
PERSONAL DETAILS

NAME: Gary Wayne van Vuuren
ADDRESS: 78 Royal Gallery, 12 Skerne Road, Kingston, KT2 5AD.
MOBILE: 079 5160 0577
HOME: 020 3566 2811
EMAIL: vvgary@hotmail.com
CITIZENSHIP: British and South African

EDUCATION

2005: PhD Risk management: North West University (Bond duration)
2003: FRM Financial Risk Manager: GARP
2001: BCom (Hons) Financial Analysis + Portfolio Management: University of Cape Town
2001: BA English, Archaeology: University of South Africa
2000: MCom Risk management: North West University (Value at Risk)
1998: Certificate Mathematical modelling of derivatives: University of South Africa
1996: HDE Higher Diploma of Education: Mathematics, Physics, UNISA
1993: PhD Nuclear physics: University of Natal
1989: MSc Astrophysics: University of Natal
1986: BSc (Hons) Physics: University of Natal
1985: BSc Physics & Mathematics: University of Natal

EXPERIENCE

4/2017 – 8/2017 European Central Bank, Antwerp (Brussels)

Model analyst for TRIM (Targeted Review of Internal Models) project (contract).

3/2015 – 12/2016 Aviva Investors, London

Head: model validation: independently perform and document analysis and testing of pricing models, market risk models and performance assessment models, perform stress testing analysis on models to determine model reliability and robustness, document and present findings to risk group and relevant model owners, liaise with model builders to repair, augment and improve models, contribute toward continuous innovation and improvement in efficiency and effectiveness of processes within risk group, invoke continuous quantitative research (including optimisation of portfolio returns constrained by tracking errors, information ratios, etc.) and publicise the findings.

3/2016 – 8/2016 Berkeley Research Group

Contracting role (3 days per week) as subject matter expert (regulatory capital concerns) for BRG acting on behalf of a legal team representing a major litigation case involving a UK bank. Completed Aug 2016.

1/2006 – 3/2015 Fitch Ratings, London

Senior director – Special Projects Group: Global head of corporate finance model management

Interpret all aspects of Basel III proposals, develop and implement model of these proposals to assess financial institution information and educate analysts and management regarding the implications of the proposals.

Develop Basel II models for internal validation, explain complex concepts to analysts, write and coordinate the production of research reports, undertake and coordinate research on regulatory and economic capital, develop research on Basel II and III IRB-models and validation thereof (e.g. concentration risk, collateral treatment, 'arbitrage' opportunities, loss given default issues, point in time and through the cycle PD issues), quantitative analysis of Joint Probability of Default policy, counterparty valuation adjustment (CVA) modelling, assess and evaluate transition ma-

trices of financial institution default and failure rates, review the use of existing models in the rating process and recommend improvements to these, establish methodology for the assessment of UK mortgage lenders' exposure to residential property losses (and stress tests for commercial property losses), determine and implement methodology for assessment of banks' liquidity profile, ensure analysts are familiar with IRB-Models and the validation process through regular training to non-quantitative personnel, develop and deliver a risk courses (including market and operational) for analysts.

7/2005 – 12/2005 **Merrill Lynch, London**

Product control – fixed income

5/2004 – 6/2005: **Manager: Ernst and Young, London**

- Head of Derivatives Valuation Centre quantitative group (6 in team)
- Consulting in credit and market risk, model building, derivative and other quantitative valuations. Major London investment banks and insurance institutions as clients.

12/2002 – 5/2004: **Model Validation, Market Risk, Standard Bank Ltd, London**

- Credit risk analysis – hazard rate model building, extracting probability of default measures from credit spreads, duration analysis
- Spreadsheet model building to replicate third party system (Front *arena*) output for final implementation onto trading floor and for use in back office
- Includes: pricing and validation using different day count bases, amortising, pay methods for bonds, equities, FX contract and all derivatives including credit derivative instruments, total return swaps, convertibles, etc.
- Spreadsheet testing makes use of Microsoft Excel – differences are collated and findings reported if and where results differ in *User Acceptance Testing* documents.
- Data testing: checking and correcting data input errors which arise during downloads from, for example, Bloomberg.
- Risk management testing including stress testing, VaR and global risk sensitivities.
- This testing is necessary for confidence in the third party system prior to its general rollout for use by the bank as a whole (December, 2003).

