ACQuFRR

AFRICAN COLLABORATION FOR QUANTITATIVE FINANCE AND RISK RESEARCH

ACQuFRR Report for 2016

The establishment of ACQuFRR has integrated postgraduate teaching and research in quantitative and mathematical finance and some of its allied disciplines in the Faculty of Commerce at UCT. ACQuFRR also houses the research students and academic members of the African Institute of Financial Markets and Risk Management (AIFMRM). Our website contains comprehensive information about our activities, events, projects, and interests; as well as details of our Executive, Advisors, Research Associates and Postgraduate Students. ACQuFRR received full accreditation by the University Research Committee in February 2016.

The unit coordinates the minor research dissertations for the MPhil in Mathematical Finance and the projects for Research Master's and PhD students in quantitative finance and areas of economic risk, which includes AIFMRM PhD and Postdoctoral scholarship holders. ACQuFRR also provides a forum for collaboration and discussion between its academic members, students, and industry associates and collaborators through weekly seminars and a series of special seminars.

The ACQuFRR Advisory Board convened in February 2016 for its fourth annual meeting. Representatives from RMB, Riscura, Avior, the Banking Association of South Africa, and Standard Bank, are represented on the Board. The Board plays a vital role in maintaining contact between industry and our research activities to fulfil the mandate of the unit and justify its industry funding.

In late 2015, AIFMRM/ACQuFRR signed a cooperative agreement with the Quantitative Finance Research Centre at the University of Technology, Sydney (UTS). The agreement caters for reciprocal visits by researchers collaborating on joint projects, cross-institution membership on supervisory panels for research students, participation of UCT researchers and research students in QFRC events such as the annual Quantitative Methods in Finance Conference, and participation of UTS researchers and research students in UCT events, including the annual ACQuFRR Financial Mathematics Team Challenge. We are pursuing a similar agreement with ETH Zürich later this year.

ACQuFRR sponsored two students from Zimbabwe to attend the annual Southern African Finance Association conference in January. This is part of a wider collaborative initiative with Prof Jerry Parwada, Head of the School of Banking and Finance at UNSW in Sydney. The aim is to attract talented African students to UCT for postgraduate studies, and thereafter into academia.

ACQuFRR's Deputy Director, Dr Co-Pierre Georg, received a Y1 rating from the NRF this year.

Publications

In addition to various conference presentations and seminars, ACQuFRR produced seven research publications this year. The titles and publication details appear on our website.

ACQuFRR's Director, Associate Professor David Taylor won the Investment Analysts Society of South Africa's "Best Published Research Paper in the Investment Analysts Journal", 2014. The paper was entitled *Modelling South African Single-Stock Futures Option Volatility Smiles*.

Seminars, Workshops, Masterclasses & Conferences

Hosting and attending research events forms part of the ongoing activities of a research unit. However, the industry alignment of ACQuFRR means that we have an obligation to offer our research and discussion to a wider audience. These events help to create awareness of the unit and to publicise its contribution to the broader conversation.

ACQuFRR held a **weekly seminar series** throughout 2016 during term-time. The MPhil in Mathematical Finance and MCom in Risk Management of Financial Markets students, and the PhD and Postdoctoral research fellows affiliated with the unit and AIFMRM, are required to attend these. We also invite Johannesburg and Cape Town-based practitioners. The series brings together research-minded academics in AIFMRM, Finance and Actuarial Science with students and industry participants. Students are also expected to present dissertation and thesis work in this forum. The final segment of this year's series was interrupted by the university protests. We often wrap seminars from visitors into this series.

ACQuFRR hosted one **special seminar** outside of the above series in 2016 from Prof Erik Schlögl of the University of Technology, Sydney. The seminar was titled *Lawyers, Maths and Money: Lessons for quantitative analysts from a Federal Court of Australia judgment in the aftermath of the Global Financial Crisis*.

Professor Schlögl discussed the mathematical modelling issues of complex structured credit instruments that became pertinent in the first legal action against a rating agency to go to trial anywhere in the world, as a result of the events of the Global Financial Crisis (GFC). In 2006 twelve local councils in New South Wales bought complex synthetic derivatives called constant proportion debt obligations (CPDOs) that were rated AAA by Standard & Poor's (S&P). The quantitative financial modelling of the CPDOs used by S&P was considered in detail in the court proceedings, in which Professor Schlögl served as an expert witness.

