Warren Centre for Actuarial Studies and Research
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# Xuemiao Hao

*Associate Professor, Ph.D., ASA*

## Personal Information

| | |
|---|---|
| Date of Birth | March 12, 1980 |
| Place of Birth | Wuhan, Hubei, China |
| Nationality | Canadian citizen |
| Language | English, Mandarin |
| Marital Status | Married |

## Education

2005–2009 Ph.D. in Statistics, University of Iowa, US
Thesis: "Asymptotic Tail Probabilities of Risk Processes in Insurance and Finance"
Advisor: Dr. Qihe Tang

2002–2003 M.Sc. in Statistics, University of Toronto, Canada

1999–2002 B.Econ., China Center for Economic Research, Peking University, China

1998–2002 B.Sc. in Mathematics, Peking University, China
Thesis: "Pointwise Convergence of Inversion Transform Formula of Jacobi Function"
Advisor: Dr. Jianming Liu

## Professional Designation and Membership

2013–now Associate of the Society of Actuaries (ASA)

2013–now Statistical Society of Canada

2013–2015 Associate of the Canadian Institute of Actuaries (ACIA)

## Employment

2016–2019 Director and Associate Professor, Warren Centre for Actuarial Studies and Research
Asper School of Business, University of Manitoba, Canada

2015–2016 Interim Director and Associate Professor, Warren Centre for Actuarial Studies and Research
Asper School of Business, University of Manitoba, Canada

2012–2015 Adjunct Professor, Department of Statistics
University of Manitoba, Canada

2009–2015 Assistant Professor, Warren Centre for Actuarial Studies and Research
Asper School of Business, University of Manitoba, Canada

2005–2009 Instructor and Teaching Assistant, Department of Statistics and Actuarial Science
University of Iowa, US

2003–2005 Civil Servant, Hubei Provincial Department of Finance, China

2002–2003 Teaching Assistant, Department of Statistics
University of Toronto, Canada

## Awards and Honors

2005–2009 Graduate Assistantship
University of Iowa

2008 Graduate College Summer Fellowship
University of Iowa

2008 Robert H. Taylor Award in Actuarial Analysis
University of Iowa

2005–2007 Full Tuition Scholarship
University of Iowa

2002–2003 Graduate Fellowship
University of Toronto

2001 Prize for Innovation of Science and Technology
Peking University

2000 National Second Prize
China Undergraduate Mathematical Contest in Modeling
China Society for Industrial and Applied Mathematics

## Research Grants

2010–2018 Natural Sciences and Engineering Research Council of Canada
Individual Discovery Grant (CA$98,500)

2013 Educational Institution Grant (US$5,000)
The Society of Actuaries

2009–2014 Research Start-up Funds (CA$20,000)
Asper School of Business, University of Manitoba

## Publications

### Refereed Journal Publications

Hao, X.; Li, X. (2015). "Pricing credit default swaps with a random recovery rate based on a double inverse Fourier transform", *Insurance: Mathematics & Economics* 65, 103–110.

Hao, X.; Li, X.; Shimizu, Y. (2013). "Finite-time survival probability and credit default swaps pricing under geometric Lévy markets", *Insurance: Mathematics & Economics* 53, no. 1, 14-23.

Hao, X.; Tang, Q. (2012). "Asymptotic ruin probabilities for a bivariate Lévy-driven risk model with heavy-tailed claims and risky investments", *Journal of Applied Probability* 49, no. 4, 939-953.

Hao, X.; Tang, Q. (2009). "Asymptotic ruin probabilities of the Lévy insurance model under periodic taxation", *ASTIN Bulletin: The Journal of the International Actuarial Association* 39, no. 2, 479-494.

Hao, X.; Tang, Q.; Wei, L. (2009). "On the maximum exceedance of a sequence of random variables over a renewal threshold", *Journal of Applied Probability* 46, no. 2, 559-570.

Hao, X.; Tang, Q. (2008). "A uniform asymptotic estimate for discounted aggregate claims with subexponential tails", *Insurance: Mathematics & Economics* 43, no. 1, 116-120.

### Under Review

Hao, X.; Zhu, X. (2015). "Evaluation of credit value adjustment with a random recovery rate in a Lévy default model", submitted for publication.

### Paper in Progress

Hao, X.; Liang, C.; Wei, L. "Evaluation of credit value adjustment in $K$-forwards".

Hao, X.; Tang, Q. "Portfolio default probability approximation: a second-order study".

### Book Solutions Manual

Cryer, J. D.; Hao, X. (2008). *Solutions Manual to Accompany Time Series Analysis with Applications in R*, Springer-Verlag.

### Theses

PhD Thesis — Hao, X. (2009). "Asymptotic tail probabilities of risk processes in insurance and finance", Department of Statistics and Actuarial Science, University of Iowa.

