Society (CAS) Best Journal Article ARIA Prize Winner* Presentation at the CAS Annual Meeting, New Orleans, Louisiana, February, 2009.
- "The Origins and Implications of the Financial Crisis" invited seminar, University of Granada, Granada, Spain, April, 2009
- "On the Development of a Fraud Rate Estimation Method," (with Jing Ai, Linda L. Golden and Montserrat Guillen) Asia-Pacific Risk and Insurance Association (APRIA) 2009 Annual Meeting, July, 2009.
- "Optimization Approach to Risk Management," (with Jing Ai, Jing, Linda L. Golden, and William W. Cooper), presented at the Asia-Pacific Risk and Insurance Association (APRIA) Annual Meeting, Beijing, China, July, 2009.
- "An Investigation of Fraud Rate Estimation: Model Applications to the USA and Spain" (with Jing Ai, Linda L. Golden, and Montserrat Guillen), presented at the

- Asia-Pacific Risk and Insurance Association (APRIA) Annual Meeting, Beijing, China, July, 2009.
- “Trials, Tribulations and Trust: Addressing Issues in Internet Surveys,” (with Linda L. Golden), presented at the Academy of Marketing Science World Congress, Oslo, Norway, July, 2009.
- “On the Development of a Fraud Rate Estimation Method,” (with Jing Ai, Linda L. Golden, and Montserrat Guillen), presented at the American Risk and Insurance (ARIA) Annual Conference, Providence, Rhode Island, August, 2009.
- Chaired Research Session, at the American Risk and Insurance (ARIA) Annual Conference, Providence, Rhode Island, August, 2009
- “Modeling Risk in Catastrophe Mortality Risk Bonds,” Discussion at the 5<sup>th</sup> Longevity Risk and Capital Market Solutions Conference, New York, New York September, 2009
- “An Optimization Approach to Risk Management,” (with Jing Ai, Linda L. Golden, and William W. Cooper), presented at the Financial Management Association (FMA) Annual Conference, Reno, Nevada October 2009.
- “Internet Survey Research: Triumphs, Trials, and Tribulations -An Application to Swine Flu.” With Linda L. Golden, Faculty Research Presentation, November 12, 2009. This was the highest attended faculty research presentation ever according to a note we received afterwards.
- 2010 “Credit and Basis Risk Management Arising From Hedging Weather Related Risks Using Weather Derivatives,” (with Linda L. Golden and Charles Yang), Department of Finance, University of Hawaii, Manoa, February 5, 2010
- “Health Belief Model Implications for Motivating H1N1 Prevention Behaviors” (with Linda L. Golden and Danae Manika) Health Literacy: Communicating with Underserved Populations Research Conference, sponsored by Center for Health Promotion Research, University of Texas, Austin, Texas March 3, 2010
- “Identifying and Detecting Consumer Fraud” (with Linda L. Golden), Invited presentation, University of Granada, Granada, Spain, March, 2010
- “Consumer Risk Taking and Perceptions of Risk”, Invited presentation, University of Granada, Granada, Spain, March, 2010
- “The Global Financial Crisis: Origins, Perspectives, and Potential Future Course”, Invited presentation, University of Granada, Granada, Spain, March, 2010
- “Insurance Company Insolvency and Guaranty Funds: History and Trends” Invited presentation at the National Conference of Insurance Guarantee Funds, San Francisco, California April 27,28, 2010
- “Internet-Based Survey Research: Methodological Issues” Discussant for the session, Academy of Marketing Science, Portland, Oregon, May 29, 2010