One of our industry partners, Avior Capital Markets, collaborates with ACQuFRR in hosting **research seminars for their industry clients**. We co-organised two of these in 2016.

Prof Erik Schlögl (UTS) presented on *Fundamentals of Credit Risk Modelling for Counterparty Credit Risk Assessment and Valuation.* This talk covered the main concepts of counterparty credit risk in derivative financial instruments: expected exposure (EE), potential future exposure (PFE), credit valuation adjustment (CVA), and related values. It focussed on those aspects of mathematical modelling of credit risk needed to calculate counterparty credit risk as represented by these concepts, and discussed how CVA could be "marked-to-market" based on risk-neutral default probabilities implied by market credit spreads. In a simple, analytically tractable example, these concepts and calculations were illustrated in a spreadsheet implementation.

Dr Andrea Macrina (University College London and Adjunct Associate Professor at UCT) and Mr Obeid Mahomed (AIFMRM, UCT) presented a one-day workshop on *Rational Multi-Curve Interest Rate Modelling and Counterparty Risk*. The aim of this one-day workshop was to share some of the latest developments arising from recent research projects on multi-curve interest rate modelling, counterparty risk valuation adjustments, and initial margining. Part of the meeting was devoted to the South African financial market, in which several discount rates coexist without being modelled in a multi-curve setup tailored to the South African financial environment. A sound multi-curve framework for a discounting system is central for consistent pricing of all asset classes, including equity and commodities. In fact, the longer dated the financial contracts are, the more fundamental a consistent discount system that is fit for the correct pricing of mortgages as well as insurance-linked products becomes. Apart from sharing new results in fixed-income pricing and hedging, the presenters showed how the class of price models they utilise for the computation of risk exposures -apply to equity and the analysis of risk profiles. In particular, this modelling technique focuses on pricing and hedging in less mature (illiquid) markets where a transparent relationship between a liquidly traded index and less liquid shares would aid a consistent pricing, hedging and risk analysis of the latter. The workshop emphasised the importance of having a consistent pricing and hedging framework in place spanning both the fixed-income and the equity markets.

Two **ACQuFRR Masterclasses** took place in March and June. Masterclasses are intended to provide expert tuition from ACQuFRR academics and visitors on technical subjects to professionals in the financial services industry.

The first Masterclass took place at the Southern Sun Hotel in Newlands, Cape Town in March and was presented by Prof Peter Ritchken (Case Western Reserve University and Honorary Professor at UCT). It was entitled *Real Options, Capital Budgeting and Strategy*.

Thirty-three students and practitioners registered. The masterclass focussed on how finance can assist in strategic decision making. Participants learned contemporary tools that allow NPV models to be correctly applied to a range of important tactical problems.

The second Masterclass was jointly hosted by ACQuFRR and Rand Merchant Bank in June and was presented by Dr Andrea Macrina (University College London and Adjunct Associate Professor at UCT), Mr Obeid Mahomed (AIFMRM, UCT) and Dr Gareth Peters (University College London). It was entitled *Catching up with Emerging Markets*.

Fifty-nine students and practitioners registered. This masterclass focussed on the South African financial market in which several discount rates coexist without being modelled in a multi-curve setup that is tailored to the South African financial environment. It was well attended by various financial services sector professionals, as well as members and students of ACQuFRR.

A well-functioning financial system is key for emerging markets to unlock their growth potential. However, the financial systems of many emerging markets remain in their infancy. **AIFMRM is hosting a conference** at UCT from 8 to 10 December with Imperial Business School and the Review of Finance to address challenges faced by financial intermediaries in emerging markets. The conference will bring together over 20 leading experts from Africa, Europe, the US, and Asia. Keynote speakers will be Prof Manju Puri from the Fuqua School of Business at Duke University, and the Governor of the South African Reserve Bank, Lesetja Kganyago.

AIFMRM is holding an **Economics Postgraduate Student Summer School** for PhD and Master's students in Economics, Finance, or closely related fields, who are registered at a

South African university. The summer school runs from 16 to 22 December 2016 at UCT. The guest lecturers will be Prof Ben Golub from Harvard University who will present a short-course on "Interconnectedness", and Prof Katharina Pistor from Columbia University, who will present a short-course on "Law and Finance".

ACQuFRR is involved in the annual Summer School in Mathematical Finance held at the African Institute for Mathematical Sciences (AIMS) in Muizenberg. This year saw the ninth edition of the Summer School. The Director of ACQuFRR plays a key role in inviting the three speakers for this event and uses this opportunity to create and strengthen ties with leading international academic figures.

