

I have an established research record in Mathematics and Statistics, having co-authored over 30 academic publications, three industry research reports, three edited books, and published book chapters. My research has been widely recognized, accumulating over 2,050 citations, an h-index of 17, and an i10-index of 32 according to Google Scholar (2025).

### **Published Refereed Journal Papers**

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1. **Stylized facts of metaverse non-fungible tokens.** (Chan, S., Chandrashekar, D., Almazloum, W., Zhang, Y., Lord, N., Osterrieder, J. and Chu, J.) *Physica A: Statistical Mechanics and its Applications* (2024), p.130103.
2. **Interconnections and contagion among cryptocurrencies, DeFi, NFT and traditional financial assets: Some new evidence from tail risk driven network.** (Liao, X., Li, Q., Chan, S., Chu, J. and Zhang, Y). *Physica A: Statistical Mechanics and its Applications* (2024), 647, p.129892.
3. **An analysis of the return-volume relationship in Decentralised finance (DeFi).** (Chu, J., Chan, S. & Zhang, Y). *International Review of Economics & Finance* (2023), 85, pp.236-254.
4. **The adaptive market hypothesis of Decentralized finance (DeFi).** (Zhang, Y., Chan, S., & Chu, J). *Applied Economics* (2022), pp.1-15.
5. **An extreme value analysis of the tail relationships between returns and volumes for high frequency cryptocurrencies.** (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). *Research in International Business and Finance.* (2022), 59, p.101541.
6. **On the expression for expected customer choice probabilities.** (Nadarajah, S., & Chan, S). *Annals of Operations Research.* (2021), 307 (1), pp.499-504.
7. **Dependence between bitcoin and African currencies.** (Nadarajah, S., Afuecheta, E., & Chan, S). *Quality & Quantity.* (2021), 55(4), pp.1203-1218.
8. **Bitcoin versus high-performance technology stocks in diversifying against global stock market indices.** (Chu, J., Chan, S., & Zhang, Y). *Physica A: Statistical Mechanics and its Applications.* (2021), 580, p.126161.
9. **Count regression models for COVID-19.** (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). *Physica A: Statistical Mechanics and its Applications.* (2021), 563, p.125460.
10. **Folded Bivariate Distributions as Models for Magnitude Correlation.** (Afuecheta, E., Nadarajah, S., & Chan, S). *REVSTAT-Statistical Journal.* 2021.
11. **Compound distributions for financial returns.** (Afuecheta, E., Semeyutin, A., Chan, S., Nadarajah, S., & Andrés Pérez Ruiz, D. *Plos one.* (2020), 15(10), p.e0239652.
12. **Bias reduction in the population size estimation of large data sets.** (Chu, J., Zhang, Y., & Chan, S). *Journal Computational Statistics and Data Analysis.* (2020), 145, p.106914.
13. **On the Market Efficiency and Liquidity of High-Frequency Cryptocurrencies in a Bull and Bear Market.** (Zhang, Y., Chan, S., Chu, J., & Sulieman, H). *J. Risk Financial Manag.* (2020), 13(1), p.8.
14. **High frequency momentum trading with cryptocurrencies.** (Chu, J., Chan, S., & Zhang, Y). *Research in International Business and Finance.* (2020), 52, p.101176.
15. **On moments of the unit Lindley distribution.** (Nadarajah, S., & Chan, S). *Journal of Applied Statistics.* (2020), 47(5), pp.947-949.
16. **A Statistical Analysis of Global Economies Using Time Varying Copulas.** (Afuecheta, E., Nadarajah, S., & Chan, S) *Computational Economics.* (2020), 58(4), pp.1167-1194.
17. **The adaptive market hypothesis in the high frequency cryptocurrency market.** (Zhang, Y., Chan, S., & Chu, J). *International Review of Financial Analysis.* (2019), 64, pp.221-231.
18. **The Generalised hyperbolic distribution and its subclass in the analysis of a new era of cryptocurrencies: Ethereum and its financial risk.** (Zhang, Y., Chu, J., Chan, S., & Chan, B). *Physica A: Statistical Mechanics and its Applications.* (2019), 526, p.120900.
19. **Extreme value analysis of high-frequency cryptocurrencies.** (Zhang, Y., Chan, S., & Nadarajah, S). *High Frequency.* (2019), 2(1), pp.61-69.
20. **Stylised facts for high frequency cryptocurrency data.** (Zhang, Y., Chan, S., & Chu, J). *Physica A: Statistical Mechanics and its Applications* (2019), 513, pp. 598-612.
21. **The exact distribution of the sum of stable random variables.** (Nadarajah, S., & Chan, S). *Journal of Computational and Applied Mathematics.* (2019), 349, pp.187-196.
22. **Flexible models for stock returns based on Student's t distribution.** (Afuecheta, E., Chan, S., & Nadarajah, S) *The Manchester School,* (2019), 87(3), pp.403-427.