- “A Strategic Allocation of Capital Approach to Enterprise Risk Management” (With Linda Golden and Jing Ai) 6<sup>th</sup> Conference in Actuarial Science and Finance, University of the Aegean, Samos, Greece June 1-6, 2010
- “Longevity/Mortality Risk Modeling and Securities Pricing” (with Yinglu Deng and Richard MacMinn), 2010 China International Conference in Insurance and Risk Management, Xining, China, July 18-22, 2010
- “Enterprise Risk Management Through Strategic Allocation of Capital” (With Jing Ai, Linda L. Golden, and William W. Cooper) World Risk and Insurance Economics Congress (WRIEC) 2010 Singapore Meeting, July 27 2010.
- “An Efficiency-based Methodology for Setting Promulgated Insurance Rates” (with Jing Ai, Linda L. Golden, Utai Pitaktong and Charles Yang) World Risk and Insurance Economics Congress (WRIEC) 2010 Singapore Meeting, July 25, 2010.
- “Longevity/Mortality Risk Modeling and Securities Pricing” (with Yinglu Deng and Richard MacMinn) 6<sup>th</sup> International Longevity Risk and Capital Markets Solutions Conference, Sydney, Australia September 2010
- “Dynamic Asset-Liability Management with Longevity Risk and Derivatives” (with Yinglu Deng and Richard MacMinn) 6<sup>th</sup> International Longevity Risk and Capital Markets Solutions Conference, Sydney, Australia September 2010
- “Using DEA to Assist the Regulator in Setting Promulgated Insurance Rates” (with Jing Ai, Linda L. Golden, Utai Pitaktong and Charles Yang) INFORMS Annual Meeting, Austin, Texas November 10, 2010
- 2011 “Developing Effective Public Prevention Messages: The Case of the H1N1 Flu” (with DanaeManika, and Linda Golden), presented at the Symposium for Innovation in Health Care Delivery Systems: Improving Systems for Improving Health and Health Behaviors, McCombs School, University of Texas at Austin, April.
- “Implications from the Health Belief Model for Disease Prevention Behaviors in Australia” (with DanaeManika, and Linda Golden), Academy of Market Science World Marketing Congress, Reims, France July 20-23, 2011.
- “Developments in Mobile Commerce: Economic Opportunities, Risk Analysis and Risk Management” (with Linda Golden, Danae Manika and Anji Song), 6<sup>th</sup> Annual International Symposium on Economic Theory, Policy and Applications, 25-28 July 2011, Athens, Greece
- “The Cross-cultural Impact of Prior Knowledge and Information Receptivity: It Is Not How Much You Know but How Much You Think You Know!” (with Linda Golden, and Danae Manika), 6<sup>th</sup> Annual International Symposium on Economic Theory, Policy and Applications, 25-28 July 2011, Athens, Greece
- “An Overview of Capital Market Solutions to Longevity Risk Problems with an Application to J.P. Morgan’s q-forward Derivative” (with Yinglu Deng and