It is often possible to persuade the presenters to extend their stay in South Africa and to offer further research seminars at UCT. This was the case in 2016, and Prof Michael Sørensen of the University of Copenhagen gave a talk at UCT the day before AIMS. Prof Erik Schlögl also presented at AIMS during his six-week stay with us. The third speaker was Dr John Schoenmakers of the Weierstrass Institute for Applied Analysis and Stochastics in Berlin.

ACQuFRR research students are encouraged to attend the Summer School. The Summer School is free for full-time students at South African universities and AIMS. There were 55 students, academics and practitioners registered this year.

The Third Financial Mathematics Team Challenge (FMTC)

FMTC 2016's winning Team Leader, Ralph Rudd: "*Of all of the research I have been involved in since I started my studies, this is probably the work that I am by far the most proud of. The team was phenomenal and this is the hardest any of us has ever worked*."

One of the key aims of the FMTC is for South African postgraduate students in Financial and Insurance Mathematics to have the opportunity to focus on a topical, industry-relevant research project, while simultaneously developing links with international students and academics in the field. An allied purpose is to bring a variety of international researchers to South Africa to give them a glimpse of the dynamic environment that is developing at UCT in the African Institute of Financial Markets and Risk Management. The primary goal, however, is for students to learn to work in diverse teams and to be exposed to a healthy dose of fair competition.

The Third Financial Mathematics Team Challenge was held from the 30th of June to the 11th of July 2016. The challenge brought together five teams of Master's and PhD students from France, Australia, South Africa and the UK to pursue intensive research in Financial Mathematics. Each team worked on an independent research problem during the twelve days. Professional and academic experts from UCT, University College London, Rand Merchant Bank, University of Technology Sydney, ETH Zürich, Université d'Évry-Val-d'Essonne and University of Vienna individually mentored the teams, fostering teamwork and providing guidance. As they have in the past, the students applied themselves with remarkable commitment and energy.

This year's research included topical projects on credit risk in stock-based lending, model risk criteria for recalibration, polynomial models for market weights in stochastic portfolio theory, XVA metrics for CCP optimisation, and stochastic models for commodities. These were either directly proposed by our industry partners or chosen from areas of current relevance to the finance and insurance industry. In order to prepare the teams, guidance and preliminary reading was given to them a month before the meeting in Cape Town. During the final two days of the

challenge, the teams presented their conclusions and solutions in extended seminar talks. The team whose research findings were adjudged to be the best was awarded a floating trophy.

Each team wrote a report containing a critical analysis of their research problem and the results that they obtained. These are collated in one volume that is available to future FMTC participants. It may also be of use and inspiration to Master's and PhD students in Financial and Insurance Mathematics. FMTC III was a great success, so 2017 and FMTC IV is already in the pipeline!

Postdoctoral Research Fellows

ACQuFRR/AIFMRM has three, full-time, postdoctoral research fellows – Dr Suraj Shekar, Dr Daniel Opolot, and Dr Christine Makanza.

Dr Shekhar joined AIFMRM/ACQuFRR in August 2016. He works under the guidance of Dr Co-Pierre Georg. Dr Shekhar's research concentrates on Microeconomics and its applications to Industrial Organization and Development Economics. At present, he is involved in three research projects which study - The labour market for Economics graduate students, Self-help groups in India, and Spinoffs and their impact on parent firms. While at AIFMRM, Dr Shekhar has submitted his theoretical work on the US audit market and his work on ethnic conflicts for publication. Dr Shekhar will present at the Midwest Economic Theory Conference held at the Krannert School of Management, Purdue University, USA in December 2016.

Dr Opolot joined AIFMRM/ACQuFRR in September 2016, and his Principal Investigator is Dr Co-Pierre Georg. Dr Opolot's research interests are in evolutionary game theory, network theory, and information economics. His recently completed work includes a theoretical study of the evolution of strategic behaviour in social networks, and opinion formation through word-of-mouth learning. Some of his ongoing projects include the application of evolutionary game dynamics to financial markets and to scientific progress. The latter looks at the role of the organisation of scientific communities, funding schemes, and reward structure on productivity in scientific research and hence its progress. Dr Opolot has presented his work at international conferences and seminars, most notably the 2016 Royal Economic Society Annual Conference in Sussex, U.K, the 11th World Congress of the Econometric Society in Montréal, Canada, and the 25th International Conference on Game Theory in Stony Brook University, New York.

