July 3, 2023

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National University of Singapore
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ACADEMIC AND OTHER EXPERIENCE

A. Current

Criat (A FinTech company)
Chairman and Co-founder (March 2017 –)
National University of Singapore
Professor Emeritus (July 1, 2023 –)

B. Others

National University of Singapore
Jardine Cycle & Carriage Professor of Finance, NUS Business School (June 1, 2008 – June 30, 2023)
Executive Director, Asian Institute of Digital Finance (July 1, 2020 – June 30, 2023)
Professor of Economics, Department of Economics (March 1, 2013 – February 28, 2021)
Director, Risk Management Institute (July 1, 2007 – June 30, 2014)
Professor of Finance, NUS Business School (November 1, 2007 – May 31, 2008)
Visiting Professor of Finance, NUS Business School (July 1, 2007 – October 31, 2007)
College of Management, National Taiwan University
Distinguished Research Chair (September 1, 2008 – December 31, 2015; Periodic Visits)
Hengyang Normal University
Honorary Guest Professor (April 2013 – March 2014)
Rotman School of Management, University of Toronto
Professor of Finance and Manulife Chair in Financial Services
(July 1, 2000 – June 30, 2009; on leave from July 1, 2007)
Rotman School PhD Program Director (August 2003 – June 2006)
School of Business and Management, Hong Kong University of Science & Technology
Professor of Finance (July 1998 – January 2002; on leave from July 2000)
Associate Professor of Finance (July 1996 – June 1998)
Faculty of Management, McGill University
Associate Professor of Finance (July 1992 – June 1996)
Finance Area Coordinator (July 1994 – June 1996)
Director, Canada-China Financial Services Development Project (September 1995 – June 1996)
Assistant Professor of Finance (July 1986 – June 1992)
Associate Director and then Director, McGill-People's University Linkage (Sept 1989 – Dec 1991)
Shorter-Term Appointments
Distinguished Professor of the Institute of Economics, Academia Sinica (Taiwan)
(May 28, 2007 – June 30, 2007)
Visiting Professor, Risk Management Institute, National University of Singapore
(January 2007 – April 2007)
Visiting Professor, Guanghua School of Management, Peking University
(September 2006 – December 2006)
Nam Chow Chair Professor of Finance, National Central University (Taiwan)
(December 2003 – November 2005; Periodic Visits)
Visiting Professor, Department of Quantitative Finance, National Tsinghua University (Taiwan)
(February 2001 – May 2001; Sponsored by Polaris Securities Group)
Visiting Associate Professor, Department of Economics, National Tsinghua University (Taiwan)
(February 1993 – July 1993; Sponsored by National Science Council)
Visiting Associate Professor, Department of Accounting and Finance, University of Lancaster
(September 1992 – November 1992)
Visiting Assistant Professor, People's University of China
(Summer 1988; Sponsored by Canadian International Development Agency)

EDUCATION

1982 – 1986	MSc and PhD (Finance), University of Wisconsin-Madison
1980 – 1982	MBA, State University of New York at Albany
1974 – 1978	BSc (Zoology), National Taiwan University

RESEARCH AND TEACHING INTERESTS

Digital Financial Technology, Credit Risk Analytics, and Interpretable Machine Learning

