

Curriculum Vitae

BENJAMIN AVANZI

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Websites: <http://www.benjaminavanzi.com>
<https://communicate-data-with-r.netlify.app>
<https://actl10001.netlify.app>
<https://gim-am3.netlify.app>
<https://github.com/agi-lab>

Date of CV: April 2022

Education

2008 Ph.D. University of Lausanne, Faculty of Business and Economics (HEC Lausanne), Actuarial Science (supervisor: Prof. Hans U. Gerber)

2005 Lic. University of Lausanne, Faculty of Business and Economics (HEC Lausanne), Business, major in Actuarial Science

CAS *Casualty Actuarial Society* exams: 1, 2, 3F, 4, 5, C1, C2, S, VE, VF, COP

SOA *Society of Actuaries* associateship exams: 3 VEEs, P, FM, M (MLC & MFE), C, APC

Society of Actuaries fellowship exams: GIINT, GIRR

Academic appointments

2020 – Professor of Actuarial Studies, Centre of Actuarial Studies, Department of Economics
Faculty of Business and Economics, University of Melbourne, Australia

2017 – 2018 Chair, UNSW Business School 3+ Reference Group
UNSW Australia Business School, University of New South Wales (UNSW), Australia

2015 – 2017 Associate Head of School, School of Risk and Actuarial Studies
UNSW Australia Business School, University of New South Wales (UNSW), Australia

2015 – 2020 Associate Professor of Actuarial Studies, School of Risk and Actuarial Studies
UNSW Australia Business School, University of New South Wales (UNSW), Australia

2015 – 2018 Professeur associé en actuariat¹, Département de Mathématiques et de Statistique
Faculté des Arts et des Sciences, Université de Montréal (UdeM), Canada

2013 – 2015 Professeur agrégé en actuariat², Département de Mathématiques et de Statistique
Faculté des Arts et des Sciences, Université de Montréal (UdeM), Canada

2013 – 2015 Adjunct Associate Professor, School of Risk and Actuarial Studies
UNSW Australia Business School³, University of New South Wales (UNSW), Australia

2010 – 2013 Senior Lecturer of Actuarial Studies, School of Risk and Actuarial Studies
Australian School of Business, University of New South Wales, Australia

2008 – 2010 Lecturer of Actuarial Studies, School of Actuarial Studies
Australian School of Business, University of New South Wales, Australia

2005 – 2008 Various casual lecturer positions, University of Lausanne & Bordeaux Business School

2003 – 2008 Teaching and Research assistant, University of Lausanne

Referees

Available upon request.

¹Adjunct Professor' of Actuarial Science

²Associate Professor' of Actuarial Science

³Formerly 'Australian School of Business'

RESEARCH

Insurance capital modelling (reserving, solvency, dependence), risk theory (optimal control of actuarial surplus models), modelling and statistical analysis of big data, robust estimation, social security and pensions, risk modelling in operations management.

Major awards

- 2018 **Taylor Fry General Insurance Seminar Silver Prize**, awarded by an independent panel for the paper [How to proxy the unmodellable: Analysing granular insurance claims in the presence of unobservable or complex drivers](#) (Australian Actuaries Institute General Insurance Seminar, November 2018)
- 2017 **Hachemeister Prize**, awarded by the Casualty Actuarial Society (CAS) for the paper [Correlations between insurance lines of business: An illusion or a real phenomenon? Some methodological considerations](#) (2016, ASTIN Bulletin, 46:2)

Publications

Metrics (as of April 2022)

[Google Scholar](#): 1130 citations, *h*-index of 17 (since 2017: 633 citations, *h*-index of 14)

[Scopus profile](#): 599 citations, *h*-index of 11

[ResearchGate](#): RG Score of 23.81 (80 %ile), Research Interest of 530.2 (87 %ile), *h*-index of 14 (12 when self-citations are excluded)

Submitted journal articles

- 2022 1. **Avanzi, B.**, Lau, H., Steffensen, M.
[Optimal reinsurance under terminal value constraints](#)
Submitted
- 2022 2. **Avanzi, B.**, Chen, P. Henriksen, L. F. B., Wong, B.
[On the surplus management of funds with assets and liabilities in presence of solvency requirements](#)
Submitted
- 2022 3. **Avanzi, B.**, Lavender, M., Taylor, G., Wong, B.
[Detection and treatment of outliers for multivariate robust loss reserving](#)
Submitted
- 2022 4. **Avanzi, B.**, Lavender, M., Taylor, G., Wong, B.
[On the impact of outliers in loss reserving](#)
Submitted
- 2022 5. **Avanzi, B.**, Taylor, G., Wang, M.
[SPLICE: A Synthetic Paid Loss and Incurred Cost Experience Simulator](#)
Resubmitted after minor revision

Peer-reviewed journal articles

Accepted manuscripts can be downloaded for free from [here \(2008-2019\)](#) and [here \(2017-\)](#) in accordance with the journals' copyright regulations.

- 2022 6. Al-Mudafer, M. T., **Avanzi, B.**, Taylor, G., Wong, B.
[Stochastic loss reserving with mixture density neural networks](#)
[Q1,A*]⁴ Insurance: Mathematics and Economics, in press
- 2021 7. **Avanzi, B.**, Taylor, G., Wang, M., Wong, B.
[SynthETIC: an individual insurance claim simulator with feature control](#)
[Q1,A*] Insurance: Mathematics and Economics, Vol. 100, pp. 296–308
- 2021 8. **Avanzi, B.**, Lau, H., Wong, B.
[On the optimality of joint periodic and extraordinary dividend strategies](#)
[Q1,A*] European Journal of Operational Research, Vol. 295, issue 3, pp. 1189–1210

⁴[Quartile according to [Scimago](#) 2020, Journal rank according to the latest ABDC 2019 list]

- 2021 9. **Avanzi, B.**, Boglioni Beaulieu, G, Lafaye de Micheaux, P., Wong, B.
A Counterexample to the Central Limit Theorem for Pairwise Independent Random Variables Having a Common Absolutely Continuous Arbitrary Margin
[Q1,n/a] Journal of Mathematical Analysis and Applications, Vol. 499, Issue 1, 124982
- 2021 10. **Avanzi, B.**, Taylor, G., Wong, B., Yang, X.
On the modelling of multivariate counts with Cox processes and dependent shot noise intensities
[Q1,A*] Insurance: Mathematics and Economics, Vol. 99, pp. 9–24
- 2021 11. **Avanzi, B.**, Lau, H., Wong, B.
Optimal Periodic Dividend Strategies for Spectrally Negative Lévy Risk Processes With Fixed Transaction Costs
[Q1,A] Scandinavian Actuarial Journal, Vol. 2021, Issue 8, pp. 645–670
- 2021 12. **Avanzi, B.**, Taylor, B., Wong, B., Xian, A.
Modelling and understanding count processes through a Markov-modulated non-homogeneous Poisson process framework
[Q1,A*] European Journal of Operational Research, Vol. 290, Issue 1, pp. 177–195
- 2021 13. **Avanzi, B.**, Taylor, B., Vu, P. A., Wong, B.
On Unbalanced Data and Common Shock Models in Stochastic Loss Reserving
[Q3,A] Annals of Actuarial Science, Vol. 15, Issue 1, pp. 173–203
- 2020 14. **Avanzi, B.**, Lau, H., Wong, B.
Optimal Periodic Dividend Strategies for Spectrally Positive Lévy Risk Processes With Fixed Transaction Costs
[Q1,A*] Insurance: Mathematics and Economics, Vol. 93, pp. 315–332
- 2020 15. **Avanzi, B.**, Taylor, B., Vu P. A., Wong, B.
A Multivariate Evolutionary Generalised Linear Model Framework with Adaptive Estimation for Claims Reserving
[Q1,A*] Insurance: Mathematics and Economics, Vol. 93, pp. 50–71
- 2018 16. **Avanzi, B.**, Taylor, B., Wong, B.
Common shock models for claim arrays
[Q1,A] ASTIN Bulletin, Vol. 48, Issue 3, pp. 1109–1136
- 2018 17. **Avanzi, B.**, Tu, V., Wong, B.
Optimal Dividends Under Erlang(2) Inter-Dividend Decision Times
[Q1,A*] Insurance: Mathematics and Economics, Vol. 79, pp. 225–242
- 2018 18. **Avanzi, B.**, Henriksen, L. F. B., Wong, B.
On the distribution of the excedents of funds with assets and liabilities in presence of solvency and recovery requirements
[Q1,A] ASTIN Bulletin, Vol. 48, Issue 2, pp. 647–672.
- 2017 19. **Avanzi, B.**, Pérez, J.-L., Wong, B., Yamazaki, K.
On optimal joint reflective and refractive dividend strategies in spectrally positive Lévy models
[Q1,A*] Insurance: Mathematics and Economics, Vol. 72, pp. 148–162.
- 2016 20. **Avanzi, B.**, Taylor, G., Vu, P. A., Wong, B.
Stochastic Loss Reserving with Dependence: A Flexible Multivariate Tweedie Approach
[Q1,A*] Insurance: Mathematics and Economics, Vol. 71, pp. 63–78.
- 2016 21. **Avanzi, B.**, Tu, V., Wong, B.
On the interface between optimal periodic and continuous dividend strategies in the presence of transaction costs
[Q1,A] ASTIN Bulletin, Vol. 46, Issue 3, pp. 709–746.
- 2016 22. **Avanzi, B.**, Wong, B., Yang, X.
A micro-level claim count model with overdispersion and reporting delays
[Q1,A*] Insurance: Mathematics and Economics, Vol. 71, pp. 1–14.
- 2016 23. **Avanzi, B.**, Taylor, G., Wong, B.
Correlations between insurance lines of business: An illusion or a real phenomenon? Some methodological considerations
[Q1,A] ASTIN Bulletin, Vol. 46, Issue 2, pp. 225–263.