Dr Makanza obtained her PhD in June 2016 and joined AIFMRM/ACQuFRR in June 2016. She is working with Dr Co-Pierre Georg. Dr Makanza is currently working on a book project that analyses the future of the South African economy, and addresses the socio-economic problems facing the youth in South Africa. The book outlines a New Deal that details how macroeconomic policy can be designed to reboot the economy and improve economic outcomes for the youth. Focus areas of the book include addressing inequality, economic growth and sectoral development aimed at youth employment creation. Dr Makanza's research also concentrates on the formulation of prudent macroeconomic policy in developing and emerging economies. She analyses how macroeconomic policy can be designed to manage external imbalances better and generate growth in economies susceptible to current account deficits. Her other research interests include applied time series analysis and dynamic stochastic general equilibrium modelling. She was a speaker at the 2016 Centre for the Study of African Economies (CSAE) Conference hosted by the University of Oxford. She also presented at Stellenbosch University and the University of Pretoria in October 2016.

PhD Research Students

ACQuFRR has ten full-time PhD students – Mr Obeid Mahomed, Mr Alex Backwell, Mr Ralph Rudd, Mr Michael Kateregga, Mr Mario Giuricich, Mr Michael Rose, Miss Tina Koziol, Mrs Esti Kemp, Mr Allan Davids and Miss Jesslyn Jonathan.

Mr Mahomed was appointed as a full-time lecturer in AIFMRM in January 2015, and lectures on both the MPhil and MCom degrees. He registered as a full-time PhD student in 2015, having upgraded his Master's degree in 2014. His thesis is entitled Alternative Asset Pricing: Information and Calibration, and he is co-supervised by Associate Profs David Taylor and Thomas McWalter. His research has resulted in three potential research papers: Multi-Curve Discounting Systems for Asset Pricing, Information-Based Pricing Kernels and Numeraire Portfolios and Asset Pricing in Emerging Markets. The results from these papers will constitute his thesis. During 2016 he represented ACQuFRR at the following conferences: 2016 Southern African Finance Association (SAFA) Conference (Cape Town, South Africa), The First Annual Avior Capital Markets/ACQuFRR Quant Conference (Cape Town, South Africa) and the ACQuFRR and Rand Merchant Bank Masterclass: Catching up with Emerging Markets. His PhD is financially supported by ACQuFRR.

Mr Backwell has completed the third year of his PhD. He is supervised by Associate Profs David Taylor and Peter Ouwehand and Adjunct Associate Prof Andrea Macrina. His research interest is term structure modelling, and more particularly the relationship between volatility modelling and interest-rate option pricing. His empirical work regarding term structure stochastic volatility has been presented several times, most notably in New York City at the 9th World Congress of the Bachelier Finance Society. He has two other draft papers in progress, one of which, concerning generalised Gaussian models, was presented at the 2016 Southern African Finance Association Conference. He has led teams for three consecutive years at the annual Financial Mathematics Team Challenge, and has been involved in teaching – both assisting in the MPhil in Mathematical Finance and lecturing undergraduates in Actuarial Science. He has also supervised several minor dissertations. He is financially supported by ACQuFRR, UCT and the NRF.

Mr Rudd graduated from the MPhil in Mathematical Finance in 2013 and commenced his PhD in 2014. He is co-supervised by Adjunct Associate Profs Tom McWalter and Jörg Kienitz (Deloitte, Germany and UCT) and Honorary Prof Eckhard Platen (University of Technology, Sydney (UTS) and UCT). In 2016, Mr Rudd presented his work "Path-wise Quantization of the SABR Model" at the 9th World Congress of the Bachelier Finance Society in New York. Furthermore, with his third attempt, he finally led his team to victory at the third annual Financial Mathematics Team Challenge. His project was supervised by Prof Eric Schlögl from UTS and concerned determining optimal calibration frequency from a model risk perspective. Mr Rudd lectured the Mathematical Computing Skills pre-course for the MPhil in Mathematical Finance in 2015 and 2016. He also taught the Risk Management Computing Skills course in the Risk Management MCom degree in 2016. He was involved in tutoring the Numerical Methods in Finance courses, and is currently internally supervising three minor dissertations. He is financially supported by ACQuFRR, BANKSETA and RMB.