- Richard MacMinn). American Risk and Insurance Association Annual Meeting August 7-10, 2011 San Diego, California
- “Usage of Credit Scores in Insurance Classification and Pricing” (with Jing Ai, Linda L. Golden, and Bruce Kellison, American Risk and Insurance Association Annual Meeting August 7-10, 2011 San Diego, California
- Invited Discussant of “Bond Insurers: Avoiding Capital Pro-cyclicality” by Xiangjing Wei, Shaun Wang, and Eric Ulm, Georgia State University, American Risk and Insurance Association Annual Meeting August 7-10, 2011 San Diego, California
- “Is the U.S. Life Insurance Industry in Danger of Systemic Risk by Using Hedging Derivatives?” (with Tom Sager, Bo Shi, and Etti Baranoff, American Risk and Insurance Association Annual Meeting August 7-10, 2011 San Diego, California
- “Longevity Risk and Capital Markets” Invited Presentation at the University of Hawaii, Department of Finance, August-September, 2011
- “Pricing Life Settlements” (with Yinglu Deng and Richard MacMinn), 7<sup>th</sup> Annual Longevity Risk and Capital Markets Symposium, Frankfurt, Germany, September 7-9, 2011.
- Invited discussion of the paper “Rethinking Age-Period-Cohort Mortality Trend Models” by Daniel H. Alai and Michael Sherris, presented at the 7<sup>th</sup> Annual Longevity Risk and Capital Markets Symposium, Frankfurt, Germany, September 7-9, 2011.
- “Behavioral Aspects of Credit Scoring” (with Jing Ai, Linda L. Golden, and Bruce Kellison), INFORMS Annual Meeting, Charlotte, North Carolina, November, 2011
- 2012 “Use of Credit Scores in Insurance Classification and Pricing,” (with Jing Ai, Linda L. Golden, and Bruce Kellison), Western Risk and Insurance Association (WRIA) annual meeting, Kona, Hawaii, January 2012
- “Developments in Mobile Commerce: Economic Opportunities, Risk Analysis and Risk Management” (with Linda Golden and Anji Song), University of Granada, Granada, Spain, March, 2012
- “Health care developments in m-commerce and associated issues for risk management,” (with Linda Golden, Ilya Dayter, and Danae Manika), presented at the McCombs School of Business Health Care Research Symposium at The University of Texas at Austin, Austin, TX, April, 2012.
- “Risk: Public and Private” Humanities Research Institute Fellows Program lecture, University of Texas at Austin, April 26, 2012
- “The Cross-cultural Impact of Prior Knowledge and Information Receptivity: It Is Not How Much You Know but How Much You Think You Know!” (with Linda Golden and Danae Manika), presented at 6<sup>th</sup> Annual International Symposium on Economic Theory, Policy and Applications, Athens, Greece

- “How to Set Rates if You Must: An Efficiency-based Methodology for Setting Promulgated Insurance Rates” (with Jing Ai, Linda Golden, and Utai Pitaktong) 7<sup>th</sup> Conference in Actuarial Science and Finance, University of the Aegean, Samos, Greece May 28-June 3, 2012
- “Modeling and Pricing Life Settlements” (with Shuo-li Chuang, Yinglu Deng and Richard D. MacMinn), 16<sup>th</sup> International Congress on Insurance, Mathematics and Economics, Hong Kong, China, June 28-30, 2012
- “Modeling Mortality: History, Models and Uses” A three hour special invited presentation at the Tsinghua University Workshop on Insurance Research, Qingdao, China July 16, 2012
- “Capital Market Solutions to the Individual Consequences of Longevity Risk: Life Settlements” invited presentation, China International Conference on Insurance and Risk Management, July 18-21, 2012
- “Predicting Individuals’ Insured Losses: Psychology, Responsibility, and Quantitative Correlates, (with Jing Ai, Linda L. Golden, and Bruce Kellison), Asia Pacific Risk and Insurance Association annual meeting, Seoul, Korea, July 2012
- “Modeling and Forecasting Mortality Rates” (with Daniel Mitchell, Rafael Mendoza-Arriaga and Kumar Muthuraman) 47<sup>th</sup> Actuarial Research Conference, University of Manitoba, Winnipeg, Manitoba, Canada August 3, 2012
- "Modeling and Pricing Longevity Derivatives with Stochastic Mortality Using Esscher Transform" (with Shuo-Li Chuang) 8<sup>th</sup> Annual Longevity Risk and Capital Markets Solutions Symposium, Waterloo, Canada, September 7-9, 2012. , refereed.
- 2013 “The Securitization of Longevity Risk and Its Implications for Retirement Security" (with Richard MacMinn, Jennifer Wang, Yijia Lin, and Ruilin Tian) 2013 Pension Research Council Symposium: Recreating Sustainable Retirement: Resilience, Solvency, and Tail Risk, April 25-26, 2013, invited.
- "A New Approach to Pension Risk Management" (with Jing Ai and Allen Jacobson), 9<sup>th</sup> Annual Longevity Risk and Capital Markets Solutions Symposium, Beijing, China, September 6-9, 2013, refereed.
- 2014 “Academic Research: A Discussion on Producing Quality Research and Journal Processes” (with Linda Golden), University of Granada, Granada, Spain, March, 2014.
- "Understanding NFIP premiums: Or is the NFIP an insurance program or something else?" Presentation to the National Research Council committee on analysis of costs and benefits of the national flood insurance program – phase 1, National Academy of Sciences, Water Resources Board, Washington, DC, March 27, 2014, invited.
- “The National Flood Insurance Program” Presentation to the National Research Council committee on risk-based methods for insurance premiums of negatively-