- 2016 24. **Avanzi, B.**, Tao, J., Wong, B., Yang, X.
Capturing Non-Exchangeable Dependence in Multivariate Loss Processes with Nested Archimedean Lévy Copulas
[Q3,A] *Annals of Actuarial Science*, Vol. 10, Issue 01, pp. 87–117.
- 2016 25. **Avanzi, B.**, Tu, V., Wong, B.
A note on realistic dividends in actuarial surplus models
[Q3,B] *Risks*, Vol. 4, Issue 4, Number 37
- 2014 26. **Avanzi, B.**, Tu, V., Wong, B.
On optimal periodic dividend strategies in the dual model with diffusion
[Q1,A*] *Insurance: Mathematics and Economics*, Vol. 55, pp. 210–224.
- 2014 27. de Treville, S., Schürhoff, N., Trigeorgis, L., **Avanzi, B.**
Optimal Sourcing and Lead-Time Reduction under Evolutionary Demand Risk
[Q1,A*,FT50] *Production and Operations Management*, Vol. 23, Issue 12, pp. 2103–2117.
- 2014 28. **Avanzi, B.**, Purcal, S.
Annuity and cross-subsidies in a two-tiered retirement saving system
[Q3,A] *Annals of Actuarial Science*, Vol. 8, Part 2, pp. 234–252.
- 2013 29. **Avanzi, B.**, Cheung, E. C. K., Wong, B., Woo, J. K.
On a periodic dividend barrier strategy in the dual model with continuous monitoring of solvency
[Q1,A*] *Insurance: Mathematics and Economics*, Vol. 52, Issue 1, pp. 98–113.
- 2013 30. **Avanzi, B.**, Bicer, I., de Treville, S., Trigeorgis, L.
Real Options at the Interface of Finance and Operations: Exploiting Embedded Supply Chain Real Options to Gain Competitiveness
[Q1,A] *European Journal of Finance*, Vol. 19, Issue 7-8, pp. 760–778.
- 2012 31. **Avanzi, B.**, Wong, B.
On a mean reverting dividend strategy with Brownian motion
[Q1,A*] *Insurance: Mathematics and Economics*, Vol. 51, Issue 2, pp. 229–238.
- 2011 32. **Avanzi, B.**, Shen, J., Wong, B.
Optimal dividends and capital injections in the dual model with diffusion
[Q1,A] *ASTIN Bulletin*, Vol. 41, Issue 2, pp. 611–644.
- 2011 33. **Avanzi, B.**, Cassar, L. C., Wong, B.
Modelling Dependence in Insurance Claims Processes with Lévy Copulas
[Q1,A] *ASTIN Bulletin*, Vol. 41, Issue 2, pp. 575–609.
- 2010 34. **Avanzi, B.**
What is it that makes the Swiss annuitise? A description of the Swiss retirement system
[n/a,n/a] *Australian Actuarial Journal*, Vol. 16, Issue 2, pp. 135–162.
- 2009 35. **Avanzi, B.**
Strategies for Dividend Distribution: A Review
[Q2,A] *North American Actuarial Journal*, Vol. 13, Issue 2, pp. 217–251.
- 2008 36. de Treville, S., Edelson, N. M., Kharkar, A. N., **Avanzi, B.**
Constructing useful theory: The case of Six Sigma
[Q1,C] *Operations Management Research*, Vol. 1, Issue 1, pp. 15–23.
- 2008 37. **Avanzi, B.**, Gerber, H. U.
Optimal dividends in the dual model with diffusion
[Q1,A] *ASTIN Bulletin*, Vol. 38, Issue 2, pp. 653–667.
- 2007 38. **Avanzi, B.**, Gerber, H. U., Shiu, E. S. W.
Optimal dividends in the dual model
[Q1,A*] *Insurance: Mathematics and Economics*, Vol. 41, Issue 1, pp. 111–123.

Conference publications

- 2018 1. **Avanzi, B.**, Taylor, G., Wong, B., Xian, A.
How to proxy the unmodellable: Analysing granular insurance claims in the presence of unobservable or complex drivers
Proceedings of the Actuaries Institute 2018 General Insurance Seminar (peer reviewed), 12-13 November 2018 (Sydney, Australia)

- 2016 2. **Avanzi, B.**, Lavender, M., Taylor, G., Wong, B.
On the Impact, Detection and Treatment of Outliers in Robust Loss Reserving
Proceedings of the Actuaries Institute 2016 General Insurance Seminar (peer reviewed), 13-15 November 2016 (Melbourne, Australia)
- 2010 3. **Avanzi, B.**, Wong, B.
On a mean reverting dividend strategy with Brownian motion
6th Conference in Actuarial Science & Finance on Samos (Samos, Greece)
- 2006 4. **Avanzi, B.**, de Terville, S.
Demand Estimation Through Credibility Theory
17th Annual Conference of POMS (Boston, U.S.A.)
- 2005 5. de Terville, S., Edelson, N. M., Kharkar, A. N., **Avanzi, B.**
Can we develop theory around Six Sigma? Should we care?
16th Annual Conference of POMS (Chicago, U.S.A.)
- 2004 6. Boisvert, C., de Terville, S., Oyon, D., **Avanzi, B.**
The Impact of Performance Measurement Systems on Lead Time Reduction
CRITOM Conference (Bocconi University, Italy)

R codes and illustrations

- 2021 1. **Avanzi, B.**, Taylor, G., Wang, M.
CRAN package: *SPLICE: Synthetic Paid Loss and Incurred Cost Experience (SPLICE) Simulator*
<https://CRAN.R-project.org/package=SPLICE>
- 2020 2. **Avanzi, B.**, Taylor, G., Wang, M., Wong, B.
CRAN package: *SynthETIC: an individual insurance claim simulator with feature control*
<https://CRAN.R-project.org/package=SynthETIC>

Other R codes related to published papers, with several reproducible examples, are available from the GitHub page of Agi-Lab.

Websites

- 2022 1. **Avanzi, B.**
[General Insurance Modelling - AMIII](#)
(website for UniMelb ACTL30007/ACTL90020 - Sections 1 and 2 of the CS2 actuarial syllabus)
- 2021 2. **Avanzi, B.**
[Introduction to Actuarial Studies](#)
(website for UniMelb ACTL10001)
- 2021 3. **Avanzi, B.**, Boglioni Beaulieu, G., Lafaye de Micheaux, P., Xian, A., Yang, X.
[Communicate data with R](#)

Working papers

[Recent working papers on arXiv \(updated with accepted manuscript versions\)](#)

[Older working papers on SSRN \(not updated\)](#)

- 2022 1. **Avanzi, B.**, Lau, H., Steffensen, M.
Optimal reinsurance under terminal value constraints
arXiv math.OC 2203.16108
- 2022 2. **Avanzi, B.**, Chen, P., Henriksen, L. F. B., Wong, B.
On the surplus management of funds with assets and liabilities in presence of solvency requirements
arXiv math.OC 2203.05139
- 2022 3. **Avanzi, B.**, Lavender, M., Taylor, G., Wong, B.
Detection and treatment of outliers for multivariate robust loss reserving
arXiv stat.ME 2203.03874
- 2022 4. **Avanzi, B.**, Lavender, M., Taylor, G., Wong, B.
On the impact of outliers in loss reserving
arXiv stat.ME 2203.00184