7/1999 – 8/2002: **Risk Management (Quantitative Investment Projects Group), Old Mutual Asset Managers, Cape Town**

- Spreadsheet quantitative risk analysis on all hedge fund, pension, unit trust, private equity portfolios and some structured products
- Involved mathematical modelling and interpretation of all risk parameters including volatilities and cross correlations, tracking errors, time evolution of stochastic variables, Sharpe, Sortino and Information ratios, risk attribution and return attribution.
- Reporting directly to fund managers regarding tracking errors, risk parameters, ratios and quantitative feedback as required and analysis, collation and presentation of a monthly risk report for all unit trusts, pension funds and institutional investors.
- Model development was also sometimes required for tracking error attribution, VaR for portfolios, etc. including validation of these models and subsequent maintenance.
- Generation and maintenance of yield curves for fixed income pricing and forecasting. This included, e.g. cubic + quartic spline interpolation, exponential scenario generation for potential yield node point moves.
- Development of VaR models for portfolios: this included both variance/covariance and historical techniques as well Monte Carlo scenario generation. The latter used Cholesky decomposition (built in Excel) for simple-but-quick simulation testing.
- Portfolio optimisation models (including e.g. the Black Litterman) were sometimes required including development and maintenance of asset allocation models.

- Most analysis and development performed in Excel using Visual Basic macros.

2/1997 – 6/1999: Risk Analysis Section, ABSA Head Office, Johannesburg.

- Statistical analysis of volatility and correlation data
- Establishing, monitoring and assessing daily Value at Risk for various instruments and portfolios
- Assessment of efficiency of use of risk capital and pricing of derivative products,
- Investigating factors which influence choice of statistical model used
- Determination of distribution of returns (Generalised Error Distribution, Normal, Mixture models)
- Value at Risk modelling, specific risk analysis
- Testing validity of mathematical models used
- Yield curve construction.

7/1995 – 5/1996: Goldman Sachs, London.

- Data analyst in the London Data Resource Group
- Used various databases (including SDT, DataStream, Euromoney Bond and LoanWare,)
- At the end of this period I was offered the position of Head of the Data Resource Group, but declined as I wished to return to South Africa.

1994 – 1997: Technikon Pretoria, Senior Lecturer.

- Lecturing to 1st through 4th year students in mathematics & physics
- Supervision of lab sessions
- Setting and marking of term tests and end of year examinations
- Formulation of syllabi and establishment of new course work and material.
- Supervision of postgraduate students.

1993 – 1994: Hollandia Reinsurance Group, Actuarial Assistant.

- Mortality/morbidity studies
- Actuarial investigations including statistical analysis and evaluation of data.

1990 – 1993: Atomic Energy Corporation, Scientist

- Maintenance of nuclear fusion device, training of technicians and interpretation of physical data, presentation and publication of results in form of papers in scientific journals.

PAPERS

- Liebenberg, F., van Vuuren, G. and Heymans, A. 2017. Contingent convertible bonds as countercyclical capital measures. *SA Journal of Economics and Management Sciences*, 20(1): 1 – 17.
- Rambo, J. and van Vuuren, G. 2017. An Omega ratio analysis of global hedge fund returns, *Journal of Applied Business Research*, 33(3): 1 – 22.
- Karp, A. and van Vuuren, G. 2017. The Capital Asset Pricing Model and Fama-French three factor model in an emerging market environment. *Journal of Applied Business Research*, 34(3): 1 - 22.
- Kesler, R., Cohen, S. and van Vuuren, G. 2017. Determinants of Premier League player transfer fees. Submitted to *Journal of Sports Science*.
- Patel, K., Mohamed, A. and van Vuuren, G. 2017. A regression and comparative study of US and South African yield curves using principal component analysis. Accepted for publication in *SAJEMS*.
- Thomson, D. B. and van Vuuren, G. 2016. Forecasting the South African business cycle using Fourier Analysis, *International Business and Economics Research Journal*, 15(4): 175 – 192.