- elevated structures in the national flood insurance program, National Academy of Sciences, Water Resources Board, Washington, DC, May 12, 2014, invited.
- “Overview of the North American Actuarial Journal,” 49<sup>th</sup> Actuarial Research Conference session on Dependence Modeling & Copulas, University of California at Santa Barbara, Santa Barbara, California July 14, 2014, invited.
- "Optimal Enterprise Risk Management and Decision Making with Shared and Dependent Risks" (with Jing Ai and Tianyang Wang) ,” 49<sup>th</sup> Actuarial Research Conference, University of California at Santa Barbara, Santa Barbara, California July 14, 2014, refereed.
- Chaired Session on Risk Modeling, 49<sup>th</sup> Actuarial Research Conference, University of California at Santa Barbara, Santa Barbara, California July 15, 2014
- “PRIDIT is a Useful Technique for Detecting Consumer Fraud When No Training Sample is Available” (with , Linda Golden, John Betak, Mark Alpert, and Montserrat Guillen) Academy of Market Science World Marketing Congress, Lima, Peru August 5-10, 2014, refereed.
- "Optimal Enterprise Risk Management and Decision Making with Shared and Dependent Risks" (with Jing Ai and Tianyang Wang) American Risk and Insurance Association Annual Meeting August 5, 2014 Seattle, Washington, refereed.
- “All Things Considered: An Integrated Framework for Multidimensional Longevity Risk Concerns,” (with Jing Ai, Linda Golden and Wei Zhu), 10<sup>th</sup> Annual Longevity Risk and Capital Markets Solutions Symposium, Universidad Diego Portales, Santiago, Chile, September 3-4, 2014, refereed.
- 2015 “Risk Management as a Permeating Topic in Business Education” AACSB Teaching Effectiveness Seminar, March 4-11, 2015, Tampa, Florida
- “Using DEA to Determine the Optimal Efficiency Mix of Combined Category and Brand Specific Advertising" (Linda Golden, Patrick Brockett, and Michael Kwinn, Jr) presented at the 13th Annual International Conference on Marketing held in Athens, Greece June 29-30 and July 1-2 , 2015, refereed.
- “Health Care Expenditure Shocks and Optimal Annuity Considerations of Longevity Risk,” (Jing Ai, Patrick Brockett, Linda Golden and Wei Zhu) World Risk and Insurance Economics Congress Munich, Germany August 2nd – 6th, 2015, refereed.
- “Understanding Longevity Risk Annuity Decision Making: An Interdisciplinary Investigation of Financial and Nonfinancial Triggers of Annuity Demand,” (Ai, Jing, Patrick Brockett, Linda Golden and Wei Zhu), 11<sup>th</sup> Annual Longevity Risk and Capital Markets Solutions Symposium, 2015, Lyon, France, refereed.
- 2016 “The Effect of Longevity Changes and Possible Future Health State Transitions on the Optimal Level of Annuity for Retirees” (a paper co-authored by Jing Ai, Patrick Brockett, Linda Golden and Wei Zhu), Department of Finance, University of Hawaii at Manoa, Honolulu, Hawaii April 18, 2016.



