

RIM CHÉRIF, PH.D.

FINANCIAL ENGINEERING

Assistant Professor of Finance | Academic Advisor, M.Sc. in Finance

Heikal Department of Management, Onsi Sawiris School of Business

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RESEARCH PROFILE

Financial engineer developing computational and statistical methods for pricing, estimating, and managing risk in financial contracts, with applications to credit risk and sustainable finance. My research follows three connected lines:

- **Computational methods for derivatives and corporate securities:** dynamic programming, least-squares Monte Carlo, and parallel computing under Lévy and jump-diffusion dynamics.
- **Credit risk and dependence modelling:** structural models and their quasi-maximum-likelihood estimation, distance to default, and flexible copulas for sovereign CDS markets.
- **Climate and sustainable finance:** green bond pricing, carbon risk in financial institutions, weather derivatives, and real options for the circular economy.

EDUCATION

Ph.D. in Financial Engineering, HEC Montréal 2016

Thesis: *Evaluation of financial contracts under Lévy processes*. Supervisors: H. Ben-Ameur and B. Rémillard.

Committee: G. Dionne, M. Davison, P. François.

M.Sc. in Financial Engineering, HEC Montréal 2009

Thesis: *Option pricing and estimation in the Merton model*.

Bachelor in Finance, IHEC Carthage 2007

Thesis: *Valuation of bonds with embedded options: the case of a redeemable bond*.

ACADEMIC APPOINTMENTS

The American University in Cairo, Onsi Sawiris School of Business

Assistant Professor of Finance, Heikal Department of Management 2021–present

Academic Advisor, Master of Science in Finance 2023–present

HEC Montréal, Department of Decision Sciences

Research and teaching in financial engineering and business analytics 2016–2021

Head, Business Analytics Certificate Program (founding director) 2016–2021

REFEREED JOURNAL PUBLICATIONS

- [1] Bouaddi, M., Chérif, R., and Ben-Abdellatif, M. (2026). Flexible quadrant copulas: Application to sovereign credit default swaps. *North American Journal of Economics and Finance*, forthcoming.
- [2] Ben-Abdellatif, M., Bouaddi, M., Chérif, R., and Omran, M. (2026). Distance to default and climate change: Do carbon emissions matter? Evidence from financial institutions in emerging markets. *Journal of Sustainable Finance & Investment*, 1–30.
- [3] Ben-Abdellatif, M., Ben-Ameur, H., Chérif, R., and Fakhfakh, T. (2025). Stochastic dynamic programming for valuing options embedded in corporate bonds. *Journal of Derivatives*, 33(1), 75–92.
- [4] Ben-Abdellatif, M., Ben-Ameur, H., Chérif, R., and Fakhfakh, T. (2025). Quasi-maximum likelihood for estimating structural models. *Studies in Nonlinear Dynamics & Econometrics*.

- [5] Ben-Abdellatif, M., Ben-Ameur, H., Chérif, R., and Rémillard, B. (2024). A two-factor structural model for valuing corporate securities. *Review of Derivatives Research*, 27(2), 203–225.
- [6] Ben-Abdellatif, M., Ben-Ameur, H., Chérif, R., and Rémillard, B. (2024). Dynamic programming for designing and valuing two-dimensional financial derivatives. *Risks*, 12(12), 1–15.
- [7] Ben-Ameur, H., Chérif, R., and Rémillard, B. (2023). A dynamic program under Lévy processes for valuing corporate securities. *Journal of Risk*, 25(4).
- [8] Ben-Ameur, H., Chérif, R., and Rémillard, B. (2020). Dynamic programming for valuing American options under the variance-gamma process. *Journal of Futures Markets*, 40, 1548–1561.
- [9] Ben-Ameur, H., Chérif, R., and Rémillard, B. (2016). American options under jump-diffusion models: Evaluation and estimation. *Quantitative Finance*, 16, 1313–1324.