- 2021 5. **Avanzi, B.**, Taylor, G., Wang, M.
SPLICE: A Synthetic Paid Loss and Incurred Cost Experience Simulator
arXiv Qfin.RM 2109.04058
- 2021 6. Al-Mudafer, M. T., **Avanzi, B.**, Taylor, G., Wong, B.
Stochastic loss reserving with mixture density neural networks
arXiv stat.ME 2108.07924
- 2020 7. **Avanzi, B.**, Taylor, G., Wang, M., Wong, B.
SynthETIC: an individual insurance claim simulator with feature control
arXiv Qfin.RM 2008.05693
- 2020 8. **Avanzi, B.**, Lau, H., Wong, B.
Optimal Periodic Dividend Strategies for Spectrally Negative Lévy Risk Processes With Fixed Transaction Costs
arXiv Math.OC 2004.01838
- 2020 9. **Avanzi, B.**, Boglioni Beaulieu, G, Lafaye de Micheaux, P., Wong, B.
A Counterexample to the Central Limit Theorem for Pairwise Independent Random Variables Having a Common Absolutely Continuous Arbitrary Margin
arXiv Math.PR 2003.01350
- 2019 10. **Avanzi, B.**, Taylor, B., Vu P. A., Wong, B.
A Multivariate Evolutionary Generalised Linear Model Framework with Adaptive Estimation for Claims Reserving
UNSW Business School Research Paper No. 2019ACTL03
- 2019 11. **Avanzi, B.**, Taylor, B., Wong, B., Yang, X.
A Multivariate Micro-Level Insurance Counts Model With a Cox Process Approach
UNSW Business School Research Paper No. 2019ACTL02
- 2019 12. **Avanzi, B.**, Taylor, B., Wong, B., Xian, A.
Inference of counts using Markov-modulated non-homogeneous Poisson processes
UNSW Business School Research Paper No. 2019ACTL01
- 2018 13. **Avanzi, B.**, Lau, H., Wong, B.
Optimal Periodic Dividend Strategies for Spectrally Positive Lévy Risk Processes With Fixed Transaction Costs
UNSW Business School Research Paper No. 2018ACTL02
- 2018 14. **Avanzi, B.**, Taylor, B., Vu, P. A., Wong, B.
On Unbalanced Data and Common Shock Models in Stochastic Loss Reserving
UNSW Business School Research Paper No. 2018ACTL01
- 2017 15. **Avanzi, B.**, Tu, V., Wong, B.
Optimal Dividends Under Erlang(2) Inter-Dividend Decision Times
UNSW Business School Research Paper No. 2017ACTL02
- 2016 16. **Avanzi, B.**, Taylor, B., Wong, B.
Common shock models for claim arrays
UNSW Business School Research Paper No. 2016ACTL07
- 2016 17. **Avanzi, B.**, Pérez, J.-L., Wong, B., Yamazaki, K.
On optimal joint reflective and refractive dividend strategies in spectrally positive Lévy processes
UNSW Business School Research Paper No. 2016ACTL05
- 2016 18. **Avanzi, B.**, Henriksen, L. F. B., Wong, B.
On the distribution of the excedents of funds with assets and liabilities in presence of solvency and recovery requirements
UNSW Business School Research Paper No. 2016ACTL03
- 2016 19. **Avanzi, B.**, Taylor, G., Vu, P. A., Wong, B.
Stochastic Loss Reserving with Dependence: A Flexible Multivariate Tweedie Approach
UNSW Business School Research Paper No. 2016ACTL01
- 2015 20. **Avanzi, B.**, Wong, B., Yang, X.
A micro-level claim count model with overdispersion and reporting delays
UNSW Business School Research Paper No. 2015ACTL25

- 2015 21. **Avanzi, B.**, Tu, V., Wong, B.
A note on realistic dividends in actuarial surplus models
UNSW Business School Research Paper No. 2015ACTL20
- 2015 22. **Avanzi, B.**, Gagné, C., Tu, V.
Is Gamma Frailty a Good Model? Evidence from Canadian Pension Funds
UNSW Business School Research Paper No. 2015ACTL15
- 2015 23. **Avanzi, B.**, Taylor, G., Wong, B.
Correlations between insurance lines of business: An illusion or a real phenomenon? Some methodological considerations
UNSW Business School Research Paper No. 2015ACTL11
- 2015 24. **Avanzi, B.**, Tu, V., Wong, B.
On the interface between optimal periodic and continuous dividend strategies in the presence of transaction costs
UNSW Business School Research Paper No. 2015ACTL10
- 2014 25. **Avanzi, B.**, Tao, J., Wong, B., Yang, X.
Capturing Non-Exchangeable Dependence in Multivariate Loss Processes with Nested Archimedean Lévy Copulas
UNSW Australian School of Business Research Paper No. 2014ACTL05
- 2013 26. **Avanzi, B.**, Tu, V., Wong, B.
On optimal periodic dividend strategies in the dual model with diffusion
UNSW Australian School of Business Research Paper No. 2013ACTL17
- 2012 27. **Avanzi, B.**, Cheung, E.C.K, Wong, B., Woo, J.K.
On a Periodic Dividend Barrier Strategy in the Dual Model with Continuous Monitoring of Solvency
UNSW Australian School of Business Research Paper No. 2012ACTL07
- 2012 28. de Treville, S., Schürhoff, N., Trigeorgis, L., **Avanzi, B.**
Optimal Sourcing and Lead-Time Reduction Under Evolutionary Demand Risk
University of Lausanne Working Paper
- 2011 29. **Avanzi, B.**, Cassar, L. C., Wong, B.
Modelling Dependence in Insurance Claims Processes with Lévy Copulas
UNSW Australian School of Business Research Paper No. 2011ACTL01
- 2010 30. de Treville, S., **Avanzi, B.**, Bicer, I., Trigeorgis, L.
Real Options at the Interface of Finance and Operations: Exploiting Embedded Supply Chain Real Options to Gain Competitiveness
UNSW Australian School of Business Research Paper No. 2010ACTL16
- 2010 31. **Avanzi, B.**, Shen, J., Wong, B.
Optimal dividends and capital injections in the dual model with diffusion
UNSW Australian School of Business Research Paper No. 2010ACTL15
- 2009 32. **Avanzi, B.**, Wong, B.
On a mean reverting dividend strategy with Brownian motion
UNSW Australian School of Business Research Paper No. 2009ACTL12
- 2009 33. **Avanzi, B.**, Purcal, S.
Forced savings and annuitisation with cross-subsidies: a mutation of the beast
UNSW Australian School of Business Research Paper No. 2009ACTL09
- 2009 34. **Avanzi, B.**
What is it that makes the Swiss annuitize? A description of the Swiss retirement system
UNSW Australian School of Business Research Paper No. 2009ACTL06
- 2008 35. de Treville, S., **Avanzi, B.**, Trigeorgis, L.
Rethinking Lead Time Reduction Investment: A Real Options Perspective
UNSW Australian School of Business Research Paper No. 2008ACTL16
- 2008 36. **Avanzi, B.**, Gerber, H. U.
Optimal dividends in the dual model with diffusion
UNSW Australian School of Business Research Paper No. 2008ACTL10
- 2008 37. **Avanzi, B.**
A Review of Modern Collective Risk Theory with Dividend Strategies
UNSW Australian School of Business Research Paper No. 2008ACTL09

Research Funding

National Competitive Grants

- 2020 – 2022 [Australian Research Council \(ARC\) Discovery Project DP200101859](#)
AUD 310,000 from ARC
Extreme Value Theory Approaches to Insurance in a Catastrophic Environment
Prof Qihe Tang (UNSW); A/Prof Benjamin Avanzi (University of Melbourne); A/Prof Bernard Wong (UNSW); A/Prof Jose Blanchet (Stanford)
- 2015 – 2020 Chief Investigator
Natural Sciences and Engineering Research Council (NSERC) of Canada, CAD 70,000
Actuarial methods for assessing diversification effects in insurance
Note: Funding for 2016–2020 (CAD 56,000) lapsed due to my return to Australia.
- 2013 – 2020 [Australian Research Council \(ARC\) Linkage Project LP130100723](#)
AUD 232,449 from ARC, and AUD 88,412 from Industry Partners
Modelling claim dependencies for the general insurance industry with economic capital in view: an innovative approach with stochastic processes
Dr Benjamin Avanzi (UNSW); Dr Bernard Wong (UNSW); Dr Gregory Taylor (UNSW); Mr Stephen Britt (Insurance Australia Group Ltd); Mr Yusuf Cakan (Suncorp Group Ltd); Mr David Koob (Allianz Australia Ltd)