Senior Thesis — Hao, X. (2002). "Pointwise convergence of inversion transform formula of Jacobi function", School of Mathematical Sciences, Peking University.

### Non-refereed Periodical Publication

Hao, X.; Li, X. (2015). "Credit default swaps pricing via a double inverse Fourier transform", *Actuarial Research Clearing House*, no. 1.

Chan, R.; Hao, X. (2014). "On basis risk in extreme mortality CAT bonds", *Actuarial Research Clearing House*, no. 1.

Hao, X.; Tang, Q. (2008). "Subexponential tail of discounted aggregate claims", *Actuarial Research Clearing House*, no. 1.

### Unpublished Manuscript

Chan, R.; Hao, X.; Long, R. (2015). "On basis risk in an extreme mortality CAT bond".

## Conferences and Talks

Jun. 2016 The 8th International Workshop on Applied Probability, Toronto, Canada. Invited talk: "Evaluation of Credit Value Adjustment in $K$-forwards".

Aug. 2015 The 50th Actuarial Research Conference, University of Toronto, Canada. Contributed talk: "Evaluation of Credit Value Adjustment with a Random Recovery Rate via a Structural Default Model".

Jul. 2014 The 49th Actuarial Research Conference, University of California, Santa Barbara, US. Contributed talk: "Pricing Credit Default Swaps with Random Recovery Rate Based on a Double Inverse Fourier Transform".

Aug. 2013 The 48th Actuarial Research Conference, Temple University, Philadelphia, US. Contributed talk: "On Basis Risk in Extreme Mortality CAT Bonds".

Oct. 2012 Department of Mathematics and Statistics, University of Minnesota Duluth, US. Colloquium talk: "Finite-time Survival Probability and Credit Default Swaps Pricing under Geometric Lévy Markets".

Sep. 2012 Department of Statistics, University of Manitoba, Canada. Seminar talk: "Finite-time Survival Probability and Credit Default Swaps Pricing under Geometric Lévy Markets".

Aug. 2012 The 47th Actuarial Research Conference, University of Manitoba, Canada.

July 2012 International Conference on Quantitative Finance and Risk Management, Jilin University, China. Invited talk: "Finite-time Survival Probability and Credit Default Swaps Pricing under Geometric Lévy Markets".

June 2012 The 16th International Congress on Insurance: Mathematics and Economics, The University of Hong Kong, Hong Kong. Contributed talk: "Finite-time Survival Probability and Credit Default Swaps Pricing under Geometric Lévy Markets".

Dec. 2011 School of Mathematics and Statistics, Wuhan University, China. Invited talk: "Finite-time Survival Probability and Credit Default Swaps Pricing under Geometric Lévy Markets".

Aug. 2011 The 46th Actuarial Research Conference, University of Connecticut, US.

Dec. 2010 International Conference on Applied Statistics and Financial Mathematics, The Hong Kong Polytechnic University, Hong Kong. Invited talk: "The Finite-time and Infinite-time Ruin Probabilities of a Bivariate Lévy-driven Risk Process with Heavy Tails".

June 2010 The 14th International Congress on Insurance: Mathematics and Economics, University of Toronto, Canada. Contributed talk: "The Finite-time and Infinite-time Ruin Probabilities of a Bivariate Lévy-driven Risk Process with Heavy Tails".

June 2010 The 3rd International Gerber-Shiu Workshop, University of Waterloo, Canada. Contributed talk: "On the Impact of Periodic Tax Payments on Asymptotic Ruin Probabilities of the Lévy Insurance Model".

Dec. 2009 School of Mathematics and Statistics, Wuhan University, China. Invited talk: "On Paulsen's Conjecture".

May 2009 The 3rd Annual Graduate Student Conference in Probability, University of North Carolina at Chapel Hill, US. Contributed talk: "Asymptotic Tail Probability of the Maximum Exceedance over a Renewal Threshold and Its Application in Insurance Mathematics".

Feb. 2009 Department of Statistics and Actuarial Science, University of Iowa, US. Colloquium talk: "On the Impact of Periodic Tax Payments on Asymptotic Ruin Probabilities of the Lévy Insurance Model".

Jan. 2009 Asper School of Business, University of Manitoba, Canada. Invited talk: "Asymptotic Ruin Probabilities of Lévy Insurance Model under Periodic Taxation".

July 2008 The 12th International Congress on Insurance: Mathematics and Economics, Dalian, China. Contributed talk: "A Uniform Asymptotic Estimate for Discounted Aggregate Claims with Subexponential Tails".

Aug. 2007 The 42nd Actuarial Research Conference, Robert Morris University, Pennsylvania, US. Contributed talk: "Subexponential Tail of Discounted Aggragate Claims".

