Dr. MUHAMMAD NAEEM
Assistant Professor
Email: Muhammad.naeem@mcbs.edu.om

Research Interest: Dependence modeling with copulas, Stochastic volatility models, long memory models, Regime switching models, Machine learning algorithm.

1. Education

PhD in Mathematics for Economics and Financial Applications
Sapienza University of Rome, Rome, **Italy**
Supervisors: Prof. Brunero Liseo
Ph.D. Graduated: 31 October 2014

Master of Science in Techno-Mathematics-Lappeenranta University of Technology, **Finland** (August 2008-April 2010). With **Distinction**

Master of Science in Applied Mathematics- University of Engineering & Technology, Lahore, Pakistan (August 2004-December 2006).

Bachelor of Science in Mathematics and Physics- University of Punjab, Lahore, Pakistan. (September 2002- April 2004).

2. Professional Employment

Employment

I. **Assistant Professor,** Department of Mathematics and Computer Science
Modern College of Business and Science, Muscat Oman
(01-01-2023 – till now)

II. **Associate professor (Visiting)**
Actuarial sciences department, UDLAP and UDLAP Business School (**AACSB**), Mexico (09-08-2021 to 22-12-2021)

III. **Associate Professor**
Center of Applicable Mathematics and Statistics, University of Central Punjab, Lahore (2021- 2022)

IV. **Assistant Professor**
Center of Applicable Mathematics and Statistics, University of Central Punjab, Lahore (2015- 2021)

V. ***Research Associate***
Department of Methods and Models for Economics, Territory and Finance, Sapienza University of Rome (2010-2014)

VI. **Research Assistant**
Department of Computational mathematics, LUT university, Finland (2009-2010)

VII. **Lecturer**
Dept. Mathematics and Statistics, Govt. Islamia College (Boys) -Cantt, Lahore (2007-2008)

VIII. **Teacher,** Mathematics and Physics, National Grammar School, Lahore (2006-2007)

3. Academic Awards and Achievements

- Winner of "Ph.D. Schools of the University of Roma La Sapienza Italy fellowship of Foreign Nationals Educated Abroad (Academic *Year 2010-2011)"*
- Fellowship Amount= €60,000 Euros
- Distinction in Master of Science in Techno-Mathematics and prize awarded by the LUT University, Finland
- Research Assistantship awarded during second year of MSc. Techno-Mathematics
- Obtained 2nd position in Matriculation Examination

4. Recent Grants

Three times winner of HEC International Travel Grant for presentation of research papers in **France, United Kingdom, and Russia**

5. Summer/Winter School School

- 2nd Rimini Time Series Workshop, Rimini**, Italy**, June 27-28, 2013. Summer School"
- Numerical Methods for Stochastic Differential Equations "Vienna University of Technology, **Austria**, September 02 - 04, 2013
- Winter School" Italian-German training for stochastic modelling of financial crisis" Wuppertal (**Germany)**, December 9 – 16, 2013
- 13th Winter school on Mathematical Finance**,** Lunteren , **Netherland,** January 20-22, 2014

6. **Teaching**

Foundation to Advanced level Courses	Applied Statistics Courses
• Calculus I • Calculus II • Numerical Analysis • Linear Algebra • Inferential Statistics • Analysis of Variance • Basic Probability and Statistics • Mathematical Statistics • Basic Sampling Theory	• Business Statistics • Advanced Research Method • Options and Derivatives • Quantitative Analysis • Econometrics • Financial Risk Management • Applied Portfolio Management • Time Series Analysis with R

7. Publications

1. Ji, H., **Naeem, M**., Zhang, J., & Tiwari, A. K. (2024). Dynamic dependence and spillover among the energy related ETFs: From the hedging effectiveness perspective. *Energy Economics*, *136*, 107681.
2. Yang, Z., **Naeem, M.,** Ji, H., Liu, G., Zhu, Y., & Xu, J. (2023). Does China's stock market react to COVID-19 differently at industry level? Evidence from China. Economic Research-Ekonomska Istraživanja, 36(2), 2143844. (Q1, Scopus, IF=1.4)
3. **Naeem, M**., & Ahmed, S. (2022). Hedging Effectiveness of Currency ETFs Against WTI Crude Oil Price Fluctuations. In Intelligent Systems and Applications in Business and Finance (pp. 189-216). Springer, Cham. **(Book Chapter, Scopus)**

4. Ferrouhi, E. M., Kharbouch, O., Aguenaou, S., & **Naeem, M**. (2021). Calendar anomalies in African stock markets. Cogent Economics & Finance, 9(1). **(ABDC "B", Scopus)**

5. Ain, Q. U., Yuan, X., Javaid, H. M., & **Naeem, M**. (2021). Board gender diversity and sustainable growth rate: Chinese evidence. *Economic Research-Ekonomska Istraživanja*, 1-21. **(Q1, Scopus, IF=1.4)**
6. Umar, Z., Gubareva, **M., Naeem**, M., & Akhter, A. (2021). Return and volatility

transmission between oil price shocks and agricultural commodities. Plos one, 16(2). **(Q1, Scopus)**

7. **Naeem, M**., Saleem, K., Ahmed, S., Muhammad, N., & Mustafa, F. (2020). Extreme return-volume relationship in cryptocurrencies: Tail dependence analysis. Cogent Economics & Finance, 8(1), 1834175. **(ABDC "B", Scopus)**