AWARDS AND HONORS

1. Fellow of the Society for Financial Econometrics, elected in June 2013.
2. Best Paper Award, 2010 (December), 2010 National Taiwan University International Conference on Finance. "Multiperiod Corporate Default Prediction – A Forward Intensity Approach," 2010 (with Jie Sun and Tao Wang)
3. 中央研究院院士 (Academician of the Academia Sinica), inducted at the 2008 biennial convocation of Academia Sinica in Taipei
4. Best Paper in Derivatives Award, 2005 (October), Northern Finance Association Conference, Vancouver, Canada. "Is Systematic Risk Priced in Options," 2005 (with J. Wei)
5. Roger Martin and Nancy Lang Award for Research Excellence (December 2003), Joseph L. Rotman School of Management, University of Toronto
6. Senior Wei Lun Fellow (1998-2000), Hong Kong University of Science and Technology
7. Best Paper Award, 1999 (December), 8th Conference on the Theories and Practices of Securities and Financial Markets (December 1999), National Sun Yat-sen University, Kaoshiung, Taiwan. "Pricing Hang Seng Index Option around the Asian Financial Crisis – A GARCH Approach," 1999 (with H. Zhang)
8. Sydney Futures Exchange Award, 1999 (December), (for the best paper presented on derivatives at the 12th Australasian Finance and Banking Conference, University of New South Wales, Sydney, Australia). "Pricing Hang Seng Index Option around the Asian Financial Crisis – A GARCH Approach," 1999 (with H. Zhang),
9. Iddo Sarnat Award, 1994, (for the best paper published in the *Journal of Banking and Finance*, 1993). "Loan Commitments, Investment Decisions and the Signaling Equilibrium," (with S.H. Yoon), 1993, *Journal of Banking and Finance* 17, 645-661

REFEREED JOURNAL PUBLICATIONS

1. "Sequential Monte Carlo Optimization and Statistical Inference," (with S. Li and Y. Xu), 2022, *Wiley Interdisciplinary Reviews: Computational Statistics*, e1598. https://doi.org/10.1002/wics.1598.
2. "Enhanced PD-implied Ratings by Targeting the Credit Rating Migration Matrix," (with S. Li), 2021, *Journal of Finance and Data Science* 7, 115-125.
3. "Economic Growths of ASEAN-5 Countries Impacted by Global and Domestic Credit Risks," (with Y. Zhu), 2020, *Asian Journal of Economics and Banking* 4(2), 1-20.
4. "Data-Cloning SMC^2: a Global Optimizer for Maximum Likelihood Estimation of Latent Variable Models," (with A. Fulop and Y.W. Hsieh), 2020, *Computational Statistics and Data Analysis* 143 (March) 106841.
5. "Default Probabilities of Privately Held Firms," (with B. Kim, W. Kim and D. Shin), 2018, *Journal of Banking and Finance* 94, 235-250.
6. "Local-Momentum Autoregression and the Modeling of Interest Rate Term Structure," 2016, *Journal of Econometrics* 194(2), 349-359.
7. "Default Correlations and Large-Portfolio Credit Analysis," (with W. Miao), 2016, *Journal of Business and Economic Statistics* 34(4), 536-546.
8. "Density-Tempered Marginalized Sequential Monte Carlo Samplers," (with A. Fulop), 2015, *Journal of Business and Economic Statistics* 33(2), 192-202.
9. "Actuarial Par Spread and Empirical Pricing of CDS by Decomposition," 2014, *Global Credit Review* 4, 51-65.
10. "Forward-Looking Market Risk Premium," (with W. Zhang), 2014, *Management Science* 60(2), 521-538.