Mr Kateregga joined the UCT in the fall of 2012 as a doctoral student in the Department of Actuarial Science jointly supervised by Dr Sure Mataramvura and Prof David Taylor. Michael's PhD thesis entitled "Stable Distributions: Theory and Applications in Finance" is due for submission in December 2016 or early January 2017. Some of the results from his research have been submitted for publication in three accredited journals: "Bismut-Elworthy-Li Formula

for Subordinated Brownian motion with Application to Hedging" to the Journal of Finance and Stochastics; "Parameter Estimation for Stable Distributions" to the Journal of Statistical Science, and "Subordinated Affine-Structure Models for Commodity Future Prices" to be submitted to the Journal of Quantitative Finance. In addition to research, Michael gave a talk in July on the latter paper at the World Congress in Probability and Statistics in Toronto, Canada, and in the same month, attended the International Imaginary Conference in Berlin, Germany on efficient and innovative ways to communicate mathematics to society. Michael's research is funded by ACQuFRR, the African Institute for Mathematical Sciences (AIMS) and South Africa's National Research Foundation (NRF) through UCT's Postgraduate Funding Office.

Mr Giuricich has finished the second year of his PhD. He is co-supervised by Associate Professor Peter Ouwehand, Professor Krzyzstof Burnecki (Wroclaw University of Technology, Poland) and Professor Eckhard Platen (University of Technology Sydney, Australia). He completed his first paper in June 2016, entitled "Pricing Index-linked Catastrophe Bonds based on a Left Truncated Loss Index", and is now considering suitable journals for publication. During a visit to his supervisor in Poland in September, a second paper was completed, entitled "Weak Approximations at work in Catastrophe Bond Pricing". Some novel and exciting results were brought to the fore in this paper, and he is taking up the opportunity to present this work at the Quantitative Methods in Finance Conference to be held in Sydney, Australia in December. Moreover, he was offered a chance to present this work at the Perspectives on Actuarial Risks in Talks of Young researchers in Ascona, Switzerland, in January 2017. Mr Giuricich envisages submitting his thesis in December 2017, with his third paper being written during the first half of 2017. He is currently supported by ACQuFRR, BANKSETA and the NRF.

Mr Rose joined ACQuFRR in April 2015. He holds an MSc in Quantitative Economics from Kiel University and visited the Kiel Institute for the World Economy's Advanced Studies Program prior to joining UCT. Under the supervision of Dr Georg, he works on *Peer Effects in Financial Networks*. In 2016, he successfully defended his proposal. He has presented his work at UCT's School of Economics, Kiel Institute for the World Economy, Stellenbosch University, University of Amsterdam, Free University of Amsterdam, and Maastricht University, as well as two international research conferences: the Science of Science conference in Washington, DC (USA), and the Econometric Society 2016 Africa meeting at the Kruger Park. He has successfully conducted research visits overseas at the Dutch and German central banks, DNB and Deutsche Bundesbank. Times Higher Education reported about one of his joint research projects with Dr Georg, where the importance of informal collaboration with colleagues that are well-connected in their profession was established. In 2017, he plans to spend one month at the Bank for International Settlements in Basel (Switzerland), and one semester at Georgia Institute of Technology in Atlanta, Georgia (USA). He is financially supported by ACQuFRR and AIFMRM.

Miss Koziol's profile combines finance and banking with a solid knowledge of macroeconomics. She holds a Master's degree equivalent in Business Administration from the University of Jena in Germany, majoring in finance, banking and risk management. Prior to joining AIFMRM, Miss Koziol worked for two years as Consultant at Econometrix, an economic research company based in Johannesburg. In April 2016, she proceeded to study towards a PhD in Economics at UCT. Under the supervision of Dr Co-Pierre Georg, Miss Koziol conducts research on financial interconnectedness and spillover effects originating from unconventional monetary policy. Her work concerns various topics related to financial system stability, such as contagious regimes and amplification mechanisms. One of her projects conducts a stress testing exercise of the South African banking system by implementing a model of price shock propagation. Apart from academic zeal, Miss Koziol aims to provide valuable information for

policymakers of macro-prudential regulation on how to measure vulnerabilities and systemic risk in the South African banking system. She is financially supported by ACQuFRR.

Mrs Kemp joined ACQuFRR in April this year. She holds an MCom in Econometrics from the University of Pretoria and is currently an employee in the Financial Stability Department of the South Africa Reserve Bank. Under the supervision of Dr Georg, she works on *Shadow banking in South Africa*. She has presented her work at UCT's School of Economics, as well as the Southern African Finance Association Conference. She is financially supported by ACQuFRR.