8. Rao, M., Khursheed, A., & **Naeem, M**. (2020). Stock market investor overreaction effect: A pragmatic study on emerging markets. Paradigms, SI (1), 94-103.
9. Umar, Z., Kenourgios, D., **Naeem, M**., Abdulrahman, K., & Al Hazaa, S. (2020). The inflation hedging capacity of Islamic and conventional equities. Journal of Economic Studies. **(ABDC "B", Scopus, Q1)**
10. **Naeem, M**., Umar, Z., Ahmed, S., & Ferrouhi, E. M. (2020). Dynamic dependence between ETFs and crude oil prices by using EGARCH-Copula approach. Physica A: Statistical Mechanics and its Applications, 557. **(Q2, Scopus)**
11. Khursheed, A., **Naeem, M**., Ahmed, S., & Mustafa, F. (2020). Adaptive market hypothesis: An empirical analysis of time–varying market efficiency of cryptocurrencies. Cogent Economics & Finance, 8(1), 1719574. (**Scopus**, ABDC" B")
12. **Naeem, M**., Tiwari, A. K., Mubashra, S., & Shahbaz, M. (2019). Modeling volatility of precious metals markets by using regime switching GARCH models. Resources Policy, 64, 101497. **(Scopus, ABDC" B", Q1)**
13. **Naeem, M**., Bouri, E., Boako, G., & Roubaud, D. (2019). Tail dependence in the return-volume of leading cryptocurrencies. Finance Research Letters, 101326. **(Scopus, ABDC" A", Q1)**
14. **Naeem, M**., Shahbaz, M., Saleem, K., & Mustafa, F. (2019). Risk analysis of high frequency precious metals returns by using long memory model. Resources Policy, 61, 399-409. **(Scopus, ABDC" B", Q1)**
15. Shahbaz, **M., Naeem**, M., Ahad, M., & Tahir, I. (2018). Is natural resource abundance a stimulus for financial development in the USA? Resources Policy, 55, 223-232. **(Scopus, ABDC" B", Q1)**
16. **Naeem, M**., Ji, H. and Liseo, B."Negative Return-Volume Relationship in Asian Stock Markets: Figarch-Copula Approach" Eurasian Journal of Economics and Finance, 2014, vol. 2, issue 2, pages 1-20.

8. Working Papers

1. Prediction of high frequency cryptocurrencies prices using machine learning algorithm.

9. Thesis Accomplished

- Naeem M (2014). Modelling long memory stochastic volatility in financial time series. **PhD thesis**, Department of Methods and Models for Economics, Territory and Finance (MEMOTEF)Sapienza University of Rome.
- Naeem, M (2010). A comparison of electricity spot prices simulation using ARMA-GARCH and mean-reverting models. **Master thesis**, Department of Mathematics, LUT University Finland.
- Naeem, M (2006). Taylor Expansion and definition of derivative for different method of discretization. **Master thesis**, Department of Mathematics, UET Lahore.

10. Projects Accomplished

- MATLAB based **simulation** of opening new schools or closing school, depending upon number of families coming in or going out from a town.
- Proposed **mathematical model**, give analytical and numerical solution with MATLAB for experimental data where convection and conduction occurred and determine the heat transfer parameters also.

11. Supervisory Responsibilities

1. Syed Razwan Haider, University of Central Punjab, Lahore (2016)

- Thesis title: Test of Contagion Effect between U.S. and 4 South Asian Stock Markets: DCC-MGARCH Model with Copula Technique.

2. Jaffer Khalid, University of Central Punjab, Lahore (2017)

- Thesis title: Impact of Intellectual Capital on Financial Performance: Evidence from Insurance Sector of Pakistan.

3. Maham Fatima, University of Central Punjab, Lahore (2018)

- Thesis Title: Effectiveness of Gold and Silver as Hedge or Safe Haven against US Dollar

Graduate Research Committee (Completed)

1. Mr. Syed Razwan Haider, MS Thesis, defense: May 18, 2016.
2. Mr. Jaffer Khalid, MS Thesis, defense: Oct 10, 2017
3. Mr. Malik Hamza Akhtar Awan, MS Thesis, defense: Jan 26, 2018.
4. Ms. Asma Niaz, MS Thesis, defense: August 09, 2018.
5. Ms. Ambreen Ch. MS Thesis, Defense: August 31, 2018.
6. Ms. Mehwish Ghaffar, MS Thesis, defense: August 31, 2018.
7. Ms. Maham Fatima, MS Thesis, defense: Oct 03,2018.

8. Mr. Wajeeh Haider, MS Thesis, defense: Oct 03, 2018.
9. Ms Sidra Ghafoor, MS Thesis, defense: Jan 11, 2019.

Internal Examiner

1. Mr. Umaid A. Sheikh, MS thesis, defense: March 02, 2020

12. Service within the University of Central Punjab, Lahore

- Part of NBEAC documentation review team (August-2020-present)
- Part of Internship supervision Team (August-2020-prsent)
- Part of Graduate research committee (march-2015-present)

13. Peer Review Activities

- Referee, Financial Innovation, (August 2020- present)
- Referee, Resources Policy, (September 2020-present)

14.Computer Skills

- MATLAB
- R
- LATEX
- Python

15.Conferences attended

- International Conference on Applied Research in Economics 2018, 21-22, September 2018, National Research University, Higher school of Economics, Perm, Russia
- 9th International Conference on Stochastic Analysis and Its Applications 3 – 7, September 2018, Bielefeld University
- DYNSTOCH 2024 Statistical methods for dynamical stochastic **models'** 22-24 May 2024, Kiel, Germany

16. International research platforms (h-index 9)

SCOPUS Profile: https://www.scopus.com/authid/detail.uri?authorId=57233122400
Google Scholar: https://scholar.google.com/citations?user=ExgaEuIAAAAJ&hl=en
ResearchGate: https://www.researchgate.net/profile/Muhammad-Naeem-9