11. “A Public Good Approach to Credit Ratings - from Concept to Reality,” (with E. van Laere), 2012, *Journal of Banking and Finance* 36(12), 3239-3247.
12. “Multiperiod Corporate Default Prediction – A Forward Intensity Approach,” (with J. Sun and T. Wang), 2012, *Journal of Econometrics* 170(1), 191-209.
13. “Measuring Distance-to-Default for Financial and Non-Financial Firms,” (with T. Wang), 2012, *Global Credit Review* 2, 95-108.
14. “A Stable Estimator for the Information Matrix under EM for Dependent Data,” (with A. Fulop), 2011, *Statistics and Computing* 21(1), 83-91.
15. “Statistical Credit Rating Methods,” (with K. Shrestha), 2011, *Global Credit Review* 1, 43-64.
16. “Jump and Volatility Risk Premiums Implied by VIX,” (with C. Yeh), 2010, *Journal of Economic Dynamics and Control* 34(11), 2232-2244.
17. “Estimating the Structural Credit Risk Model When Equity Prices Are Contaminated by Trading Noises,” (with A. Fulop), 2009, *Journal of Econometrics* 150(2), 288-296.
18. “Convergence Speed of GARCH Option Price to Diffusion Option Price,” (with Y. Wang and J. Zou), 2009, *International Journal of Theoretical and Applied Finance* 12(3), 359-391.
19. “Systematic Risk and the Price Structure of Individual Equity Options,” (with J. Wei), 2009, *Review of Financial Studies* 22(5), 1981-2006.
20. “Is Long Memory Necessary? An Empirical Investigation of Nonnegative Interest Rate Processes,” (with K. Jacobs), 2008, *Journal of Empirical Finance* 15(3), 567-581.
21. “Approximating the GJR-GARCH and EGARCH Option Pricing Models Analytically,” (with G. Gauthier and C. Sasseville and J.G. Simonato), 2006, *Journal of Computational Finance* 9(3), 41-69.
22. “Approximating GARCH-Jump Models, Jump-Diffusion Processes, and Option Pricing,” (with P. Ritchken and Z. Sun), 2006, *Mathematical Finance* 16, 21-52.
23. “Executive Stock Options and Incentive Effects due to Systematic Risk,” (with J. Wei), 2005, *Journal of Banking and Finance* 29, 1185-1211.
24. “Fair Insurance Guaranty Premia in the Presence of Risk-Based Capital Regulations, Stochastic Interest Rate and Catastrophe Risk,” (with M.T. Yu), 2005, *Journal of Banking and Finance* 29(10), 2435-2454.
25. “Option Valuation with Co-Integrated Asset Prices,” (with S. Pliska), 2004, *Journal of Economic Dynamics and Control* 28(4), 727-754.
26. “Approximating American Option Prices in the GARCH Framework,” (with G. Gauthier, C. Sasseville and J.G. Simonato), 2003, *Journal of Futures Markets* 23(10), 915-929.
27. “Pricing Discretely Monitored Barrier Options by a Markov Chain,” (with E. Dudley, G. Gauthier and J.G. Simonato), 2003, *Journal of Derivatives* 10(4), 9-31.
28. “Option Pricing under Regime Switching,” (with P. Ritchken and I. Popova), 2002, *Quantitative Finance* 2, 116-132.
29. “Maximum Likelihood Estimation of Deposit Insurance Value with Interest Rate Risk,” (with J.G. Simonato), 2002, *Journal of Empirical Finance* 9 (1), 109-132.
30. “Pricing Hang Seng Index Options around the Asian Financial Crisis – A GARCH Approach,” (with H. Zhang), 2001, *Journal of Banking and Finance* 25(11), 1989-2014.
31. “Asymptotic Distribution of the EMS Option Price Estimator,” (with G. Gauthier and J.G. Simonato), 2001, *Management Science* 47(8), 1122-1132.
32. “American Option Pricing under GARCH by a Markov Chain Approximation,” (with J.G. Simonato), 2001, *Journal of Economic Dynamics and Control* 25(11), 1689-1718.
33. “An Analytical Approximation for the GARCH Option Pricing Model,” (with G. Gauthier and J.G. Simonato), 1999 (summer), *Journal of Computational Finance* 2, 75-116.
34. “Pricing Foreign Currency and Cross-Currency Options under GARCH,” (with J. Wei), 1999, *Journal of Derivatives* 7(1), 51-63.
35. “Volatility and Maturity Effects in the Nikkei Index Futures,” (with Y.J. Chen and M.W. Hung), 1999, *Journal of Futures Markets*. 19(8), 895-909.
36. “Estimating Exponential-Affine Term Structure Models by Kalman Filter,” (with J.G. Simonato), 1999, *Review of Quantitative Finance and Accounting* 13(2), 111-135.
37. “Capital Standard, Forbearance and Deposit Insurance Pricing under GARCH,” (with M.T. Yu), 1999, *Journal of Banking and Finance* 23(11), 1691-1706.
38. “Managing Banks’ Duration Gaps When Interest Rates Are Stochastic and Equity Has Limited Liability,” (with C.W. Sealey and Yuxin Yan), 1999, *International Review of Economics and Finance* 8(3), 253-265.
39. “Empirical Martingale Simulation for Asset Prices,” (with J.G. Simonato), 1998, *Management Science* 44(9), 1218-1233.