23. **On the distribution of maximum of multivariate normal random vectors.** (Nadarajah, S., Afuecheta, E., & Chan, S) Communications in Statistics-Theory and Methods. (2019), 48(10), pp.2425-2445.
24. **An alternative measure of positive correlation.** (Nadarajah, S., Chu, J., & Chan, S) International Journal of Mathematical Education in Science and Technology. (2019), 50(4), pp.642-645.
25. **Risk: An R package for financial risk measures.** (Chan, S., & Nadarajah, S) Computational Economics. (2019), 53(4), pp.1337-1351.
26. **GARCH Modelling of Cryptocurrencies** (Chu, J., Chan, S., Nadarajah, S., & Osterrieder, J). Journal of Risk and Financial Management. (2017), 10 (4) p.17.
27. **A Statistical Analysis of Cryptocurrencies** (Chan, S., Chu, J., Nadarajah, S., & Osterrieder, J). Journal of Risk and Financial Management. (2017), 10 (2) p.12.
28. **Nuclear Catastrophe Risk Bonds in a Markov Dependent Environment** (Shao, J., Pantelous, A., Chan, S., & Nadarajah, S). Journal of Risk and Uncertainty in Engineering Systems. (2017), 3 (4), p.04017018
29. **Discrete distribution based on inter arrival times with application to football data** (Nadarajah, S., & Chan, S). Communications in statistic. (2017), 47 (1), pp.147-165.
30. **Is the wealth of the Forbes 400 lists really Pareto distributed** (Chan, S., Chu, J., & Nadarajah, S). Economics Letters. (2016), Elsevier, 152, pp.9-14.
31. **An R package for value at risk and expected shortfall** (Chan, S., Afuecheta, E., & Nadarajah, S). Communications in Statistics. (2016), Taylor and Francis, 45 (9), pp.3416-3434.
32. **Statistical analysis of the exchange rate of Bitcoin** (Chu, J., Chan, S., & Nadarajah, S). PLoS one. (2015), 10 (7), p.e0133678.
33. **A note on “Modelling exchange rate returns: which flexible distribution to use?”** (Afuecheta, E., Nadarajah, S., & Chan, S) Quantitative Finance. (2015), Taylor and Francis, 15 (11) pp.1777-1785.
34. **Extreme value analysis of electricity demand in the UK** (Chan, S., & Nadarajah, S). Applied Economics Letters. (2015), Taylor and Francis, 22 (15), pp.1246-1251.
35. **GARCH modelling for five popular commodities** (Afuecheta, E., Nadarajah, S., & Chan, S). Empirical Economics. (2015), Springer, 48 (4), pp.1691-1712.
36. **Estimation methods for expected shortfall** (Nadarajah, S., Zhang, B., & Chan, S). Quantitative Finance. (2014), 14 (2) pp.271-291.
37. **A statistical study of racism in English Football** (Chu, J., Afuecheta, E., Nadarajah, S., & Chan, S). Quality & Quantity. (2013), Springer, 48 (5), pp.2915-2937.
38. **A double generalized Pareto distribution** (Afuecheta, E., Nadarajah, S., & Chan, S). Statistics and Probability Letters. (2013), Elsevier, 83 (12), pp.2656-2663.
39. **On the characteristic function for asymmetric Student’s t distributions** (Nadarajah, S., Chan, S., & Afuecheta, E). Economics Letters. (2013), Elsevier, 121 (2), pp.271-274.
40. **Extreme value analysis for emerging African markets** (Nadarajah, S., Chan, S., & Afuecheta, E). Quality & Quantity. (2013), Springer, 4 (3), pp.9840-9846.

### Published Book Chapters

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1. Stylized facts of decentralized finance (Zhang, Y., Chan, S., Chu, J., Lao, X. and Min, H), in La Torre, D. (ed.) AI for Finance and Beyond. World Scientific Publishing Europe, (June 2024).  
<https://doi.org/10.1142/q0449>
2. Blockchain and Cryptocurrencies (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). J. Risk Financial Manag. (2020).  
<https://doi.org/10.3390/books978-3-03943-534-0>.
3. Estimation methods for value at risk (with Nadarajah, S). Chapter 12 of Extreme Events in Finance: A Handbook of Extreme Value Theory and Its Applications (edited by F. Longin), pp. 283-356. John Wiley and Sons, Chichester. (2016)
4. ‘MOATS Competitive Advantages of Buffet & Munger Businesses: Berkshire Hathaway’ book, published Jan 2012 by publisher Acalmix and author Bud Labitan. Chapter published “ **US Liability Insurance Group**” by Bud Labitan with Stephen Chan pages (307-310) and “ **Wesco Financial Corporation**” by Bud Labitan with Stephen Chan pages (341-346).

### Software Packages

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1. Nadarajah, S, Chan, S (2017). R package “**Risk**”, Computes 26 Financial Risk Measures for Any Continuous

- Distribution. R package version 1.0. <https://cran.r-project.org/web/packages/Risk/Risk.pdf>
2. Nadarajah, S, Chan, S, and Afuecheta, E (2013). R package “**VaRES**”, Computes value at risk and expected shortfall for over 100 parametric distributions. R package version 1.0. <http://cran.r-project.org/web/packages/VaRES/index.html>

## **Industry Research Reports**

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Published **three** industry-focused research reports on decentralized finance, specifically tailored for actuaries, in collaboration with the Society of Actuaries (SOA), the Society of Actuaries Research Institute, and ZooFi Labs. Disseminated findings through a featured podcast and a presentation at the Society of Actuaries (SOA) 2022 ImpACT Conference, held at the Orlando Marriott World Center in Florida, USA.

1. **Decentralized Finance for Actuaries (2022)**  
<https://www.soa.org/resources/research-reports/2022/decentralized-finance/>
2. **Decentralized Insurance Alternatives: Market Landscape, Opportunities and Challenges (2022)**  
<https://www.soa.org/resources/research-reports/2022/decentralized-ins-alt/>
3. **A Risk Classification Framework for Decentralized Finance Protocols (2022)**  
<https://www.soa.org/resources/research-reports/2022/decentralized-finance-protocols/>