Miss Jonathan joined ACQuFRR in April this year. She holds a MCom in Economic science from the University of the Witwatersrand. For her PhD she works under the supervision of Dr Co-Pierre Georg on examining the effects of quantitative easing (QE) on banks, particularly the relationship between QE in industrialized countries and the balance sheets of emerging markets banks. She is financially supported by AIFMRM and ACQuFRR.

All of our Master's and PhD students are housed in the RMB Loft on the 6th floor of the Leslie Commerce Building at UCT.

Visitors

Prof Erik Schlögl is Professor and Director of the Quantitative Finance Research Centre at the University of Technology, Sydney (UTS), Australia. Prof Schlögl spent two periods with us in 2016 – 12 January to 21 February and 28 June to 12 July – during which time he presented at AIMS, gave a special seminar, an industry research seminar, and was the winning mentor on the FMTC.

Prof Jerry Parwada is the Head of Banking and Finance in the UNSW Business School at the University of New South Wales, Sydney, Australia. Prof Parwada gave the Colin Firer Memorial Lecture at SAFA in January and has initiated a PhD collaboration with ACQuFRR and UNSW.

Dr Christoph Aymanns is a Research Officer at the Systemic Risk Centre at the London School of Economics. He obtained his PhD in mathematics at Oxford University in 2015 and is working together with Dr Co-Pierre Georg on a joint research project with Ben Golub from Harvard University on "Illiquidity Spirals in Over-the-Counter Repo Markets". Dr Aymanns visited from 4 - 20 April.

Mr Christian Bittner is a Research Economist at Deutsche Bundesbank. He is working with Dr Co-Pierre Georg on two joint research project with Prof Falko Fecht from the Frankfurt School of Finance on "The Real Effects of Financial Networks" and "Allocative Efficiency". Mr Bittner is one of the leading experts on supervisory data at Deutsche Bundesbank and visited from 6 to 20 August.

Dr Ivivi Mwaniki from the School of Mathematics at Nairobi University spent three months on sabbatical with us earlier this year.

Dr Eric Ofosu-Hene from the University of Ghana spent a week with us in March during which time he presented a seminar in our weekly seminar series.

Honorary Professors Eckhard Platen and Peter Ritchken spend an extended period of time with every year, usually in January, February and March.

Adjunct and Honorary Positions

One of the ways to strengthen quantitative finance at UCT is through appointing adjunct staff. This is a process where candidates are nominated and selected in a rigorous fashion for (usually unpaid) academic posts that hold all the benefits of rank. Payment and support of adjunct staff is normally funded through external sources. Adjunct staff are allowed to access UCT research funding and often perform the normal duties of a member of staff including research supervision and teaching.

Dr Tom McWalter, Dr Jörg Kienitz, Mrs Tanja Tippett and Dr Andrea Macrina are all Adjunct Associate Professors in Actuarial Science or AIFMRM, and carry the title of Associate Professor while they are working at UCT. Prof Eckhard Platen and Prof Peter Ritchken are Honorary Professors.

Research Funding

Some of our students and members were very successful in attracting funding this year:

Beneficiary	**Source**	**Value**
ACQuFRR	AIFMRM Annual Funding	R400,000
ACQuFRR	NWU-DST-ABSA Directed Risk Research	R478,000
ACQuFRR	AVIOR	R 18,000
ACQuFRR	Nedbank	R 30,000
Alex Backwell	NRF Scarce Skills Scholarship	R110,000
	The UCT PhD Package Award	R 75,000
Mario Giuricich	NRF Scarce Skills Scholarship	R110,000
	BANKSETA	R 50,000
Ralph Rudd	RMB	R120,000

Quantitative finance and risk research at UCT is in a strong position. The MPhil in Mathematical Finance and the MCom in Risk Management of Financial Markets attract some outstanding students each year, bearing testament to our reputation for quality and rigour.

The addition of new staff members through honorary, adjunct and full-time appointments in AIFMRM, and the variety of visitors that we host, augments the profile of the area in the university and (South) Africa, and inspires the students. We have a strong presence on the Commerce Faculty Facebook page. Additional staff and research students help create a “critical mass” that allows the programme to expand and flourish in its activities.

A/Prof David R Taylor, Director – ACQuFRR 24 November 2016