Other Competitive Grants

- 2021 – 2024 Co-Partner Investigator (with Rui Zhou from University of Melbourne, and Katrien Antonio and Jan Dhaene from KU Leuven)
Global PhD Partnership KU Leuven/Melbourne GPP/21/003, 2 full PhD scholarship with travel budget, and about AUD 50,000 cash support for Partner Investigators
VALERIA: Valuation and Advanced Learning methods for Emerging, global Risks In Actuarial science
- 2019 – 2019 Chief Investigator (with Pierre Lafaye de Micheaux)
Business School and Faculty of Science Silver Star, AUD 20,000
Complex dependence modelling to unravel relationships in Big Data
- 2017 – 2018 Chief Investigator (with Greg Taylor and Bernard Wong)
Business School Linkage Silver Star, AUD 40,000
Quantitative risk management and optimal control for general insurers
Partners: Insurance Australia Group Ltd; Suncorp Group Ltd
- 2015 – 2015 Chief Investigator (with Greg Taylor and Bernard Wong)
Australian Actuarial Research Grant, Institute of Actuaries of Australia, AUD 10,000
General forms of dependency in chain ladder structures
- 2012 – 2013 Chief Investigator (with Greg Taylor and Bernard Wong)
Australian Actuarial Research Grant, Institute of Actuaries of Australia, AUD 35,000
An innovative approach to stochastic claims reserving with dependence
- 2012 – 2012 Chief Investigator
Australian School of Business Special Research Grant, AUD 9,000
Towards more realistic dividend strategies in surplus models for risk businesses
- 2011 – 2011 Chief Investigator (with Bernard Wong)
Australian School of Business Research Grant, AUD 25,000
Optimal dividend problems in surplus models with stochastic firm prospects
- 2010 – 2011 Chief Investigator (with Bernard Wong)
Australian Actuarial Research Grant, Institute of Actuaries of Australia, AUD 20,000
On the economic value of aggregating dependent portfolios
- 2009 – 2009 Chief Investigator (with John Evans)
UNSW 2009 International Research Collaboration Scheme, AUD 7,250
Cross-country study of social security and superannuation systems in Australia, Switzerland, and the Philippines
- 2009 – 2009 Chief Investigator, Australian School of Business Research Grant, AUD 18,000
Mathematical modelling of the capital of risk businesses with dividend pay-outs

Other Funding

- 2016 – 2016 Network leader, School of Risk and Actuarial Studies “Insurance Risk and Capital” network, seed funding of AUD 5,000.

Supervision

PhD students supervision

- 2022 – TBA (UNSW with DP scholarship, external joint supervisor)
Position to fill
- 2022 – Eric Dong (UNSW with scholarship, external joint supervisor)
About to start
- 2022 – Xingyun (Claire) Tan (University of Melbourne with scholarship, co-supervisor)
In progress
- 2022 – Jim (Yanfeng) Li (UNSW with scholarship, external joint supervisor)
In progress
- 2021 – Lorenzo Marchi
(University of Melbourne and KU Leuven - joint PhD with scholarship, principal supervisor)
In progress
- 2021 – Athibav Chaudhry
(University of Melbourne and KU Leuven - joint PhD with scholarship, co-supervisor)
In progress
- 2019 – Yunshen Yang (UNSW Scientia Scholar, joint, then external joint supervisor)
In progress
- 2017 – Guillaume Boglioni-Beaulieu
(UNSW with UIPA and Canadian scholarships, joint, then external joint supervisor)
In progress
Now Associate Lecturer at UNSW, Sydney, Australia.
- 2016 – 2022 Alan Xian (UNSW with APA, joint, then external supervisor)
Submitted.
Now Consultant at Taylor Fry Consulting, Sydney, and Lecturer at Macquarie University, Sydney.
- 2016 – 2020 Ka Wai (Hayden) Lau (UNSW with UIPA, joint supervisor)
Now at Insurance Australia Group (IAG), Sydney.
- 2014 – 2019 Phuong Anh Vu (UdeM and UNSW with APA - joint PhD, joint supervisor)
Awarded at UNSW, Awarded at UdeM (with “exceptional” performance)
Now Consultant at Taylor Fry Consulting, Sydney.
- 2013 – 2017 Xinda Yang (UNSW with UIPA, joint supervisor)
Now Pricing Specialist at Insurance Australia Group (IAG), Sydney.
- 2013 – 2017 Vincent Tu (UNSW with APA, joint supervisor)
Now at Taylor Fry Consulting, Sydney.

MPhil students supervision

- 2015 – 2016 Guillaume Boglioni-Beaulieu, with “exceptional” performance (UdeM, joint superv.)
Now Associate Lecturer at UNSW, Sydney, Australia.
- 2014 – 2015 Gwendal Combout, with “excellent” performance (UdeM, main supervisor)
Quantitative Finance (M2) graduate from École polytechnique, France.

Masters' Essay students supervision

- 2020 – 2021 Xingyun (Claire) Tan (ACTL90012, University of Melbourne, main supervisor)
Honours Class 1

Honours students supervision

- 2022 Melantha (Chenyi) Wang (UNSW, external supervisor)
in progress
- 2021 Jim (Yanfeng) Li, Honours Class 1, and the University Medal (UNSW, external supervisor)
Now PhD student at UNSW.
- 2021 David Yu, Honours Class 1 (UNSW, external supervisor)
Now at Insurance Australia Group (IAG), Melbourne.

- 2020 Muhammed Al-Mudafer, Honours Class 1 (UNSW, external supervisor)
Now at Insurance Australia Group (IAG), Sydney.
- 2016 Mark Lavender, Honours Class 1 and the University Medal (UNSW, joint supervisor)
Now Investment Banking Analyst at Allier Capital, Sydney.
- 2015 Alan Xian, Honours Class 1 and the University Medal (UNSW, joint supervisor)
Now Lecturer at Macquarie University, Sydney, Australia.
- 2014 Clement Yeung, Honours Class 2:1 (UNSW, external supervisor)
Now Data Scientist at Loan Market, Sydney.
- 2013 Phuong Anh Vu, Honours Class 1 (UNSW, joint supervisor)
PhD UNSW and Université de Montréal.
Now Consultant at Taylor Fry Consulting, Sydney.
- 2012 Chung-Yu Liu, Honours Class 1 (UNSW, joint supervisor)
Now Pricing Specialist at Insurance Australia Group (IAG), Sydney.
- 2012 Vincent Tu, Honours Class 1 (UNSW, joint supervisor)
PhD UNSW; Now at Taylor Fry Consulting, Sydney.
- 2011 Jamie Tao, Honours Class 1 (UNSW, joint supervisor)
Now Head of Balance Sheet Management, Treasury, at CLSA, Hong Kong.
- 2011 Timothy Yip, Honours Class 1 (UNSW, joint supervisor)
FIAA, Now Director at Taylor Fry Consulting, Sydney.
- 2010 Luke Cassar, Honours Class 1 (UNSW, joint supervisor)
FIAA, Now Senior Consultant at Finity Consulting, Sydney.
- 2010 Jonathan Shen, Honours Class 1 and the University Medal (UNSW, joint supervisor)
FIAA, Now Principal Consultant at Suncorp, Sydney.

Referee and review activities

Editorial duties

- 2018 – *ASTIN Bulletin*, Editor
- 2018 – 2021 *Insurance: Mathematics and Economics*, Associate Editor
- 2018 – 2018 *ASTIN Bulletin*, Member of the Editorial Board
- 2016 – *Risks*, Member of the Editorial Board

Journals refereed ([Publons](#))

Operations Research
 Insurance: Mathematics and Economics
 ASTIN Bulletin
 North American Actuarial Journal
 Scandinavian Actuarial Journal
 Journal of Risk and Insurance
 Annals of Actuarial Science
 The Geneva Papers on Risk and Insurance: Issues and Practice
 Asia-Pacific Journal of Risk and Insurance
 European Actuarial Journal
 Variance (CAS Publications)
 Risks
 Mathematical Finance
 Statistics and Probability Letters
 Journal of Applied Probability / Advances in Applied Probability
 Journal of Computational and Applied Mathematics
 Journal of Optimization Theory and Applications
 SIAM Journal on Control and Optimization
 Stochastic Models
 Economic Modelling
 Expert Systems with Applications
 Communications in Statistics - Theory and Methods
 Applied Stochastic Models in Business and Industry
 Filomat
 Applied Mathematical Modelling
 Mathematical Problems in Engineering
 Mathematical Methods in the Applied Sciences
 Journal of Inequalities and Applications
 International Journal of Information Technology & Decision Making
 Intelligent Systems in Accounting, Finance and Management
 Discrete Dynamics in Nature and Society
 IMA Journal of Management Mathematics
 Science China Mathematics
 Applied Mathematics - A Journal of Chinese Universities
 Bulletin of the Malaysian Mathematical Sciences Society

National Competitive Research Grant agencies

Australia: Australian Research Council (ARC): DP, LP, DECRA, NISDRG, and FL
 Canada: National Science and Engineering Research Council (NSERC)
 Switzerland: National Science Foundation (SNSF)
 Poland: National Science Centre (NSC)