40. “Augmented GARCH(p,q) Process and its Diffusion Limit,” 1997, *Journal of Econometrics* 79, 97-127.
41. “Determinants of Deposit Insurance Liabilities: Exogenous vs. Managerial Influences,” (with C.W. Sealey), 1997, *Research in Finance* 15, 255-274.
42. “A Simple Long Memory Equilibrium Interest Rate Model,” (with K. Jacobs), 1996, *Economics Letters* 53(3), 317-321.
43. “Cracking the Smile,” 1996, *RISK* 9 (December), 55-59.
44. “The GARCH Option Pricing Model,” 1995, *Mathematical Finance* 5(1), 13-32.
45. “Deposit Insurance and Bank Interest Rate Risk: Pricing and Regulatory Implications,” (with A. Moreau and C.W. Sealey), 1995, *Journal of Banking and Finance* 19, 1091-1108.
46. “Pricing Deposit Insurance in Taiwan,” (with M.W. Hung and T. Liaw), 1995, *Advances in Pacific Basin Business, Economics, and Finance* 1, 311-319.
47. “Maximum Likelihood Estimation Using Price Data of the Derivative Contract,” 1994, *Mathematical Finance* 4(2), 155-167. A correction published in *Mathematical Finance* 10(4), 2000, 461-462.
48. “Forbearance and Pricing Deposit Insurance in a Multiperiod Framework,” (with M.T. Yu), 1994, *Journal of Risk and Insurance* 61, 575-591.
49. “Assessing the Cost of Taiwan's Deposit Insurance,” (with M.T. Yu), 1994, *Pacific-Basin Finance Journal* 2, 73-90.
50. “A Reply to ‘A Note on the Implications of Traded Options on the Pricing of the Underlying Stock’,” (with A. Moreau and C.W. Sealey), 1994, *International Review of Economics and Finance* 3, 125-128.
51. “A One-step Test of the Arbitrage Pricing Theory,” 1994, *Advances in Investment Analysis and Portfolio Management* 2, 71-96.
52. “Evidence on Maturity Segmentation in the Treasury Bill Market,” (with Hua Zhang), 1994, *FINECO* 4, 111-126.
53. “Loan Commitments, Investment Decisions and the Signaling Equilibrium,” (with S.H. Yoon), 1993, *Journal of Banking and Finance* 17, 645-661.
54. “Incentive-Compatible Deposit Insurance Pricing and Bank Regulatory Policies,” (with A. Moreau and C.W. Sealey), 1993, *Research in Finance* 11, 207-227.
55. “Multiplicity of Solutions in Maximum Likelihood Factor Analysis,” (with Jean-Guy Simonato), 1993, *Journal of Statistical Computation and Simulation* 47, 37-47.
56. “Fixed Rate Deposit Insurance and Risk-Shifting Behavior at Commercial Banks,” (with A. Moreau and C.W. Sealey), 1992, *Journal of Banking and Finance* 16, 715-742.
57. “Spanning with Index Options,” (with A. Moreau and C.W. Sealey), 1992, *Journal of Financial and Quantitative Analysis* 27, 303-309.
58. “Some Implications of Traded Options on the Pricing of the Underlying Stock,” 1992 (with A. Moreau and C.W. Sealey), *International Review of Economics and Finance* 1, 1-14.
59. “Restoring the NPV Capital Budgeting Criterion under the Chinese Enterprise Contractual Responsibility System,” 1992, *Advances in Chinese Industrial Studies* 3, 285-293.
60. “On the Pricing of European Options on Discretely Traded Assets,” 1991 (with A. Moreau and C.W. Sealey), *Advances in Investment Analysis and Portfolio Management* 1, 61-81.

