## Publications

**35 publications (14 first/corresponding author), 2635 citations and a h-index of 16 (Google Scholar, 2025).**

**First/Corresponding Author (*)**

1. Chan, S., Chandrashekhar, D., Almazloum, A., Zhang, Y., Lord, N., Osterrieder, J. and ***Chu, J.**, 2024. Stylized Facts of Metaverse Non-Fungible Tokens. *Physica A: Statistical Mechanics and its Applications*, 653, 130103. https://doi.org/10.1016/j.physa.2024.130103
2. ***Chu, J.**, Chan, S. and Zhang, Y., 2023. An analysis of the return-volume relationship in decentralised finance (DeFi). *International Review of Economics & Finance*, 85, pp. 236-254. https://doi.org/10.1016/j.iref.2023.01.006
3. ***Chu, J.**, Chan, S. and Zhang, Y., 2021. Bitcoin versus high-performance technology stocks in diversifying against global stock market indices. *Physica A: Statistical Mechanics and its Applications*, 580, 126161. https://doi.org/10.1016/j.physa.2021.126161
4. ***Chu, J.**, 2021. A statistical analysis of the novel coronavirus (COVID-19) in Italy and Spain. *PLoS ONE*, 16, e0249037. https://doi.org/10.1371/journal.pone.0249037
5. ***Chu, J.**, Zhang, Y., Chan, S. and Nadarajah, S., 2020. Bias reduction in the population size estimation of large data sets. *Computational Statistics & Data Analysis*, 145, 106914. https://doi.org/10.1016/j.csda.2020.106914
6. **Chu, J.**, Chan S. and Zhang, Y., 2020. High Frequency Momentum Trading with Cryptocurrencies. *Research in International Business and Finance*, 52, 101176. https://doi.org/10.1016/j.ribaf.2019.101176
7. **Chu, J.**, Dickin, O. and Nadarajah, S., 2019. A review of goodness of fit tests for Pareto distributions. *Journal of Computational and Applied Mathematics*, 361, pp. 13-41. https://doi.org/10.1016/j.cam.2019.04.018
8. ***Chu, J.**, Zhang, Y. and Chan, S., 2019. The adaptive market hypothesis in the high frequency cryptocurrency market. *International Review of Financial Analysis*, 64, pp. 221-231. https://doi.org/10.1016/j.irfa.2019.05.008
9. **Chu, J.** and Nadarajah, S., 2018. Estimating order statistics of network degrees. *Physica A: Statistical Mechanics and its Applications*, 490, pp. 869-885. https://doi.org/10.1016/j.physa.2017.08.120
10. **Chu, J.** and Nadarajah, S., 2017. A statistical analysis of UK financial networks. *Physica A: Statistical Mechanics and its Applications*, Q2, 471, pp. 445-459. https://doi.org/10.1016/j.physa.2016.12.073
11. **Chu, J.**, Chan, S., Nadarajah, S. and Osterrieder, J., 2017. GARCH modelling of cryptocurrencies. *Journal of Risk and Financial Management*, 10, 17. https://doi.org/10.3390/jrfm10040017
12. **Chu, J.**, Chan, S. and Nadarajah, S., 2015. Statistical Analysis of the Exchange Rate of Bitcoin. *PLoS ONE*, 10, e0133678. https://doi.org/10.1371/journal.pone.0133678
13. **Chu, J.**, Nadarajah, S., Afuecheta, E., Chan, S. and Xu, Y., 2014. A statistical study of racism in English football. *Quality & Quantity*, 48, pp. 2915-2937. https://doi.org/10.1007/s11135-013-9932-3
14. **Chu, J.**, Nadarajah, S., Afuecheta, E. and Chan, S., 2014. On the cumulant of the log of a gamma random variable. *The Mathematical Scientist*, 39, pp. 143-144.

**Other publications**

15. Liao, X., Li, Q., Chan, S., **Chu, J.** and Zhang, Y., 2024. Interconnections and contagion among cryptocurrencies, DeFi, NFT and traditional financial assets: Some new evidence from tail risk driven network. *Physica A: Statistical Mechanics and its Applications*, 647, 129892. https://doi.org/10.1016/j.physa.2024.129892
16. Zhang, Y., Chan, S., **Chu, J.**, and Shih, S., 2023. The adaptive market hypothesis of Decentralized finance (DeFi). *Applied Economics*, 55, pp. 4975-4989. https://doi.org/10.1080/00036846.2022.2133895
17. Chan, S., **Chu, J.**, Zhang, Y. and Nadarajah, S., 2022. An extreme value analysis of the tail relationships between returns and volumes for high frequency cryptocurrencies. *Research in International Business and Finance*, 59, 101541. https://doi.org/10.1016/j.ribaf.2021.101541
18. Chan, S., **Chu, J.**, Zhang, Y. and Nadarajah, S., 2021. Count regression models for COVID-19. *Physica A: Statistical Mechanics and Its Applications*, 563, 125460. https://doi.org/10.1016/j.physa.2020.125460
19. Zhang, Y., Chan, S., **Chu, J.** and Sulieman, H., 2020. On the market efficiency and liquidity of high frequency cryptocurrencies in a bull and bear market. *Journal of Risk and Financial Management*, 13, 8. https://doi.org/10.3390/jrfm13010008