External Promotions

UNSW: 2019 (twice)
 Macquarie University: 2020

Scientific committee of conferences

- 2020 – Member of the Advisory Board, One World Actuarial Research Seminar
- 2020 – Conference in Actuarial Science & Finance on Samos (Samos, Greece)
- 2020 Online International Conference in Actuarial science, data science and finance
- 2018 [*Chair*] 22nd International Congress on Insurance: Mathematics and Economics (Sydney, Australia)
- 2013 New York Annual Conference of Asia-Pacific Risk and Insurance Association (APRIA)
- 2012 Seoul Annual Conference of Asia-Pacific Risk and Insurance Association (APRIA)
- 2011 Tokyo Annual Conference of Asia-Pacific Risk and Insurance Association (APRIA)
- 2010 Singapore World Risk and Insurance Economics Congress (WRIEC)
- 2009 Beijing Annual Conference of Asia-Pacific Risk and Insurance Association (APRIA)

Organising committee of conferences

- 2019 4th Workshop on Risk: modelling, optimization and inference (with applications in Finance, Insurance and Superannuation) (Sydney, Australia)
- 2017 3rd Workshop on Risk: modelling, optimization and inference (with applications in Finance, Insurance and Superannuation) (Sydney, Australia)

Miscellaneous reviewing activities

- 2012 Skipper Award Committee (APRIA)
- 2009 Skipper Award Committee (APRIA)

PhD jury

- 2021 Jan. ARAUJO ACUNA, José Carlos, Tempering and seasonality in non-life insurance modeling, University of Lausanne. External examiner.
- 2016 Sep. JIN, Can (Ken), Occupation time problem in some insurance risk models, University of Melbourne. External examiner.
- 2014 Dec. OMIDI-FIROUZI, Hassan, On the design of customized risk measures in insurance, the problem of capital allocation and the theory of fluctuations for Lévy processes, Université de Montréal. Chair.
- 2014 Oct. RAMLI, Siti Norafidah Mohd, Modelling Multivariate Dependence Structures in Insurance and Credit Risk via Copulas, Macquarie University, Macquarie University. External examiner.
- 2014 Aug. SIMARD, Clarence, Modélisation du carnet d'ordres limites et prévision de séries temporelles, Université de Montréal. Chair.
- 2014 Mar. FARD Farzad Alavi, Analysis of Pricing Financial Derivatives Under Regime-Switching Economy, Macquarie University. External examiner.

Academic visits

2021 Jun.	School of Risk and Actuarial Studies, UNSW Sydney (Australia)
2020 Feb.	School of Risk and Actuarial Studies, UNSW Sydney (Australia)
2019 Aug.	Department of Mathematical Science, University of Copenhagen (Denmark)
2019 Jul.	Institut de Science Financière et d'Assurances, Université Lyon 1 (France)
2019 Jun.-Aug.	Department of Actuarial Science, University of Lausanne (Switzerland)
2019 Mar.	Department of Mathematical Science, University of Copenhagen (Denmark)
2019 Jan.-Feb.	Institut de Science Financière et d'Assurances, Université Lyon 1 (France)
2018 Feb.	Department of Analytics & Operations, National University of Singapore (Singapore)
2015 Jan.	School of Risk and Actuarial Studies, University of New South Wales (Australia)
2014 July	Department of Statistics and Actuarial Science, University of Hong Kong
2014 Mar.	School of Risk and Actuarial Studies, University of New South Wales (Australia)
2014 Mar.	Centre for Actuarial Studies, University of Melbourne (Australia)
2012 Dec.	Department of Mathematics and Statistics, Université de Montréal (Canada)
2012 June	Department of Statistics and Actuarial Science, University of Hong Kong
2012 Jan.	School of Economics and Political Science, University of St. Gallen (Switzerland)
2012 Jan.	Department of Operations, University of Lausanne (Switzerland)
2010 Nov.	Department of Insurance and Risk Management, The Wharton School, UPENN (U.S.A.)
2010 Nov.	Institute of Insurance Economics, University of St. Gallen (Switzerland)
2010 June	Department of Management, University of Lausanne (Switzerland)
2009 Dec.	School of Actuarial Studies, Université Laval (Québec City, Canada)
2009 Dec.	Department of Mathematics and Statistics, Université de Montréal (Canada)
2009 Dec.	Department of Statistics and Actuarial Science, University of Waterloo (Canada)
2009 June	Department of Actuarial Science, University of Lausanne (Switzerland)

Presentations

Conference Presentations (invited speaker)

2019 Sep.	<i>Stochastic dependence and general insurance capital: from data to models</i> Plenary Speaker at 6 th Workshop on "Recent developments in dependence modelling with applications in finance and insurance" (Agistri, Greece)
2018 Nov.	<i>Modelling insurance claim counts and reporting delays with Cox processes</i> Research School of Finance, Actuarial Studies and Statistics – 2018 Summer Camp. (Bowral, Australia)
2017 Dec.	<i>Modelling insurance claim counts and reporting delays with Cox processes</i> UNSW-MacquarieU Workshop on Risk: Modelling, optimization and inference (Sydney, Australia)
2017 Nov.	<i>Correlations between lines of business - Are they real or illusionary?</i> CAS 2017 Annual Meeting (Anaheim, CA, USA)
2014 July	<i>On optimal periodic dividend strategies in the dual model with diffusion</i> Gerber-Shiu Workshop, University of Hong Kong (Hong Kong)
2011 Nov.	<i>Modelling Dependence in Insurance Claims Processes with Lévy Copulas</i> Advances in Financial Risk Workshop, Macquarie University (Sydney, Australia)
2010 Dec.	<i>Claim dependence modelling with Lévy copulas</i> International Conference in Applied Statistics and Financial Mathematics (Hong Kong)

Conference Presentations (peer-reviewed submissions)

2022 June	<i>Stochastic Ensemble Loss Reserving</i> 2022 Virtual ASTIN/AFIR Colloquium, June 20-24, 2022 (joint with Yanfeng Li, Bernard Wong, and Alan Xian)
2022 June	<i>Optimal reinsurance under terminal value constraints</i> 2022 Virtual ASTIN/AFIR Colloquium, June 20-24, 2022 (joint with Hayden Lau and Mogens Steffensen)
2022 May	<i>Harnessing the power of "The Wisdom of Crowds": How do we optimize the ensembling of different loss reserving models?</i> 2022 All-Actuaries Summit: Getting closer, Thinking bigger (Australia) (joint with Yanfeng Li, Bernard Wong, and Alan Xian)

- 2022 May *An AI-driven Approach to Quantifying Model Error in Loss Reserving Generalised Linear Models*
2022 All-Actuaries Summit: Getting closer, Thinking bigger (Australia)
(joint with Greg Taylor, Bernard Wong, and David Yu)
- 2022 May *SPLICE: Synthetic data generation for loss experience*
2022 All-Actuaries Summit: Getting closer, Thinking bigger (Australia)
(joint with Greg Taylor, M. Wang, and Bernard Wong)
- 2021 May *Neural Networks in Reserving: how and why are they worth considering?*
2021 All-Actuaries Virtual Summit: Thriving in an Age of Extremes (Australia)
(joint with M. Al-Mudafer, Greg Taylor, and Bernard Wong)
- 2019 Nov. *When (not) to use abstract dependence structures: theoretical and practical considerations*
10th Australasian Actuarial Education and Research Symposium (Melbourne, Australia)
- 2019 July *Inference of counts using Markov-modulated non-homogeneous Poisson processes*
23rd International Congress on Insurance: Mathematics and Economics (Munich, Germany)
- 2019 Apr *A tractable method for unravelling and modelling unobservable or complex dependence drivers (with granular data)*
IAA Section Colloquium 2019 (Cape Town, South Africa)
- 2018 June *Hybrid strategies in the presence of fixed transaction costs*
10th Conference in Actuarial Science & Finance on Samos (Samos, Greece)
- 2017 July *Optimal Dividends Under Erlang(2) Inter-Dividend Decision Times*
21st International Congress on Insurance: Mathematics and Economics (Vienna, Austria))
- 2016 Sep *On the distribution of the excedents of funds with assets and liabilities in presence of solvency and recovery requirements*
3rd European Actuarial Journal Conference (Lyon, France)
- 2016 May *On the interface between optimal periodic and continuous dividend strategies in the presence of transaction costs*
9th Conference in Actuarial Science & Finance on Samos (Samos, Greece)
- 2015 Dec *Correlations between insurance lines of business: An illusion or a real phenomenon? Some methodological considerations*
7th Australasian Actuarial Education and Research Symposium (Gold Coast, Australia)
- 2014 July *Claim dependencies in economic capital modeling: The Australian experience*
49th Actuarial Research Conference (Santa Barbara, USA)
- 2013 July *On optimal periodic dividend strategies in the dual model with diffusion*
48th Actuarial Research Conference (Philadelphia, USA)
- 2012 Dec. *On a mean reverting dividend strategy with Brownian motion*
5th Australasian Actuarial Education and Research Symposium (Melbourne, Australia)
- 2012 July *Optimal dividends in a perturbed Cramér-Lundberg model with stochastic prospects and a penalty at ruin*
4th International Gerber-Shiu Workshop (Melbourne, Australia)
- 2012 June *Optimal dividends in a perturbed Cramér-Lundberg model with stochastic prospects and a penalty at ruin*
16th International Congress on Insurance: Mathematics and Economics (Hong Kong)
- 2011 Nov. *What is it that makes the Swiss annuitise? A description of the Swiss retirement system*
2011 Australasian Actuarial Education and Research Symposium (Canberra, Australia)
- 2011 June *Modelling Dependence in Insurance Claims Processes with Lévy Copulas*
15th International Congress on Insurance: Mathematics and Economics (Trieste, Italy)
- 2011 June *Optimal dividends and capital injections in the dual model with diffusion*
15th International Congress on Insurance: Mathematics and Economics (Trieste, Italy)
- 2011 June *Modelling Dependence in Insurance Claims Processes with Lévy Copulas*
Memorable Actuarial Research Conference (Leuven, Belgium)
- 2010 June *On a mean reverting dividend strategy with Brownian motion*
6th Conference in Actuarial Science & Finance on Samos (Samos, Greece)
- 2009 Sep. *Forced savings and annuitisation with cross-subsidies: a mutation of the beast*
AFIR Colloquium (Munich, Germany)
- 2009 Sep. *What is it that make the Swiss annuitise? A description of the Swiss retirement system*
LIFE Colloquium (Munich, Germany)
- 2009 May *On the level of national retirement savings with annuitisation and cross-subsidies: a two-tiered economic model*
13th International Congress on Insurance: Mathematics and Economics (Istanbul, Turkey)