- “Information Theoretic Approach to Assessing Asymmetrically shared Relationships Between Variables,” (a paper co-authored by Linda L. Golden, Patrick L. Brockett, Danae Manika, and Theresa Kirchner), 19th AMS World Marketing Congress, Paris, France, July 19-22, 2016. refereed
- “Integration of Insurance Mathematics and Economics Through Application Driven Theory” Keynote invited address July 26, 2016 at the 20th International Congress on Insurance: Mathematics and Economics, Georgia State University Atlanta, Georgia, July 24 – 27, 2016
- “Comparative versus non-comparative advertising effectiveness on social networking sites. A cross-cultural analysis,” (a paper written by Salvador del Barrio Garcia, Linda Golden, Patrick Brockett and Juan Miguel Alcantara Pilar), XXVIII Congreso de Marketing 20016 AEMARK, Universidad de Leon, Leon Spain September 7-9, 2016.
- “The Impact of Financial Literacy on Long-term Care Insurance and Annuity Decision-making: Product Innovation Implications” (a paper written by Jing Ai, Patrick Brockett, Linda Golden and Wei Zhu), 12<sup>th</sup> Annual Longevity Risk and Capital Markets Solutions Symposium, 2016, Chicago, Illinois, September 29-30, 2016, refereed
- “Understanding and Estimating Fraudulent Activities in Healthcare,” (with Jing Ai and Robert D. Lieberthal) Biennial Conference of the American Society of Health Economists, Philadelphia, PA, June 2016.
- 2017 “Measuring the Efficiency of Nonprofit Marketing, Development and Operations Resource Usage in Producing Social Benefit: An Application to the Performing Arts Sector,” (with Theresa Kirchner and Linda L. Golden), 14<sup>th</sup> International Conference on Arts and Culture Management (AIMAC), Peking University, Beijing, China June 25-28, 2017
- “Efficiency of Resource Usage in Arts Management/Marketing: An Application to the Symphony Orchestra Sector: an Abstract”. (with Theresa Kirchner and Linda Golden) Academy of Marketing Science 20<sup>th</sup> World Marketing Congress, Christchurch, New Zealand, June 27-July 1
- “Potential Savings of Medicare: The Analysis of Medicare Advantage and Accountable Care Organizations (ACOs),” (with Charles Yang, and Linda Golden) American Risk and Insurance Association Annual Conference, August 6-9, 2017, Toronto, Canada
- “Early Damage Estimation Using Archival Data and Iterative Learning from Temporally Separated Actual Loss Data” (co-authored with Rajiv Garg, Patrick Brockett, Linda Golden and Yuxini Zhang), Advances In Predictive Analytics conference, November 30, 2017 University of Waterloo, Waterloo, Ontario, Canada (Invited keynote)
- “Public Policy, Marketing, and the Determination of Marketplace Acceptance/Viability of Public Programs” (Invited). Academy of Marketing Science 20<sup>th</sup> World Marketing Congress, Christchurch, New Zealand, June 27-July 1 Special Session on Creating Value for Public Entities Through Marketing

- 2018 “Transdisciplinary Research in Insurance and Risk Management,” (Invited). 2018 ATLAS Transdisciplinary-Transnational-Transcultural (T3) International Conference, Babeş-Bolyai University of Cluj-Napoca, Romania. June 3-6, 2018.
- “Rapid Assessment of Customer Marketplace in Disaster Settings Through Machine Learning, Geospatial Information and Social Media Text Mining” (with Rajiv Garg, Linda Golden, Yuxin Zhang), 21<sup>st</sup> World Congress, Academy of Marketing Science, Porto, Portugal June 26-29, 2018, invited
- Invited discussant of the paper “To Buyout or Not to Buyout? by Yijia Lin and Tianxiang Shi, In the Longevity Risk Special Session, American Risk and Insurance Association Annual Meeting, Chicago, Illinois, August 5-8, 2018
- “A Predictive Modeling Approach to Fraud Management in Medicare Claims” (with Jing Ai and Robert Lieberthal), American Risk and Insurance Association Annual Meeting August Chicago, Illinois, August 5-8, 2018
- “Rapid Estimation of Disaster Relief Fund Distribution: Iterative Learning with Diverse Geospatial Data Inputs” (2018), (with Rajiv Garg, Linda Golden, Yuxin Zhang), The POMS 29<sup>th</sup> Annual Conference, Houston, Texas May 4-7, 2018