20. Zhang, Y., **Chu, J.**, Chan, S. and Chan, B., 2019. The generalised hyperbolic distribution and its subclass in the analysis of a new era of cryptocurrencies: Ethereum and its Financial Risk. *Physica A: Statistical Mechanics and its Applications*, 526, 120900. https://doi.org/10.1016/j.physa.2019.04.136
21. Nadarajah, S., **Chu, J.** and Chan, S., 2019. An alternative measure of positive correlation. *International Journal of Mathematical Education in Science and Technology*, 50, pp. 642-645. https://doi.org/10.1080/0020739X.2018.1520931
22. Zhang, Y., Chan, S., **Chu, J.** and Nadarajah, S., 2019. Stylised facts for high frequency cryptocurrency data. *Physica A: Statistical Mechanics and its Applications*, 513, pp. 598-612. https://doi.org/10.1016/j.physa.2018.09.042
23. Nadarajah, S., **Chu, J.** and Jiang, X., 2018. Aggregation and capital allocation formulas for bivariate distributions. *Probability in the Engineering and Informational Sciences*, 32, pp. 556-566. https://doi.org/10.1017/S0269964817000377
24. Nadarajah, S. and **Chu, J.**, 2017. On the inefficiency of Bitcoin. *Economics Letters*, 150, pp. 6-9. https://doi.org/10.1016/j.econlet.2016.10.033
25. Chan, S., **Chu, J.**, Nadarajah, S. and Osterrieder, J., 2017. A Statistical Analysis of Cryptocurrencies. *Journal of Risk and Financial Management*, 10, 12. https://doi.org/10.3390/jrfm10020012
26. Nadarajah, S. and **Chu, J.**, 2017. On moments of powers of the Hulthén density. *Journal of Mathematical Chemistry*, 55, pp. 911-913. https://doi.org/10.1007/s10910-016-0717-5
27. Chan, S., **Chu, J.** and Nadarajah, S., 2017. Is the wealth of the Forbes 400 lists really Pareto distributed? *Economics Letters*, 152, pp. 9-14. https://doi.org/10.1016/j.econlet.2016.12.017
28. Jiang, X., **Chu, J.** and Nadarajah, S., 2017. New classes of discrete bivariate distributions with application to football data. *Communications in Statistics – Theory and Methods*, 46, pp. 8069-8085. https://doi.org/10.1080/03610926.2016.1171358
29. Nadarajah, S., Jiang, X. and **Chu, J.**, 2017. Comparisons of smallest order statistics from Pareto distributions with different scale and shape parameters. *Annals of Operations Research*, 254, pp. 191-209. https://doi.org/10.1007/s10479-017-2444-0
30. Nadarajah, S., **Chu, J.** and Jiang, X., 2016. On moment based density approximations for aggregate losses. *Journal of Computational and Applied Mathematics*, 298, pp. 152-166. https://doi.org/10.1016/j.cam.2015.11.048
31. Nadarajah, S., **Chu, J.** and Jiang, X., 2016. Distributions of amplitude and phase for bivariate distributions. *AEU – International Journal of Electronics and Communications*, 70, pp. 1249-1258. https://doi.org/10.1016/j.aeue.2016.06.009
32. Nadarajah, S., Jiang, X. and **Chu, J.**, 2015. A saddlepoint approximation to the distribution of the sum of independent non-identically beta random variables. *Statistica Neerlandica*, 69, pp. 102-114. https://doi.org/10.1111/stan.12051

**Preprints**

33. Osterrieder, J., Chan, S., **Chu, J.** and Zhang, Y., 2024. Metaverse Non Fungible Tokens. Available at SSRN. https://dx.doi.org/10.2139/ssrn.4733153
34. Osterrieder, J., Chan, S., **Chu, J.**, Zhang, Y., Misheva, B.H. and Mare, C., 2024. Enhancing Security in Blockchain Networks: Anomalies, Frauds, and Advanced Detection Techniques. Available at arXiv. https://doi.org/10.48550/arXiv.2402.11231
35. Osterrieder, J., Chan, S., **Chu, J.** and Zhang, Y., 2023. A Primer on Anomaly and Fraud Detection in Blockchain Networks. Available at SSRN. https://dx.doi.org/10.2139/ssrn.4317520

**Book chapters**

1. Zhang, Y., Chan, S., **Chu, J.**, Liao, X. and Min, H., 2024. Stylized facts of decentralized finance, in La Torre, D. (ed.) *AI for Finance and Beyond*. World Scientific Publishing Europe, Forthcoming. https://doi.org/10.1142/q0449