- 2009 May *What is it that make the Swiss annuitise? A description of the Swiss retirement system*
13th International Congress on Insurance: Mathematics and Economics (Istanbul, Turkey)
- 2008 Oct. *On Optimal Dividend Strategies: Review and Dual Model*
UNSW Actuarial Studies Research Symposium 2008 (Sydney, Australia)
- 2008 Jul. *A Review of Modern Collective Risk Theory with Dividend Strategies*
12th International Congress on Insurance: Mathematics and Economics (Dalian, China)
- 2007 Jul. *Optimal dividends in the dual model with diffusion*
11th International Congress on Insurance: Mathematics and Economics (Piraeus, Greece)
- 2006 Jul. *Optimal dividends in the dual model*
10th International Congress on Insurance: Mathematics and Economics (Leuven, Belgium)
- 2006 May *Demand Estimation Through Credibility Theory*
17th Annual Conference of POMS (Boston, USA)

Academic Seminars

- 2022 Mar *Optimal reinsurance under terminal value constraints*
Department of Econometrics and Business Statistics, Monash Business School, Melbourne (Australia)
- 2021 Nov *Optimal reinsurance under terminal value constraints*
School of Risk and Actuarial Studies, UNSW Sydney (Australia)
- 2019 Jul *A Multivariate Evolutionary Generalised Linear Model Framework with Adaptive Estimation for Claims Reserving*
Séminaires L^2 Lyon-Lausanne (ISFA, Lyon)
- 2019 Jun *Stochastic dependence and general insurance capital: from data to models*
Centre of Actuarial Studies, Department of Economics, University of Melbourne (Australia)
- 2019 Mar *Inference and prediction of counts using Markov-modulated non-homogeneous Poisson processes*
Department of Mathematical Science, University of Copenhagen (Denmark)
- 2019 Feb *Inference and prediction of counts using Markov-modulated non-homogeneous Poisson processes*
Séminaire Labo, Institut de Science Financière et d'Assurances, Université Lyon 1 (France)
- 2016 Aug *On the distribution of the profits of assets-liability funds in presence of regulation*
Macquarie University Actuarial Studies Seminar, Macquarie University (Sydney, Australia)
- 2015 Dec *Correlations between insurance lines of business: An illusion or a real phenomenon? Some methodological considerations*
School of Risk & Actuarial Studies Research Day 2015 (Sydney, Australia)
- 2015 Apr. *Dépendance et assurance: une histoire de corrélation?*
Club Mathématique de l'Université de Montréal, Montreal (Canada)
- 2015 Jan. *Actuarial applications of Lévy copulas*
Actuarial and Financial Mathematics Seminar, Quantact Lab, Center for Research in Mathematics (CRM), Montreal (Canada)
- 2014 Mar. *On optimal periodic dividend strategies in the dual model with diffusion*
Centre for Actuarial Studies, University of Melbourne (Australia)
- 2012 Dec. *Dividendes et injections de capital dans le modèle dual : Stratégies optimales*
Séminaires du Centre de Recherche en Mathématiques, Université de Montréal (Canada)
- 2010 Nov. *An Analysis of Private Pensions in Switzerland, A Country Where People Choose to Save and then Annuitize*
Rosen-Huebner-McCahan Seminar, The Wharton School, UPENN (Philadelphia, U.S.A.)
- 2010 Nov. *Forced savings and annuitisation: an international perspective*
University of St. Gallen (Switzerland)
- 2010 Apr. *On a mean reverting dividend strategy with Brownian motion*
UNSW Actuarial Studies Research Seminar (Sydney, Australia)
- 2009 Dec. *On a mean reverting dividend strategy with Brownian motion*
Séminaires du Centre de Recherche en Mathématiques, Université de Montréal (Canada)
- 2009 Dec. *On a mean reverting dividend strategy with Brownian motion*
Université Laval (Québec, Canada)
- 2009 Dec. *Forced savings and annuitisation with cross-subsidies: a mutation of the beast*
Department of Statistics and Actuarial Science Seminars, University of Waterloo (Canada)
- 2009 Dec. *On a mean reverting dividend strategy with Brownian motion*
Department of Statistics and Actuarial Science Seminars, University of Waterloo (Canada)
- 2009 Mar. *The demand for retirement annuities and non-mandatory superannuation savings: the case of Switzerland*
Macquarie University Actuarial Studies Seminar, Macquarie University (Sydney, Australia)

- 2009 Jan. *The demand for retirement annuities and non-mandatory superannuation savings: the case of Switzerland*
International Research Workshop (UNSW, Sydney, Australia)
- 2008 Feb. *Optimal dividends in the dual model with diffusion*
UNSW Actuarial Studies Research Seminar (Sydney, Australia)
- 2006 Dec. *Optimal Dividends in the Dual Model*
Séminaires L^2 Lyon-Lausanne (ISFA, Lyon)

Other attended conferences

- 2019 Mar. Workshop "Fair Valuation in Insurance" (Brussels, Belgium)
- 2016 Jun. CAS Course on Professionalism (Toronto, Canada)
- 2015 Jun. Enterprise Risk Management Symposium (Washington, USA)
- 2015 Jun. The Changing Face of GI, Actuaries Institute (Sydney, Australia)
- 2014 July 16th International Congress on Insurance: Mathematics and Economics (Shanghai, China)
- 2010 Nov. OECD/IOPS Global Forum on Private Pensions, on invitation (Sydney, Australia)
- 2010 Sep. 6th International Longevity Risk and Capital Markets Solutions Conference (Sydney, Australia)
- 2010 Jul. 18th Australian Colloquium of Superannuation Researchers, *Retirement Saving Choices: challenges for individuals, industry and public policy* (Sydney, Australia)
- 2009 Jul. 17th Australian Colloquium of Superannuation Researchers, *Celebrating 100 years of a National Retirement Income System - The Challenges Ahead* (Sydney, Australia)
- 2009 Jun. 2b) or not 2b) Conference (Lausanne, Switzerland)
- 2008 Nov. 1st Australasian Actuarial Education and Research Symposium (Sydney, Australia)

TEACHING**Awards**

- 2016 2015 School of Risk and Actuarial Studies Teaching Innovation Award, for “Use of Learning Catalytics in the Actuarial Program”
- 2011 Nominated for a 2012 Vice-Chancellor Award for Teaching Excellence
- 2011 Australian School of Business Teaching Excellence Award, for “Outstanding Technology-Enabled Teaching Innovation”

Education

- 2017 ‘Presenting online’ (one day), Australia’s National Institute of Dramatic Art (NIDA)
- 2017 ‘Public Speaking Bootcamp’ (one day), Australia’s National Institute of Dramatic Art (NIDA)
- 2009 FULT ‘Foundations of University Learning and Teaching’ (five days), University of New South Wales