Apr. 2007 The 1st Graduate Student Conference in Probability, University of Wisconsin–Madison, US. Contributed talk: "Heavy-tail Behavior of Discounted Aggragate Claims".

## Teaching

### Graduate Students

2015–2017 Shuai Du (co-supervision), M.Sc. in Management, University of Manitoba

2015–2017 Linghua Wei, M.Sc. in Management, University of Manitoba

2015–2017 Chunli Liang, M.Sc. in Management, University of Manitoba

2014–2016 Xinyi Zhu, M.Sc. in Management, University of Manitoba

2013–2015 Ruiyun Long, M.Sc. in Management, University of Manitoba

### Committee Member/Examiner

2015–2016 Daniel Turenne, M.Sc. Thesis Committee
Asper School of Business, University of Manitoba

2014–2016 Guangyu Xing, M.Sc. Thesis Committee
Asper School of Business, University of Manitoba

2014–2015 Huijing Li, M.Sc. Thesis Committee
Asper School of Business, University of Manitoba

2011–2015 You Liang, Ph.D. Thesis Committee
Department of Statistics, University of Manitoba

2014 Farzad Alavi Fard, Ph.D. Thesis External Examiner
Faculty of Business and Economics, Macquarie University, Australia

2013 Charles Grant, Ph.D. Thesis Internal Examiner
Individual Interdisciplinary Program, University of Manitoba

### Research Assistants

2015 Shan Jin, B.Comm. in Actuarial Mathematics, University of Manitoba

2013 Rosena Chan, B.Sc. in Actuarial Mathematics, University of Manitoba

2011–2012 Xuan Li, Ph.D. in Statistics, University of Manitoba

### Courses Taught at University of Manitoba

2015–2016 Actuarial Models 2 (ACT 3230)
Quantitative Risk Management (ACT 7540)

2014–2015 Construction and Evaluation of Actuarial Models (ACT 4630)
Quantitative Risk Management (ACT 7540)

2013–2014 Actuarial Modeling Methods 3 (ACT 4340)
Quantitative Risk Management (ACT 7540)

2012–2013 Actuarial Aspects of Investment Practice (ACT 4060)
Actuarial Modeling Methods 1 (ACT 4140)

2011–2012 Actuarial Modeling Methods 1 (ACT 4140)
Actuarial Models 1 & 2 (ACT 3130 & 3230)

2010–2011 Actuarial Modeling Methods 1 (ACT 4140)
Actuarial Models 1 & 2 (ACT 3130 & 3230)
Introduction to Financial Derivatives for Actuarial Practice (ACT 4000)

2009–2010 Actuarial Modeling Methods 1 & 2 (ACT 4140 & 4240)
Actuarial Models 2 (ACT 3230)

### Courses Taught at University of Iowa

2009 Discussion session of Statistics for Business (22S:008:A15)

2008 Actuarial Exam Preparation (22S:188:001)

2007 Actuarial Exam Preparation (22S:188:001)

### Courses Taught at University of Toronto

2003 Discussion session of Probability and Statistics (STA 257H1)

2002 Discussion session of Probability (STA 347H1)

## Service

### Departmental/School

2016 Tenure Committee
Asper School of Business, University of Manitoba

2014–2016 Academic Integrity Adjudicators Committee
Asper School of Business, University of Manitoba

2013–2015 Graduate Research Program Committee
Asper School of Business, University of Manitoba

2011–2015 Nominating Committee
Asper School of Business, University of Manitoba

2012 Guy Carpenter Professor in Agricultural Risk Management and Insurance Search Committee
Asper School of Business, University of Manitoba

2012 Dr. L.A.H. Warren Chair in Actuarial Science Search Committee
Asper School of Business, University of Manitoba

2011–2012 Warren Centre Search Committee
Asper School of Business, University of Manitoba

2009–2010 Social Committee
Asper School of Business, University of Manitoba

### National/International

2012 Organization and Scientific Committees
The 47th Actuarial Research Conference
Asper School of Business, University of Manitoba

### Ad-hoc reviewing

*Acta Mathematicae Applicatae Sinica, English Series*
*Applied Mathematics – A Journal of Chinese Universities*
*Applied Mathematics and Computation*
*Applied Stochastic Models in Business and Industry*
*Communications in Statistics – Theory and Methods*
*Insurance: Mathematics & Economics*
*Journal of Multivariate Analysis*
*Journal of the Korean Statistical Society*
*North American Actuarial Journal*
*Probability in the Engineering and Informational Sciences*
*Statistics & Probability Letters*

### Reviewing: Funding Agencies and Publishing Houses

2015–2016 Natural Sciences and Engineering Research Council of Canada (NSERC)

2013–now Mathematical Reviews of the American Mathematical Society

2011 Cambridge University Press, New York, US

Last updated on July 1, 2016.