#### Ph.D. STUDENTS SUPERVISED

Name	Dissertation Title	Year
Sipra, Naim	<i>Essays on Financial Models: Portfolio Performance Measures, Capital Market Equilibrium with Redundant Assets, and Intertemporal Fisher Hypothesis</i>	1986
Sun, Li (Co-Chair, A. Charnes)	<i>On Some Problems of Chance Constrained Programming</i>	1990
Chang, Yang Chun (Co-Chair, A. Charnes)	<i>Chance Constrained Programming and Chebychev Systems with Applications</i>	1990
Dalle Molle, John William (Co-Chair, M. Hinich)	<i>Higher Order Spectral Analysis and the Trispectrum</i>	1992
Pitaktong, Utai (Co-Chair, J. Mote)	<i>Data Envelopment Analysis and Applications</i>	1993
Chen, Hwei Mei	<i>A Dynamic Model for Event Study Methodology: An Examination of the Reaction to California's Proposition 103</i>	1993
Zhang, Changning	<i>Stochastic Programming and Optimal Salesforce Compensation Schemes</i>	1994

Li, Shan	<i>A New Approach to Sensitivity Analysis of the DEA Models and Their Applications to Ranking and Productivity Growth</i>	1995
Xia, Xiaohua	<i>The use of Artificial Intelligence Methods in Insurance Modeling</i>	1996
Song, Yun	<i>Information Theoretic Approaches to Actuarial Science</i>	1996
Swan, Scott (Co-Chair, M. Katabe)	<i>Essays on Robust Design: An Elaboration of the Typology, An Examination of Situational Performance Implications and a Conceptual Extension</i>	1997
Jang, Jaeho	<i>Comparative Analysis of Statistical Methods And Neural Networks for Predicting Life Insurers' Insolvency</i>	1997
Wang, Yuying	<i>Efficiency in the Property and Liability Insurance Industry</i>	1997
Magee, David	<i>Neural Network Method for Actuarial Claim Reserving</i>	1998
Zhou, Li	<i>The Navy's Awaiting Instruction Problem</i>	1998
Kang, Yu (Frank)	<i>Risk, Ambiguity and Insurance</i>	1998
Kwinn, Michael (Co-Chair, W.W. Cooper)	<i>Efficiency of Joint versus Service Specific Advertising for Armed Service Recruiting</i>	2000
Wang, Mulong (Co-Chair, R. MacMinn)	<i>Financial Derivatives in Corporate Risk Management</i>	2001
Deng, Honghui (Co-Chair, W.W. Cooper)	<i>Congestion and Efficiency in the Chinese Economy</i>	2003
Yang, Chuanhou (Charles)	<i>The Use of Weather Derivatives in Corporate Risk Management</i>	2003
Ai, Jing (Co-Chair, L. L. Golden)	<i>Supervised and Unsupervised PRIDIT for Active Insurance Fraud Detection</i>	2008

Deng, Yinglu (Co-Chair, R.D. MacMinn)	<i>Longevity Risk Modeling, Securities Pricing and Other Related Issues</i>	2011
Chuang, Shuo-Li	<i>Stochastic Mortality Modeling and the Pricing of Mortality/Longevity Linked Derivatives</i>	2013
Zhang, Yuxin	<i>Currently in progress</i>	<i>Expected 2020</i>

## **MASTER'S STUDENTS SUPERVISED**

Mark Leone	[Mathematics/Statistics]
Candi Wolfe	[Mathematics/Statistics]
John Dalle Molle	[Mathematics]
Antoine Lawrence	[Economics]
Kenny Kan	[Accounting/Risk Management]
Mark Jones	[Mathematics/Actuarial Science]
Chris Neely	[Mathematics/Statistics]
Moses Kim	[Mathematics/Actuarial Science]
Sandra Neto	[Mathematics/Statistics]
Xinan Li	[Mathematics/Statistics]
Junsheng Ma	[Mathematics/Statistics]

