FINANCIAL MODELLING AGENCY: COMPANY PROFILE

Financial Modelling Agency
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Staff

Dr. Graeme West is the director of Financial Modelling Agency. He obtained a PhD in mathematics in 1993, and worked in academia until 1997. Since then he has worked in the banking and finance industry, forming Financial Modelling Agency in 2003. He has completed several of the exams of the Mathematics of Finance Honours program at Wits University, and has received the FRM (GARP) and the PRM (PRMIA) certification. He builds solutions in Visual Basic and C++.
A complete résumé for Graeme is available on the Financial Modelling Agency website at http://www.finmod.co.za/ResumeGPWest2009.pdf.

Lydia West completed a B.Sc. in mathematics and computer science in 2003 and a B.Sc. Honours in mathematics in 2004, both with distinction. She then worked at several banks as a contractor until 2006. In 2007 she is completed the Mathematics of Finance Honours program at Wits University with distinction; in 2008 she commenced Masters studies by dissertation at the University of Stellenbosch. She is able to code in Java, Visual Basic, Matlab and C++.
A complete résumé for Lydia is available on the Financial Modelling Agency website at http://www.finmod.co.za/ResumeLWest2009.pdf.

We are available for work on projects worldwide. Due to Graeme West's disability and the need for physical assistance, we always travel as a team.

What we do

In 2009/10 clients have included (South African based unless otherwise indicated) Amabubesi, Bacarac, Brimstone, Lafarge, Central Rand Gold, Friedman & Associates Attorneys, Futuregrowth, ICAP (GBP), Multichoice, Old Mutual, Nedbank,

Royal Bafokeng Holdings, Netcare, Tiso, Telimatrix, OMSFIN, Shoprite, Wiphold, Peter Skerritt & Associates, SARS, ABSA, Steinhoff, and UCT.
Our core competencies are as follows:

- Building pricing models, with a significant preference for equity derivative pricing models, option skews and volatility surfaces, and curve building. Here we can either provide bespoke solutions, or provide on-site assistance in the implementation and testing of these models in existing systems.
- market risk calculators. We have a strong background in market risk management and risk measurement problems. For example, we have built stress testing and Value at Risk calculators for several clients.
- Valuations for MtM and audit purposes. Frequently we are introduced to clients who have a specific need for valuations which are outside of their particular domain of expertise. Typical examples are hedge effectiveness calculations, black economic empowerment (BEE) transactions and employee share option purchase schemes. In all cases we provide 'audit-ready' reports on the instruments.
- Teaching. Graeme West has given a one day introductory, and a two day advanced, course on risk measurement issues. He has provided training on various topics, such as derivative pricing, risk measurement, and preparation for GARP and PRMIA exams, at several clients. From 2001 to 2005 he lectured on a part time and consulting basis at the University of the Witwatersrand and from 2001 to present at the University of Cape Town; giving courses on South African Financial Markets, modern portfolio theory, risk measurement, exotic equity options, and interest rate derivatives. We are available to give courses on these and similar topics, on the use of excel and vba for financial modelling, etc.
- Ongoing research. We also pursuing 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 we undertake. As such, we believe very strongly in applied research.

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. URL http://www.finmod.co.za/interpreview.pdf.

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. http://www.finmod.co.za/prime.pdf.

Graeme West. Employee stock options. In *Corporate Treasury in South Africa*, pages 28–32. Treasury Management International, 2008. URL http://www.finmod.co.za/ESOsummary.pdf. 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. URL http://www.finmod.co.za/WestWestBEE.pdf.

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