Courses taught

- 2022 S1 ACTL 90020 General Insurance Modelling (M.Sc., University of Melbourne)
- 2022 S1 ACTL 30007 Actuarial Modelling III (B.Sc., University of Melbourne)
- 2021 S2 ACTL 10001 Introduction to Actuarial Studies (B.Sc., University of Melbourne)
- 2021 S1 ACTL 90020 General Insurance Modelling (M.Sc., University of Melbourne)
- 2021 S1 ACTL 30007 Actuarial Modelling III (B.Sc., University of Melbourne)
- 2020 S2 ACTL 10001 Introduction to Actuarial Studies (B.Sc., University of Melbourne)
- 2020 S1 ACTL 90020 General Insurance Modelling (M.Sc., University of Melbourne)
- 2020 S1 ACTL 30007 Actuarial Modelling III (B.Sc., University of Melbourne)
- 2019 T6 ZZBU 6507 Data Visualisation & Communication – developed but not delivered (fully online, Master of Analytics, UNSW)
- 2019 T3 ACTL 1101 Introduction to Actuarial Studies (B.Sc., UNSW)
- 2019 Jul Actuarial Journals and the Publishing Process (PhD, University of Lyon 1)
- 2018 S2 ACTL 1101 Introduction to Actuarial Studies (B.Sc., UNSW)
- 2018 S1 ACTL 4003/5003 Research Methods in Actuarial Science (Honours and HDR, UNSW)
- 2017 S2 ACTL 1101 Introduction to Actuarial Studies (B.Sc., UNSW)
- 2017 S2 ACTL 4003/5003 Research Methods in Actuarial Science (Honours and HDR, UNSW)
- 2016 S2 ACTL 1101 Introduction to Actuarial Studies (B.Sc., UNSW)
- 2016 S1 ACTL 3141 Actuarial Statistics (B.Sc., UNSW)
- 2015 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2015 S2 ACTL 3162 Insurance Risk Models (B.Sc., UNSW)
- 2014 Fall ACT3284 Modèles en assurances IARD (B.Sc., Université de Montréal)
- 2014 Fall ACT3241 Théorie du Risque (B.Sc., Université de Montréal)
- 2013 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2013 S2 ACTL 3003 Insurance Risk Models (B.Sc., UNSW)
- 2013 S1 ACTL 5104 Actuarial Statistics (M.Sc., UNSW)
- 2013 S1 ACTL 3001 Actuarial Statistics (B.Sc., UNSW)
- 2012 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2012 S2 ACTL 3003 Insurance Risk Models (B.Sc., UNSW)
- 2011 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2011 S2 ACTL 3003 Insurance Risk Models (B.Sc., UNSW)
- 2011 S1 ACTL 5102 Financial Mathematics (M.Sc., UNSW)
- 2011 S1 ACTL 2001 Financial Mathematics (B.Sc., UNSW)
- 2010 SS ACTL 5102 Financial Mathematics (M.Sc., UNSW)
- 2010 SS ACTL 2001 Financial Mathematics (B.Sc., UNSW)
- 2010 S1 ACTL 5102 Financial Mathematics (M.Sc., UNSW)
- 2010 S1 ACTL 2001 Financial Mathematics (B.Sc., UNSW)
- 2009 S2 ACTL 4003/5003 Research Topics in Actuarial Science (Honours and HDR, UNSW)
- 2009 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2009 S1 ACTL 5102 Financial Mathematics (M.Sc., UNSW)
- 2009 S1 ACTL 2001 Financial Mathematics (B.Sc., UNSW)
- 2008 S2 ACTL 5106 Insurance Risk Models (M.Sc., UNSW)
- 2008 S1 Gestion des opérations (B.Sc., University of Lausanne)

2007	S2	Credibility Theory (M.Sc., University of Lausanne)
2007	S1	Gestion des opérations (B.Sc., University of Lausanne)
2005	S2	Laboratory of selected topics in actuarial mathematics (M.Sc., University of Lausanne)
2005	S1	Mathematics of Lead Time (MAS, Bordeaux Business School)

Masters project supervision (ACTL5004)

2016	Ka Wai (Hayden) Lau (UNSW) Now PhD student at UNSW.
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Summer Research Scholarships

2019-2020	Melantha (Chenyi) Wang (UNSW)
2019-2020	Simon (Wanzhang) Jing (UNSW)
2018-2019	Wilson Cheng (UNSW)
2016-2017	Guanting Liu (UNSW)
2016-2017	Edward Djizmedjian (UNSW)

INTERNAL ENGAGEMENT AND LEADERSHIP

Awards

- 2018 **The Dean's Distinguished Leadership Award**, in recognition of exceptional and sustained contributions to the achievement of the goals of the UNSW School of Business and Strategy 2025.
- This award may be given to an individual member of staff who, over a sustained period, has provided meritorious and distinguished leadership that has significantly exceeded the scope and commitment of usual expectations in achieving Business School goals.

Academic engagement and leadership

- 2021 – 2022 Elected Member, Teaching and Learning Quality Assurance Committee (TALQAC), The University of Melbourne
Program review panel members (2021: 1, 2022: 1)
- 2020 – Member, Academic Board, The University of Melbourne
Appeals committee member (2020: 1)
- 2019 – 2019 Elected member, Faculty Board, UNSW Business School, UNSW
(representing the Faculty Academic Staff)
- 2019 – 2019 Member, School of Risk and Actuarial Studies Research Committee, UNSW
- 2017 – 2018 Chair, UNSW Business School 3+ Reference Group
- 2017 – 2018 Member, UNSW 3+ Transition Advisory Group
- 2017 – 2018 Member, UNSW 3+ Engagement Reference Group
- 2017 – 2018 Elected member, Faculty Board, UNSW Business School, UNSW
(representing the School of Risk and Actuarial Studies)
- 2016 – 2017 Chair, Alternative Delivery Modes Committee, School of Risk and Actuarial Studies, UNSW
- 2015 – 2017 Associate Head of School, School of Risk and Actuarial Studies, UNSW
- 2015 – 2017 Chair, Learning & Teaching Committee, School of Risk and Actuarial Studies, UNSW
- 2015 – 2017 Member, Faculty Education Committee, UNSW Business School, UNSW
- 2015 – 2017 Member, School Industry Advisory Board, School of Risk and Actuarial Studies, UNSW
- 2017 – 2017 Member, Education Focused roles selection committee, UNSW Business School
- 2015 – 2016 Member, Faculty Board, UNSW Business School, UNSW
- 2014 – 2015 Chair, website committee, Departement of Mathematics and Statistics, UdeM
- 2014 – 2015 Member, 'internationalisation' committee, Departement of Mathematics and Statistics, UdeM
- 2012 – 2013 Elected chair of the *School Plenum*, School of Risk and Actuarial Studies, UNSW
- 2012 – 2013 Elected member of the *School Advisory Board*, School of Risk and Actuarial Studies, UNSW
- 2012 – 2013 Postgraduate Research Coordinator, School of Risk and Actuarial Studies, UNSW
- 2012 – 2013 Honours Coordinator, School of Risk and Actuarial Studies, UNSW
- 2012 – 2013 Member, *Australian School of Business Promotions Committee for Promotion to Senior Lecturer*, UNSW
- 2009 – 2012 Academic representative, *Australian School of Business E-learning Committee*, UNSW
- 2009 – 2012 Director, Actuarial Studies Co-op Program of the UNSW
- 2011 – 2011 Member, *ASB Linkage Grant Working Party*, UNSW
- 2010 – 2010 Member, *Australian School of Business Standing Committee*, UNSW
- 2007 – 2008 Elected member, Commission of the University of Lausanne Personnel (official legal representative of all (administrative and academic) staff employed by the university)
- 2006 – 2008 Elected member, Faculty Council, Faculty of Business and Economics of the University of Lausanne
- 2006 – 2008 Treasurer, *Association du Corps Intermédiaire et des Doctorants de l'Université de Lausanne* (official representative of the regular (teaching and research) staff that is below the professor level)
- 2006 – 2008 Member, Committee *Enseignement* (teaching) of the University of Lausanne
- 2006 – 2008 Member, Committee *Recherche* (research) of the University of Lausanne

Teaching leadership

Seminars and presentations

- 2022 (2 February) Yellowdig presenter, *WCLA PD: Student Engagement Pilot Projects of 2021 (Piazza & YellowDig)*
- 2020 (14 September) Panelist, *WCLA Symposium: Adapting to Radical Disruptions in Business Education*

