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Education

- 2018–2020 **Master in Actuarial Sciences**, *Université Libre de Bruxelles, Brussels.*
- 2014–2015 **Advanced Master in Quantitative Finance**, *Solvay Brussels School of Economics and Management, Brussels.*
- 2011–2014 **Master in Physics Civil Engineering, with finality Applied Physics**, *Université Libre de Bruxelles, Brussels.*
- 2008–2011 **Bachelor in Physics Civil Engineering**, *Université Libre de Bruxelles, Brussels.*
- 2002–2008 **Higher Secondary Certificate**, *Athénée Robert Catteau, Brussels.*
Higher Secondary Certificate in Latin, Mathematics, Science and Germanic Languages

Master Thesis for the title of Physics Civil Engineer

- title *Optimality of quantum algorithms for the Boolean hidden shift problem*
- supervisor Jérémie Roland
- description Hidden shift problems belong to an important class of problems where quantum computers are known to provide an exponential speedup compared to classical computers. The description of the problem is however very simple : given black-box access to a shifted version $f(x+s)$ of a function $f(x)$, find the hidden shift s . Depending on the domain and range of the function f , different versions of the hidden shift problem may be defined. In particular, the Boolean hidden shift problem considers the case where f is a Boolean function $f : (0, 1)^n \rightarrow (0, 1)$. A new quantum algorithm for the Boolean hidden shift problem had been proposed, and shown to provide an exponential speedup for random Boolean functions. However, the complexity of the algorithm can vary greatly for different functions, for example, if f is a delta function, the problem reduces to Grover's search problem, where only a quadratic speedup is possible. The goal of this project was to study the complexity of the Boolean hidden shift problem in terms of the Fourier spectrum of the function, which characterizes the cost of the known quantum algorithms for this problem, and therefore study their optimality.



Master Thesis for the title of Actuary

title *Longevity risk : Modeling, Valuation and Hedging*
supervisor Jennifer Alonso Garcia
description Longevity risk, due to its non-diversifiable nature, poses a real concern and not the least for various actors ranging from simple individuals to corporates, insurance companies and pension funds or even governments. For a long time, various reinsurance solutions made it possible to deal with such a risk to the point where the pooling of risks and the lack of real capacity turned all eyes towards the financial markets and the concept of securitization. The idea behind this thesis was therefore, after explaining in more detail what has just been mentioned, to explore this concept of transforming insurance risks into financial instruments and more particularly the cases of longevity bonds and swaps which turn out to be the two solutions that have been the most undertaken. First of all in terms of pricing, the longevity market being fundamentally incomplete given the absence of standardized instruments making it possible to duplicate longevity, various techniques are therefore possible and the choice ended up on the Wang Transform. Finally, once these products valued, an analysis and comparison of the impact of these hedging instruments on the regulatory capital imposed by the Solvency II regulation closed this thesis.

Experience

- Sep 2020 – ... **Partner**, *Altair*, Brussels and Luxembourg.
Foundation and development of a start-up providing consulting services in actuarial sciences, quantitative finance and data science.
- Sep. **Senior Actuarial Consultant**, *Ernst & Young*, Luxembourg City,
2019–April Luxembourg.
2020 Performing quantitative analyses around risk management matters related to the (re-)insurance sector in Luxembourg, with a focus on Solvency II. Analyzing regulatory, accounting and reporting requirements applicable to (re-)insurance clients. Achieving Employee Benefits related assignments. Participating to Audit support activities and due diligence assignments for (re-)insurances and pension funds. Developing tools for related assignments.
- Jan. **Actuarial Trainee**, *AG Insurance*, Brussels, Belgium.
2019–June
2019 Via Broker Channel and Non-Life Insurance Development, AG Insurance offers a wide range of high quality insurance for both individual and businesses and collaborates with a large network of independent brokers and Fintro agents, with whom it has close relationships. The activities and projects of Broker Channel and Non-Life Insurance Development are very varied. Each of the seven departments deals with a specific aspect allowing the smooth running of the business line. As part of the Marketing and Strategic Development Non-Life Insurance department, I helped develop new insurance and determine the sales strategy.



Feb. **Quantitative Consultant**, *Deloitte*, Luxembourg City, Luxembourg.
2016–Sep 2018 Performing and reviewing valuations of financial derivative instruments or structured products in the context of audit assignments and for our external clients. Offering expertise and markets knowledge in the development of valuation models for new structures/products on different asset classes. Providing assistance to clients facing valuation issues. Taking part of the general development of the department's activities and projects. Assisting in the identification of new opportunities and build market strategies accordingly. Contributing in the development and coaching of more junior consultants.

June **Quantitative Intern**, *KPMG*, Brussels, Belgium.
2015–August 2015 Increase of the banking credit risk knowledge through the following tasks : assisting the team in the modeling of risks (credit risk, market risk, liquidity risk, insurance risk, operational risk) from model design to model implementation, providing independent valuations of positions and financial instruments, credit risk modelling review and guidelines set up, link to credit acquisition and big data assessment and IFRS 9 modelling aspects.

Languages

French C2
English C1
Dutch B2

Computer Skills

Languages Basic / Good Knowledge in C++, Matlab, VBA, Python, R, SAS
Softwares Basic / Good Knowledge in Microsoft Office, LateX, LyX, Bloomberg, Reuters

Leisure activities

Sports Football, Table Tennis, Tennis, Badminton
Travels Greece, Tunisia, Spain, Dominican Republic
Learning Scientific Readings in Finance (Newspapers, Studies, Articles, Books), LinkedIn Learning