WORKING PAPERS

- [1] Becheikh, N., Bouaddi, M., Ben-Abdellatif, M., and Chérif, R. (2026). Board diversity and financial resilience: Jump-diffusion distance-to-default evidence from emerging markets.
- [2] Chérif, R., Ben-Abdellatif, M., Bouaddi, M., and Kenawy, Y. (2026). Does green pay (less)? Global corporate bond evidence on primary and secondary yields.
- [3] Chérif, R., Ben-Abdellatif, M., and Imam, N. (2026). Pricing real options in the circular economy using dynamic programming.
- [4] Chérif, R. (2025). Pricing weather derivatives under Lévy processes.
- [5] Chérif, R., Mekawy, A., and Ben-Abdellatif, M. (2026). Empirical validation of duality-based price bounds for Bermudan options.
- [6] Ben-Abdellatif, M., Ben-Ameur, H., and Chérif, R. (2025). Enhanced least-squares Monte Carlo method for pricing multivariate financial derivatives.
- [7] Fortuné-Amakbre, E., Ben-Ameur, H., and Chérif, R. (2025). Estimating structural models with the CDS market: A quasi-maximum likelihood approach.
- [8] Ben-Ameur, H., Bélanger, L.-F., and Chérif, R. (2025). Credit-risk dynamics in the automobile sector: An empirical analysis before and after Trump’s election.

GRANTS, AWARDS, AND HONOURS

Recognition in Research, Onsi Sawiris School of Business, The American University in Cairo	2026
Recipient, AUC Research Grant, The American University in Cairo	2023–2026
Teaching Award, The American University in Cairo	2023
Research Grant for Publication in a Top-Tier International Journal, HEC Montréal	2016
Excellence in Teaching Evaluations, Department of Decision Sciences, HEC Montréal	
Government Merit Scholarship for Graduate Studies in Canada	2007–2009

CONFERENCE PRESENTATIONS

Flexible quadrant copulas: A generalized gluing-mass model with application to sovereign CDS. <i>AfriMed Finance Society (AFS) Conference</i> , University of Catania, Italy	2026
Quasi-maximum likelihood for estimating structural models. <i>AFS Conference</i> , University of Valencia, Spain	2025

Dynamic programming and parallel computing for valuing two-dimensional financial derivatives. <i>ISCAE-ESC Summer International Finance Symposium, Tunis</i>	2024
Dynamic programming for valuing options embedded in corporate bonds. <i>8th FMND Workshop</i> (also Chair, Asset Pricing session)	2024
Quasi-maximum likelihood for estimating structural models. <i>7th FMND Workshop</i>	2023
A dynamic program under Lévy processes for valuing corporate securities. <i>CANSSI Conference</i> , Canadian Statistical Sciences Institute	2022
Estimating structural models. <i>CANSSI Conference</i>	2021
Dynamic programming for valuing American options under the variance-gamma process. <i>CAIMS Annual Meeting</i> , Ryerson University, Toronto	2018
A dynamic program under Lévy processes for valuing corporate securities. <i>Optimization Days</i> , HEC Montréal	2017
American options under jump-diffusion models: Evaluation and estimation. <i>Optimization Days</i> , HEC Montréal; <i>Quebec Mathematical Sciences Colloquium</i> , UQAM	2016
American-style options in jump-diffusion models: Estimation and evaluation. <i>CAIMS Annual Meeting</i> , Saskatoon; <i>Mathematical Finance Days (IFM2)</i> , Montréal; <i>Optimization Days</i> , Montréal	2014
The evaluation of options under Merton's model. <i>Financial Crises: Governance and Risk Management</i> , Research Unit in Enterprise and Decisions	2009

PROFESSIONAL SERVICE

- **Scientific committee:** AfriMed Finance Society (AFS) Conference.
- **Referee:** *Journal of Derivatives*, *Journal of Fixed Income*.
- **Session chair:** Asset Pricing session, 8th FMND Workshop (2024).
- **Conference organisation:** 18th Quebec Mathematical Sciences Colloquium.
- **Data Science Committee, HEC Montréal:** co-organised workshops and training in business analytics.

RESEARCH SUPERVISION

Doctoral

- Chaima Ben Mahmoud (2024). Credit analysis of the Tunis Stock Exchange's companies. Ph.D. Finance, IHEC Carthage; co-supervised with H. Ben-Ameur and A. Zenaïdi.