BOOKS, BOOK ARTICLES AND CONFERENCE PROCEEDINGS

A. Books

1. Handbook of Computational Finance, 2011, co-edited with W.K. Hardle and J.E. Gentle, Springer.
2. 危機中的轉機 – 2008-09 金融海嘯的啓示 (Silver linings – lessons from the 2008-09 financial crisis), July 2009, Global Publishing (A World Scientific Subsidiary).

B. Book articles

1. “Sharing Credit Data While Respecting Privacy: A Digital Platform for Fairer Financing of Micro, Small, and Medium-Sized Enterprises,” in *Fintech and COVID-19: Impacts, Challenges, and Policy Priorities for Asia*, 2022, eds. John Beirne, James Villafuerte, and Bryan Zhang, Asian Development Bank Institute, 222-243.

2. “PD-implied ratings via referencing a credit rating/scoring pool's default experience,” (with S. Li) in *Behavioral Predictive Modeling in Economics*. *Studies in Computational Intelligence*, vol 897, 2021, eds. Songsak Sriboonchitta, Vladik Kreinovich and Woraphon Yamaka, Springer, 105-115.
3. “Estimating Distance-to-Default with a Sector-Specific Liability Adjustment via Sequential Monte Carlo,” (with Christine W.T. Wang) in *Applied Quantitative Finance*, 2017, eds. C. Chen, W.K. Hardle and L. Overbeck, Springer-Verlag, 73-91.
4. “Computational Finance: An Introduction,” in *Handbook of Computational Finance*, 2011, eds. J.-C. Duan, W.K. Hardle and J.E. Gentle, Springer-Verlag, 3-11.
5. “Tough to Insulate the World from Contagion,” in *Globalisation and Financial Crisis*, 2009, ed. Lim Chin, NUS Business School, National University of Singapore, 17-22. (Reprint from The Straits Times, Singapore, March 5, 2009)
6. “Singapore: An Ideal Place for International Guarantee Body,” in *Financial Crisis 2008*, 2008, ed. Ivan Png, NUS Business School, National University of Singapore, 53-58. (Reprint from The Straits Times, Singapore, October 21, 2008)
7. “Credit swaps play vital role too,” (with Oliver Chen), in *Financial Crisis 2008*, 2008, ed. Ivan Png, NUS Business School, National University of Singapore. (Reprint from The Straits Times, Singapore, October 28, 2008)
8. “Volatility Smile,” (with Y. Li) in *Encyclopedia of Quantitative Risk Assessment*, 2008, eds. Brian Everitt and Ed Melnick, John Wiley and Sons, Volume 4.
9. “Maximum Likelihood,” (with A. Fulops) in *Encyclopedia of Actuarial Science*, 2004, eds. Jozef Teugels and Bjorn Sundt, Wiley, Volume 2, 1107-1115.
10. “Modeling Volatility,” in *Modern Risk Management: A History*, 2003, Risk Books, 189-203.
11. “A Markov Chain Method for Pricing Contingent Claims,” (with G. Gauthier and J.-G. Simonato), in *Stochastic Modeling and Optimization*, 2003, eds. David Yao, Hanqin Zhang and Xun-Yu Zhou, Springer-Verlag, 333-362.
12. “Option Pricing for Co-integrated Assets,” (with S. Pliska), in *Advances in Finance and Stochastics*, 2002, eds., Klaus Sandmann and Philipp J. Schonbucher, Springer-Verlag, 85-99.
13. “Fixed-Rate Deposit Insurance and Risk-Shifting Behavior at Commercial Banks,” in *The Regulation and Supervision of Banks Vol. 2*, 2001, ed. Maximilian J.B. Hall, Edward Elgar Publishing Ltd., (Reprint of “Fixed-Rate Deposit Insurance and Risk-Shifting Behavior at Commercial Banks,” 1992, *Journal of Banking and Finance* 16, 715-742.)
14. “Cointegration: the New Risk Relationship,” in *Mastering Risk II*, 2001, ed. Carol Alexander, Financial Times – Prentice Hall, 73-81.
15. “Robbins’ Variance Bound,” (with J-G Simonato), an entry in Encyclopaedia of Statistical Sciences (update volume 3), 1999, ed. S. Kotz, John Wiley & Sons, 775-776.
16. “Cracking the Smile,” in *Hedging with Trees*, 1998, eds. M. Broadie and P. Glasserman, Risk Publications, 167-172. (Reprint of “Cracking the Smile,” 1996 (Dec.), *RISK* 9, 55-59.)
17. “The GARCH Option Pricing Model,” in *Volatility: New Techniques for Pricing Derivatives and Managing Financial Portfolios*, 1998, ed. R. Jarrow, Risk Publications, 351-366. (Reprint of “The GARCH Option Pricing Model,” 1995, *Mathematical Finance 5*, 13-32.)
18. “International Market Microstructure and the Pricing of the ADR's,” 1994 (with V. Errunza and A. Moreau), Global Portfolio Diversification, eds. R. Aggarwal and D. Schirm, Academic Press, 151-166.
19. “Pricing Deposit Insurance of the CDIC of Taiwan,” 1992 (with M.W. Hung and T. Liaw), Economic and Political Reforms in Asia, edit. Thomas Chen, 88-99.