## **UNIVERSITY AND COLLEGE SERVICE**

Interview candidates for Assistant Professor positions in Engineering, attend their talks,  
and write recommendation letters, 1977-1979, 1983, 1987

Chair--CBA Ad-Hoc Committee on the Mathematics requirement, 1982

Member--Center for Statistical Studies Advisory Board, (U.T. campus-wide  
coordinating committee), 1983-1992

Faculty Ad-Hoc Committee to Investigate Formation of a Department of Quantitative  
Methods, College of Business, The University of Texas at Austin, 1984

Admissions and Registration Committee of the General Faculty, The University of Texas at Austin, (1984-1986)

Member--CBA Faculty Academic Development and Research Committee, (1985-1986)

Member--Ad-Hoc Committee to Formulate Discussion Material On Statistics in the Business School for the CBA Faculty Retreat, 1985

Recruitment of High School Football Players: Help Athletic Department by showing recruits around the Business School and answering questions, 1985

Member--Presidential Committee for the Evaluation of the Dean, 1992

Member--MBA Revision Task Committee, 1992

Member--Planning Committee for Evaluating and Developing an Employee Assistance Program for The University of Texas at Austin, 1992

Member--Advisory Committee for UT Employee Assistance Program, 1992

Faculty Senate and University Council, 1992, 1993

CBA College Retreat Member 1992

University Police Department Advisory Committee, 1993

Member--University Research Institute Grant Evaluation Committee, 1993, 1994, 1995

Member--University Committee to Evaluate Small Research Grants, 1995

Member--University Faculty Welfare Committee, 1996-98, 2002 – 2007, 2016-2018

Member Faculty Council 2004-6

Member, Rules Committee of the Faculty Council 2004

Member—Dean's Advisory Committee 2005-2008

Member—Dean's Endowed Professorship Selection Committee 2007- 2008

## **DEPARTMENTAL SERVICE**

Budget Council Representative for Associate & Assistant Professors of Finance, 1982-86

Executive Committee Member, Department of Finance, 1986-1995

Actuarial Science Program Director, 1986-September 1989

Actuarial Science Advisor, Undergraduate and MBA, 1981-September 1989

Risk Management and Insurance Advisor, Undergraduate and MBA, 1989-2018

Member--Ad-Hoc Committee to Formulate Policy on Evaluating Full Professors, 1984

Member--Ph.D. Review Committee, 1984.

Chairman--Committee to Implement An Executive Committee for the Finance Department

Member—Finance Department Ph.D. Admissions Committee, 1985-1988

Actuaries Club of the Southwest Scholarship Committee

Member--Wortham Chair Scholarship Committee

Actuarial Science Program Review Committee Finance Department

Finance Department Teaching and Research Awards Committee (acting chair 1984; chair 1985, co-chair 1986, member 1987 and 1992, chair 1993, member 1994))

Committee to Nominate Finance Department Internal Chair Candidates, 1985

Department Undergraduate Curriculum Committee (member 1985 and 1987, chair 1986)

Departmental Representative to University Human Subjects Committee

Director, Risk Management and Insurance Program, 1995-2018

Chairman, Risk Management and Insurance Scholarships 1995-2018

Member MSIS Department Budget Committee, 1995-2004

Chair, Risk Management Faculty Search Committee 1999-2001

Several Ad hoc Department Review Committees (Promotion reviews, Dean's Fellow Recommendation Committee, Post tenure reviews, etc.) 2000-2018

## **MAJOR AREAS OF INTEREST**

Risk Management and Insurance  
Managing Financial risk

Actuarial Science  
Decision Analysis  
Management Science/Operations Management and Research  
Statistical Analysis and Applications in Business  
Information Theory  
Probability Theory and Applications in Business  
Stochastic Processes and Nonlinear Time Series  
Mathematical Finance