Master's (completed)

- Youssef Aymen Kenawy (2025). Carbon pricing initiatives and green bond pricing in the Egyptian context. AUC.
- Ibrahim Eid (2025). The impact of financial technology on bank risk-taking and profitability. AUC.
- Louis-Frédéric Bélanger (2025). Credit-risk dynamics in the automobile sector. HEC Montréal; co-supervised with H. Ben-Ameur.
- Nourhan Said (2025). Can blockchain-adoption announcements create market and operating value in banks? Evidence from an event study of global bank initiatives. AUC.
- Ali Fouda (2025). The joint effect of ESG practices and financial development on the financial performance of Asian companies. AUC.
- Karim Hussein (2024). Pricing weather derivatives using Monte Carlo methods. AUC; co-supervised with M. Ben-Abdellatif.

- Amr Mekawy (2024). Pricing American options: A machine learning approach. AUC; co-supervised with M. Ben-Abdellatif.
- Sama El Kady (2024). Impact of ESG scores on bankruptcy prediction. AUC.
- Nermeen Elsaraf (2024). FX derivatives valuation under a jump-diffusion process. AUC; co-supervised with M. Ben-Abdellatif.
- Mostafa Alloub (2023). Sustainable finance with a real options methodology. AUC; co-supervised with M. Ben-Abdellatif.
- Yassmeen Abou Elwafa (2023). Fintech companies valuation using real options: Fawry empirical study. AUC.
- Edong-ta Fortuné Amakbre (2022). Quasi-maximum likelihood for estimating structural models using credit default swaps. HEC Montréal; co-supervised with H. Ben-Ameur.
- Joel Froget (2021). Sentiment analysis applied to finance. HEC Montréal; co-supervised with F. Somrani.

Master's (in progress)

- Tarek Ahmed Abdelhady. Pricing European and early-exercise weather derivatives under Lévy-driven temperature dynamics. AUC.
- Farah Hossam Dawoud. Does blockchain adoption strengthen the financial stability of financial institutions? AUC.
- Fairuz Tarek El Khadrawe. Is greenwashing risk priced? Evidence from asset returns. AUC.
- Nour Ayman Shalaby. Corporate carbon risk exposure and credit spreads. AUC.
- Nada Khaled Ibrahim. Board composition, corporate governance, and the greenwashing gap: Evidence from the MENA region. AUC.
- Sherif Amro Ali Badreddine. Machine learning methods for real options valuation. AUC.
- Riham Hany Mounir. Do board sustainability committees reduce ESG rating disagreement? Evidence from MENA firms. AUC.

Thesis committee chair

- AUC (6 theses, 2023–2024): financial inclusion and human development; macroeconomic indicators and Islamic equity funds; safe-haven assets and ESG indices in MENA; bilateral investment treaties and market correlation; ESG and firm performance; ESG and bank resilience.
- HEC Montréal (2 projects, 2021): least-squares Monte Carlo and neural networks under stochastic volatility and jump-diffusion processes.

TEACHING

Teaching Award, The American University in Cairo (2023).

Average student evaluations: 4.7/5 (undergraduate) and 4.8/5 (graduate).

The American University in Cairo (2021–present)

- FINC 5320 Financial Computing (M.Sc. Finance; designed and taught in MATLAB)
- FINC 5213 Derivatives (M.Sc. Finance)
- FINC 3201 Investment Analysis (undergraduate)
- Restructured the M.Sc. in Finance program and designed new courses, including *Machine Learning in Finance* and *Data Analytics*

HEC Montréal (2016–2021)

- Graduate seminars in financial engineering
- Mathematical Finance, Statistics; Business Intelligence; Decision-Making Models; Monte Carlo Simulation; C++ Lab
- Designed the curriculum of the Business Analytics Certificate and developed support strategies for students in quantitative finance courses

ACADEMIC LEADERSHIP

Academic Advisor, M.Sc. in Finance, The American University in Cairo 2023–present

- Advise students on study plans and program requirements; interview and select applicants; lead recruitment presentations and orientation sessions.
- Liaison between the Graduate Studies Office and the department; contributed to strong enrollment growth since 2023.

Founding Head, Business Analytics Certificate Program, HEC Montréal 2016–2021

- Created the program and its course materials; recruited, coached, and selected adjunct faculty; led its growth and visibility.

COMPUTATIONAL SKILLS AND LANGUAGES

MATLAB, Python, R, C/C++, SPSS, LaTeX, NOMAD; AWS parallel computing, Monte Carlo simulation, dynamic programming, numerical methods, machine learning.

REFERENCES

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