C. Proceedings

1. “Determinants of Banks’ Deposit Insurance Liabilities: Exogenous vs. Managerial Influences,” 1995 (with C.W. Sealey), proceedings of the 31st Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago.
2. “The Cost of Taiwan's Deposit Insurance Guarantees: A Reassessment,” 1993, (with M.T. Yu), proceedings of Chinese Finance Association Conference, 111-133.
3. “Evidence on Maturity Segmentation in the Treasury Bill Market,” 1992, (with H. Zhang), proceedings of Administrative Sciences Association of Canada Conference, 70-80.

4. "Regulating Banks' Interest Rate Risk When Interest Rates Are Stochastic and Equity Has Limited Liability," 1992, (with A. Moreau and C.W. Sealey), proceedings of the 28th Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 213-229.
5. "On the Pricing of the Deposit Insurance Liabilities of the CDIC of Taiwan," 1991 (with M.W. Hung and T. Liaw), proceedings of the 9th Annual Asian Conference, St. John's University, New York, 88-100.
6. "Deposit Insurance and Risk-Shifting Behavior at Commercial Banks," 1990, (with A. Moreau and C.W. Sealey), proceedings of the 26th Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, 141-149.
7. "Restoring the NPV Capital Budgeting Criterion under the Chinese Enterprise Contractual Responsibility System," 1990, proceedings of Canada-China International Management Conference, Xian, China, 554-562.