- 2018 (February) *Digital Uplift interview*, Business Digital Learning (UNSW Business School, UNSW).
- 2017 (October, 18) *ACTL1101 Digital Uplift*, School of Risk and Actuarial Studies Digital Uplift Planning (UNSW Business School, UNSW).
- 2016 (February, 25) *Assessment Good Practice*, School of Risk and Actuarial Studies Learning & Teaching Workshop (UNSW Business School, UNSW).
- 2015 (November, 3) *Spotlight on Program Learning Goals in the School of Risk and Actuarial*, UNSW Business School – Academic's eLearning Showcase & Workshop (UNSW Business School, UNSW).
- 2014 (December, 5) Seminar on the flipped classroom to the FOLIUM team (teaching support) of the University of Montreal as well as some flipped classroom pilot project leaders, University of Montréal, Canada
- 2014 (October, 1) Seminar on how and when to use technology (in particular, tablet PCs and recorded videos) for teaching technical subjects, made to interested members of the Department of Mathematics and Statistics, University of Montréal, Canada
- 2014 (September, 8) Brief presentation on how and when to use technology (in particular, tablet PCs and recorded videos) for teaching technical subjects, made to the Department Assembly, Department of Mathematics and Statistics, University of Montréal, Canada
- 2014 (May, 23) Presentation on how and when to use technology (in particular, tablet PCs and recorded videos) for teaching technical subjects, made to the steering committee of the project *Mathéma-TIC*, Montréal, Canada
- 2013 (August, 16) Member, *Large Class Teaching Panel*, Fundamentals of University Learning and Teaching (FULT), Learning & Teaching @ UNSW
- 2012 (June, 21) Member, *Large Class Teaching Panel*, Fundamentals of University Learning and Teaching (FULT), Learning & Teaching @ UNSW
- 2012 (April, 3) *Low-tech high-impact teaching strategies for large classes*, Connections in Learning and Teaching (Learning & Teaching @ UNSW)
- 2011 (November, 8) *Using videos in teaching: when and how?*, ASB Academics' Showcase of Technology in Teaching (ASB, UNSW)
- 2011 (February, 17) Member, *Large Class Teaching Panel*, Fundamentals of University Learning and Teaching (FULT), Learning & Teaching @ UNSW
- 2010 (March, 1) *Australian School of Business Strategic Retreat*, invited for the eLearning component
- 2010 (August, 26) Member, *Large Class Teaching Panel*, Fundamentals of University Learning and Teaching (FULT), Learning & Teaching @ UNSW
- 2009 (November, 19) Member, *Large Class Teaching Panel*, Fundamentals of University Learning and Teaching (FULT), Learning & Teaching @ UNSW
- 2009 (November, 18) Recorded interview by Colina Mason (Learning & Teaching @ UNSW) for the sessional staff gateway resource
- 2009 (August, 28) School of Accounting seminar (UNSW), *Digital Tablets and Screen Recording*
- 2009 (July, 8) ASB Workshop (UNSW), *Digital Tablets and Screen Recording*

Other

- 2016 S1 *FULT peer observation* participant: interested FULT participants can come and observe in my lectures, as well as access the course website.

Other

Formal Mentorship/Coaching

- 2020 – 2020 University of Melbourne level C
- 2019 – 2019 UNSW Business School PhD Fellow mentor
- 2017 – 2017 Mentor to 1 UNSW Scientia Scholar
- 2016 – 2016 Mentor to 1 UNSW Scientia Scholar
- 2015 – 2016 Mentor to 1 ECR academic from UNSW Business School

EXTERNAL ENGAGEMENT AND LEADERSHIP

Professional appointments (selected)

2021 – 2022	Elected Councillor, Caulfield Junior College Convenor, Policy Review and Development Subcommittee
2018 – 2019	Non Executive Director, Lycee Condorcet the International French School of Sydney
2014 – 2015	Actuarial consulting, Service de consultation en actuariat (Université de Montréal)
2008 – 2012	Non Executive Director, <i>Fondation Comoedia</i> , Switzerland (group insurance)
2007 – 2008	Founder, Executive Director, <i>Fondation Comoedia</i> , Switzerland (group insurance)
2006 – 2008	Executive Director, Chair, <i>Fondation de prévoyance Artes et Comoedia</i> , Switzerland (pension fund, 200 employers, 2000 insured)
2004 – 2004	Internship and then consultant, <i>La Suisse Assurances</i> (actuarial department for group life), Lausanne, Switzerland
2003 – 2003	Internship, <i>Nestec S.A.</i> (Globe Project, Change management), Vevey, Switzerland
2001 – 2003	Teaching activities in Swiss public schools (mathematics, French, economics, law, accounting, IT)

Professional affiliations

2018 –	Member, Australian Institute of Company Directors (AICD)
2014 –	Academic Member, Casualty Actuarial Society (CAS)
2008 –	Affiliate member, Actuaries Institute of Australia ⁵
2007 –	Member, Swiss Association of Actuaries (full member of IAA)
2009 –	Member, Actuarial Studies in Non-Life Insurance section of IAA (ASTIN)
2008 –	Member, American Risk and Insurance Association (ARIA)
2008 – 2011	Member, Asia-Pacific Risk and Insurance Association (APRIA)

Professional service

2014 –	Member, CAS Academic Central
2009 – 2016	Member, Hachemeister and Michelbacher prizes committee (CAS)
2014 – 2016	Member, Data and Technology Working Party (CAS)

In the media

Professional websites and blogs

- 2021 1. Chen, J., [Virtual Summit Shorts: Neural networks in reserving – how and why are they worth considering?](#)
Actuaries Digital, 9 June 2021. (Sydney, Australia)
11 October 2019

BusinessThink

- 2019 1. [A smarter approach to analysis refines insurance predictions](#)
11 October 2019
- 2015 2. [Are insurance companies holding too much capital?](#)
16 December 2015

⁵Inactive in 2013 and 2014.

Other non academic publications

- 2020 1. **Avanzi, B.**, Taylor, G., Wang, M., Wong, B.
[SynthETIC: A simulator of Synthetic Experience Tracking Insurance Claims](#)
Kasa AI Blog, 14 September 2020.
- 2019 2. **Avanzi, B.**, Taylor, G., Wong, B., Xian, A.
[How to proxy the unmodellable](#)
Actuaries Digital, The Magazine of the Actuaries Institute, April 2019. (Sydney, Australia).
- 2016 3. **Avanzi, B.**, Taylor, G., Wong, B.
[Construction of detailed correlation structures across GI business segments](#)
Actuaries Digital, The Magazine of the Actuaries Institute, 14 December 2016. (Sydney, Australia).
- 2015 4. **Avanzi, B.**, Taylor, G., Wong, B.
[Are correlations real or imagined?](#)
Actuaries Digital, The Magazine of the Actuaries Institute, 30 September 2015. (Sydney, Australia).
- 2014 5. **Avanzi, B.**, Taylor, G., Wong, B.
[Research into claim dependencies: an industry and academic collaboration](#)
Actuaries, The Magazine of the Actuaries Institute, August issue, pp. 9–11. (Sydney, Australia).

Industry reports

- 2016 1. Bothwell, P. T., Kannon M. J., **Avanzi, B.**, Izzo, J. M., Knobloch, S. A., Nichols, R. S., Norris, J. L., Pan, Y., Semenovich, D., Spadola, T. A., Waite, L. M., Yarnell, D. H.
[Data & Technology Working Party Report](#)
Casualty Actuarial Society Forum, Fall 2016.
- 2015 2. **Avanzi, B.**, Gagné, C.
[Adjustment of CIA Mortality](#)
Report commissioned by Morneau Shepell (Montréal, Canada).

Industry presentations

- 2017 Sep. [Recent outlier detection methods with illustrations in loss reserving](#)
'Insights' session of the Actuaries Institute (Sydney, Australia)
- 2016 Nov. [On the Impact, Detection and Treatment of Outliers in Robust Loss Reserving](#)
Actuaries Institute 'General Insurance Seminar' (Melbourne, Australia)
- 2016 Oct. [Construction of detailed correlation structures across GI business segments](#)
'Insights' session of the Actuaries Institute (Sydney, Australia)
- 2016 Sep. Non-life stream presentation of the 'Insurance Risk and Capital' network workshop on *Recent advances and open problems in Insurance Risk and Capital regulation*
- 2016 Apr. [Diversification in Insurance: A Capital Question](#)
Learn@Lunch (Sydney, Australia)
- 2016 Apr. [Beyond Correlation: Recent Developments in Modelling Claims Dependencies](#)
'Insights' session of the Actuaries Institute (Sydney, Australia)
- 2015 Oct. [Correlations between insurance lines of business: Illusion or phenomenon?](#)
'Insights' session of the Actuaries Institute (Sydney, Australia)

Other presentations

- 2021 Oct. Invited Speaker, 2021 Contact-less Night by Actuarial Students' Society

Events

- 2016 Organiser, 'Insurance Risk and Capital' network workshop on *Recent advances and open problems in Insurance Risk and Capital regulation*, with Professor Shaun Wang (NTU Singapore) and Robert Thomson (Head of Actuarial services, Australian Prudential Regulation Authority).

Miscellaneous written contributions

- 2019 Jan. *Welcome to new students*
Finity Actuarial Bulletin
- 2018 Jan. *Welcome to new students*
Finity Actuarial Bulletin
- 2016 Jan. *Welcome to new students*
Finity Actuarial Bulletin no 77