RÉSUMÉ: GRAEME WEST

Dr Graeme West
Financial Modelling Agency
19 First Ave East
Parktown North
2193
South Africa
graeme@finmod.co.za
www.finmod.co.za
+27-11-447-2901 (work and fax)
+27-83-600-3759 (mobile)

Citizenship: RSA and UK.

Academia

- 1987: B.Sc. from the University of Cape Town, with distinction in mathematics, in mathematical statistics, and in the degree.
- 1988: B.Sc. (Hons) in mathematics from UCT, with distinction.
- 1990: M.Sc. in mathematics from UCT.
- 1993: Ph.D. in mathematics from UCT.
- 1994: Awarded a post-doctoral fellowship by the Foundation for Research Development; pursued at Kent State University, Kent, Ohio, USA.

From April 1995 to 1997 I was employed as a lecturer in the mathematics department at the University of the Witwatersrand. At the end of 1997 I was promoted to senior lecturer, but resigned simultaneously. I have published, in international mathematics journals, 11 research articles in the field of operator algebras. 6 of these articles were in collaboration. I gave about 25 research talks at research institutes and conferences in Europe, the USA, and South Africa.
From 1992 to 1997 I was chief coach of the team, and deputy director of the South African program, for the International Mathematical Olympiad.
In 2010 I was appointed as a half-time Adjunct Associate Professor at UCT.

Further studies

In 1998 and 1999 I attended part time and wrote the exams on 5 of the Mathematics of Finance Honours program at the University of the Witwatersrand, obtaining first classes for all of these courses.
In 2000 I received the Financial Risk Manager (GARP) qualification. I have attended courses on Risk Management, on credit derivatives, on exotic equity derivatives, and on inflation derivatives in London, Stanford University, Boston and New York.
In 2006 I received the PRM (PRMIA) qualification, and was a finalist (top 10 worldwide) for the 'Risk Manager of the Year' designation that is associated with this exam.
In 2008 I completed a correspondence course on c++ programming through the University of South Africa.

Career in investment banking

From January 1998 to November 1998 I was employed at Investec Bank in the Price Risk division, as a Risk Manager.

In December 1998 I commenced employment at Genbel Securities - subsequently Gensec Bank (now Sanlam Capital Markets) - as Head of the Analytics Group. This was a service group, which resided within the risk management framework, one of whose objectives was to provide quantitative solutions for the correct pricing of risks, inter alia by providing robust pricing libraries (for both vanilla and exotic products) for use throughout the bank. I also designed and was instrumental in the implementation from scratch of the VaR, stress testing, and sensitivity calculators.

Financial Modelling Agency

At the end of February 2003 I left Gensec to form a one-man consultancy called Financial Modelling Agency. This is a consultancy for the building, training on, and verification of, financial models. Financial Modelling Agency now consists of myself and my wife. One of our main focuses is to provide valuations of transactions (such as BEE transactions and ESOP schemes) suitable for audit purposes.

In 2010/11 clients have included (South African based unless otherwise indicated) ABSA Asset Management, AGFA South Africa, Amabubesi, Barnard Jacobs Mellet, Brimstone, CMD Enterprises (USA), CME Group (USA), Control Instruments Group, Central Rand Gold, Feedem-Pitsane, Friedman Attorneys, Group5, Multichoice, Nedbank, General Healthcare Group (UK), Old Mutual, OMSFIN, Phumulani Mall, Royal Bafokeng Holdings, Sanlam Capital Management, Shoprite, South African Revenue Services, Steinhoff, Telimatrix, Tiso, ValueHorizon Limited (Trinidad & Tobago), and Wiphold.

One of our main clients is the Asset-Liability Management group at Old Mutual. There we provide support and verification for valuation models of various life assurance products, and are instrumental in the ongoing design of an economic scenario generator.

In order to solve the problems that feature in these tasks we write our own code. Our language of choice is c#; we also have legacy Visual Basic 6 code.