NEWSPAPER AND MAGAZINE ARTICLES

1. "数字货币作为投资工具的前景 (The future of Cryptocurrency as an Investment Asset)," 香港国际金融评论 (Hong Kong International Finance Review), December 2021, Pages 51-53.
2. "Bottom-up greenness powered by top-down incentives," March 31, 2021, Business Times, Singapore.
3. "Individually rational, collectively insane," March 11, 2021, Business Times, Singapore.
4. "Digital assets could serve as bartering device," January 7, 2021, Business Times, Singapore.
5. "数字人民币能否有效促进人民币国际化？(Can digital renminbi promote its internationalisation?)," November 12, 2020, 联合早报 (Lianhe Zaobao), Singapore.
6. "Are you digitally literate?" October 1, 2020, The Straits Times, Singapore.
7. "The next shape of money: From banknotes to blockchain-based digital currency," August 19, 2020, The Straits Times, Singapore.
8. "金融科技助力深度信用分析 (Deep credit analysis powered by FinTech)," 中国金融 (China Finance), 2018 (no. 16), China.
9. "加密货币在新金融时代扮演的角色 (Cryptocurrencies in the new world of money and finance)," May 21, 2018, 联合早报 (Lianhe Zaobao), Singapore.
10. "創新創富–新政府的挑戰 (Innovation and Wealth Creation – the challenge facing Taiwan's new administration)," March 23, 2016, 經濟日報 (Economic Daily News), Taiwan.
11. "檢視全球金融機構和非金融企業的違約風險 (Examining the default probabilities of financial and non-financial firms globally)," May 2012, 台灣證券公會季刊 (Taiwan Securities Association Quarterly).
12. "以創新的信用分析體系面對動盪的債券市場 (Meeting the challenges of turbulent bond markets with an innovative credit analytics system)," March 2012, 台灣銀行家雜誌 (The Taiwan Banker).
13. "Pushing the boundaries of credit analysis," (with Oliver Chen), February 2012, Asia Insurance Review.
14. "后金融危机中国信评体系的建构 (Building China's credit rating system post-crisis)," (with Xu Weiwei), July 2, 2010, 联合早报 (Lianhe Zaobao), Singapore.
15. "肥貓！能怪你嗎？(Fat Cat! Can I blame you?)" February 2010, 台灣銀行家雜誌 (The Taiwan Banker).
16. "完全自由市場 … 烏托邦 (Completely Free Markets … A Utopia)," October 2009, 台灣銀行家雜誌 (The Taiwan Banker).
17. "Ripe for an asset price bubble," September 1, 2009, The Straits Times, Singapore.
18. "通用汽车的破产转型能成功吗？(Can a bankrupted GM be successfully transformed?)" (with Deng Mu), June 8, 2009, 联合早报 (Lianhe Zaobao), Singapore.
19. "Regulatory rumble over derivatives," (with Oliver Chen), June 2, 2009, The Straits Times, Singapore.
20. "Tough to insulate the world from contagion," March 5, 2009, The Straits Times, Singapore.

21. “美国汽车业将何去何从？(What is the future of the US auto industry?)” (with Deng Mu), December 29, 2008, 联合早报 (Lianhe Zaobao), Singapore.
22. “美国三大汽车公司能否起死回生？(Can the US big three automakers be saved?)” (with Deng Mu), November 24, 2008, 联合早报 (Lianhe Zaobao), Singapore.
23. “结构债风暴 – 三赢的因应之策 (The credit linked structured notes crisis – a win-win-win approach)”, October 29, 2008, 联合早报 (Lianhe Zaobao), Singapore.
24. “Credit swaps play vital role too,” (with Oliver Chen), October 28, 2008, The Straits Times, Singapore.
25. “金融危机是警惕也是亚洲新契机 (Financial crisis is a painful lesson but also presents an opportunity for Asia),” October 23, 2008, 联合早报 (Lianhe Zaobao), Singapore.
26. “Singapore: an ideal place for international guarantee body,” October 21, 2008, The Straits Times, Singapore.

MAJOR RESEARCH/DEVELOPEMENT UNDERTAKING

The Credit Research Initiative* (CRI) – *Transforming Big Data into Smart Data
(Launched the CRI in July 2009 and led the operation continuously until retirement in June 2023)

CRI (https://nuscri.org) of National University of Singapore is a ***public good*** undertaking operated on a delivery platform that offers freely accessible, daily updated term structures of default probabilities and actuarial spreads on over 90,000 exchange-listed firms in over 130 economies globally. Institutional users of the CRI data include International Monetary Fund, Monetary Authority of Singapore, and many international financial firms. CRI also offers bespoke solutions upon request to financial institutions.

Founded on a credit rating reform drive and launched in 2009, CRI was a constructive response to the great global financial crisis, intending to also serve as a live platform for research into Big Data Analytics and digital finance. The CRI platform has been operating in a Wikipedia style – inclusive, organically evolving, and welcoming participations from the broader research and financial community.