**COURSES TAUGHT:**

Crisis and Risk Management (Graduate)  
Risk - The Final Frontier: A History of Risk Through the Ages (Undergraduate)  
Managing Environmental Risk (MBA course)  
Managing International Risk (MBA course)  
Managing Employee Risks and Benefits (Undergraduate)  
Managing Corporate Risk (MBA course)  
Managing Property and Liability Risk (Undergraduate)  
Mathematical Risk Theory (MBA and PhD course)  
Risk Analysis and Management (MBA course)  
Mathematical Theory of Risk (PhD course)  
Introduction to Risk Management and Insurance (Undergraduate)  
Economic and Financial Aspects of Risk Management and Insurance (MBA course)  
Life and Health Insurance (Undergraduate)  
Pension Theory (Undergraduate)  
Property and Casualty Insurance (Undergraduate)  
Actuarial Science: Theory of Interest (Undergraduate)  
Actuarial Science: Single and Multiple Decrement Life Contingency Theory and Applications (Undergraduate)  
Stochastic Calculus in Finance and Business (PhD course)  
Questionnaire Analysis (Graduate)  
Mathematical Statistics (Both at Graduate and Undergraduate Levels)  
Mathematical Probability (Both Graduate and Undergraduate)  
Games, Gods and Gambling (History of the People and Ideas Responsible for the Development of Probability and Statistics) (Undergraduate)  
Information Theory (PhD course)  
Biostatistics (Graduate)  
Numerical Analysis (Undergraduate)  
Differential Equations (Undergraduate)  
Calculus (Undergraduate)  
Linear Algebra (Undergraduate)

**PROFESSIONAL ACADEMIC POSITIONS**

1999 - Director, Center for Risk Management and Insurance, University of Texas at Austin

1995-	Director of the Risk Management and Insurance Program, University of Texas at Austin
1995-	Gus S. Wortham Memorial Chairholder in Risk Management and Insurance, University of Texas at Austin
1992-2000	Janey Slaughter Briscoe Fellow, IC <sup>2</sup> Institute, The University of Texas at Austin
1998 -1999	Director, Center for Management of Operations and Logistics, University of Texas at Austin
1998	Holder of the Thomas Bowles Chair in Actuarial Science, Georgia State University, Atlanta Georgia
1996-1998	Senior Associate Director, Center for Management of Operations and Logistics, University of Texas at Austin
1992-1996	Director of the Center for Cybernetic Studies, The University of Texas
1989-1995	Joseph H. Blades Professor of Risk Management and Insurance, The University of Texas at Austin
1987-1989	Paul V. Montgomery Centennial Professor of Actuarial Science, The University of Texas at Austin
1986-1992	Senior Research Fellow, IC <sup>2</sup> Institute, The University of Texas at Austin
1986-1989	Director, Actuarial Science Program, Department of Finance, The University of Texas at Austin
1986-1989	Professor of Finance and Actuarial Science, Department of Finance, The University of Texas at Austin
1984-1986	Richard Seaver Centennial Research Fellow, IC <sup>2</sup> Institute, The University of Texas at Austin
1984-1986	Paul V. Montgomery Centennial Fellow in Actuarial Science, The University of Texas at Austin
1982-1986	Associate Professor of Finance and Actuarial Science, Department of Finance, The University of Texas at Austin
1981-1982	Assistant Professor of Finance and Actuarial Science, Department of Finance, The University of Texas at Austin



1981-2002	Research Scientist, Applied Research Laboratories, The University of Texas at Austin
1981 Winter Quarter	Instructor of Biostatistics, Department of Community and Environmental Medicine, The Medical School, University of California, Irvine Extensions
1980-1981	Visitor, Department of Statistics, University of California at Riverside, Riverside, California
1977-1980	Assistant Professor, Departments of Mathematics and General Business, The University of Texas at Austin
1975-1977	Assistant Professor, Department of Mathematics, Tulane University, New Orleans, Louisiana
1970-1973	National Science Foundation Traineeship, Department of Mathematics, University of California at Irvine, Irvine, California