From 2001 to 2005 I lectured on a part time and consulting basis at the University of the Witwatersrand and from 2001 to 2009 at the University of Cape Town. In 2010 I was appointed as a half-time Adjunct Associate Professor at UCT.

I pursue research interests in Mathematics of Finance, and have had several publications in international journals. These are listed below. Interests revolve around issues that arise in the projects that I undertake. As such, I believe very strongly in applied research.

Personal

In May 2001 I was diagnosed with Multiple Sclerosis, which progressed rapidly throughout 2001. In January/February 2002 I had a bone marrow transplant (stem cell rescue), which has led to remission of the illness. MRIs in January 2003, January 2004, September 2004, and June 2008 have shown the treatment to be completely successful by all metrics used by specialists. However, the illness caused significant nerve damage in the legs and bone necrosis of the hips. In February 2004 I had a mechanical pump implanted in my abdomen which allows intrathecal (spinal column) supply of the necessary drugs for managing spasticity, removing the need for oral medication, which was proving ineffective. In June 2004 I had a total left hip replacement, and in November 2004 a total right hip replacement, to resolve severe pain from necrotic bone. In March-May 2007 the right hip replacement was revised, due to infection, using the so-called 'Lautenbach procedure'. In June and July 2011 further problems have manifested themselves.

Interests include art (impressionism, post-impressionism and surrealist), music (baroque classical and New Romantic pop), and indigenous gardening. We have two children: Matlab (possibly a cross be-

tween a Staffordshire Terrier and/or Spaniel and/or Beagle) and Mini-Me (definitely a miniature German Schnauzer).
I married Lydia in December 2008. Lydia is the better half of Financial Modelling Agency, and is responsible for code development.

Publications

Pure Mathematics Publications

See the webpage `http://www.finmod.co.za/academicresearch.html` for a list of papers and several links.

Mathematics of Education Publications

See the webpage `http://www.finmod.co.za/mathseducation.html` for a list of publications.

Mathematics of Finance Publications

See the webpage `http://www.finmod.co.za/research.html` for links and other material related to the papers below:

Rogan Etheredge and Graeme West. Adapting pricing models for the South African market. *Risk, South Africa Special Report*, 12(6):14–15, 1999.

Graeme West. Better approximations to cumulative normal functions. *WILMOTT Magazine*, May:70–76, 2005. See also `http://www.finmod.co.za/resources.html` for vb and c++ code for the functions.

Graeme West. Calibration of the SABR model in illiquid markets. *Applied Mathematical Finance*, 12(4): 371–385, 2005.

Graeme West. Employee stock options. In *Equity-Based Compensation Plans-An Introduction*. Institute for Chartered Financial Analysts of India, 2006.

Peter Ouwehand and Graeme West. Pricing rainbow options. *WILMOTT Magazine*, May:74–80, 2006.

Patrick S. Hagan and Graeme West. Interpolation methods for curve construction. *Applied Mathematical Finance*, 13(2):89–129, 2006.

Patrick S. Hagan and Graeme West. Methods for constructing a yield curve. *WILMOTT Magazine*, May: 70–81, 2008.

Graeme West. Interest rate derivatives in the South African market based on the prime rate. *Journal for Studies in Economics and Econometrics*, 32(1), 2008.

Graeme West. Employee stock options. In *Corporate Treasury in South Africa*, pages 28–32. Treasury Management International, 2008. Association of Corporate Treasurers of Southern Africa 20th Anniversary Edition.

Graeme West and Lydia West. The pricing of black economic empowerment share purchase schemes. In *The Southern African Treasurer, Special Issue on Risk Management*, pages 35–40. Published by Treasury Management International, Association of Corporate Treasurers of Southern Africa, 2009.

Graeme West. A finite difference model for valuation of employee stock options. 2009. URL `http://ssrn.com/abstract=1010399`. in preparation.

Graeme West. Coherent VaR-type measures. In *Corporate Treasury in South Africa*, pages 20–23. Treasury Management International, 2010. Association of Corporate Treasurers of Southern Africa, Special Issue on Risk Management, Part 2.