- Thomson, D. B. and van Vuuren, G. 2017. Attribution of hedge fund returns using a Kalman filter. Accepted for publication in *Applied Economics*.
- Thomson, D. B., Maxwell, M., Daly, M. and van Vuuren, G. 2017. Optimising tracking error-constrained portfolios. *Submitted to Journal of Asset Management*.
- van Vuuren, G. W. and de Jongh, R. 2016. A comparison of risk aggregation estimates using copulas and Fleishman distributions, *Journal of Applied Economics*, 49(17): 1715 – 1731.
- King, J. and van Vuuren, G. W. 2017. Flagging potential fraudulent investment activity. *Journal of Financial Crime*, 24(1): 24–52.
- De Jongh, R., de la Rey, T., Larney, J. and van Vuuren, G. 2014. A proposed best practice model validation framework for banks, *South African Journal of Economic and Management Sciences*, 20(1): 208 – 228.
- Fourie, E., de la Rey, T. and van Vuuren, G. 2015. A proposed quantitative credit rating methodology for South African provincial departments, *SA Journal of Economics and Management Sciences*, 19(2): 192 – 214.
- Fourie, E., de la Rey, T. and van Vuuren, G. 2015. Testing the appropriateness of a quantitative credit rating methodology for a SA subnational Submitted to *SAJEMS*.
- Hargarter, A. and van Vuuren, G. 2017. Assembly of a conduct risk regulatory model for developing market banks, *SA Journal of Economics and Management Sciences*, 20(1): 1 – 11.
- Liebenberg, F., van Vuuren, G. and Heymans, A. 2016. Pricing contingent convertible bonds in African banks. *SA Journal of Economics and Management Sciences*, 19(3): 369 – 387.
- Stoffberg, H. and van Vuuren, G. W. 2016. Asset correlation in single factor credit risk models: an empirical investigation, *Journal of Applied Economics*, 48(17): 1602 – 1617.
- van Vuuren, G. and Yacumakis, R. 2014. The Kalman filter and hedge funds time-varying alpha and beta, *Journal for Studies in Economics and Econometrics*, 39(3): 1 – 23.
- Burra, V., de Jongh, D., Raubenheimer, H., van Vuuren, G. and Wiid, H. 2015. Implementing the countercyclical capital buffer in South Africa: practical considerations, *SAJEMS*, 18(1): 105 – 127.
- Jacobs, J. and van Vuuren, G. 2014. A case for economic capital as a Pillar 1 regulatory tool, *SAJE*, 82(2): 290 – 314.
- Maxwell, D. and van Vuuren, G. 2014. A review and update of Value at Risk, *SEE*, 38(3): 47 – 69.
- Prettejohn, B. and van Vuuren, G. 2016. The effect of yield curve shape on bond immunisation effectiveness, *Investment Analysts Journal*, 45(3): 177 – 193.
- Styger, A., van Vuuren, G. and Heymans A. 2014. Case study of postgraduate student dropout rate at South African universities, *IBER*, 14(1): 1 – 13.
- Styger, A., van Vuuren, G. and Heymans A. 2014. Government funding framework for SA higher education institutions, *SA Journal of Higher Education*, 29(2): 232 – 249.
- Swanepoel, E., Esterhuysen, J. & van Vuuren, G. 2014. Assessing reputational risk: an international four point matrix, submitted to *SAJEMS*
- van Dyk, F., van Vuuren, G. and Heymans, A. 2014. Hedge Fund performance using Scaled Sharpe and Treynor measures, *IBER*, 13(6): 1261 – 1300.
- van Dyk, F., van Vuuren, G. and Heymans, A. 2014. Hedge fund performance evaluation using the Sharpe and Omega ratios, *IBER*, 13(3): 485 – 512.
- van Dyk, F., van Vuuren, G. and Heymans, A. 2014. The bias ratio as a hedge fund fraud indicator: an empirical performance study under different economic conditions, *IBER*, 13(4): 867 – 896.
- van Greunen, J., Heymans, A., van Heerden, C. and van Vuuren, G. 2014. The prominence of stationarity in time series forecasting, *SEE*, 38(1): 1 – 16.
- van Heerden, C. and van Vuuren, G. 2014. Establishing the relative competitiveness of SA banking shares: a Kalman Filter approach, *Journal of Applied Business Research*, 31(2): 539 – 572.
- van Heerden, C., Heymans, A., van Greunen, J., van Vuuren, G. 2014. Diligence in determining the correct form of stationarity, *Acta comercii*, 14(1): 37 – 51.
- van Heerden, C., Heymans, A., van Vuuren, G. and Brand, W. A. 2014. Risk-adjusted performance evaluation of US and EU hedge funds and associated equity markets over the 2007-2009 financial crisis, *IBER*, 13(1): 169 – 189.

- van Vuuren, G. and Esterhuysen, J. 2014. A primer on counterparty valuation adjustments in South Africa, *SAJEMS*, 17(5): 584 – 600.
- Visser, D. and van Vuuren, G. 2014. Evaluating illiquidity and systemic contagion in South African banks, *SA Journal of Economics and Management Sciences*, 19(1): 118 – 138.
- Chisté, C. and van Vuuren, G. 2014. Investigating the cyclical behaviour of the dry bulk market, *Maritime Policy and Management*, 41(1): 1 – 19.
- Fourie, E., Styger, P., de la Rey, T., and van Vuuren, G. 2013. Review of subnational credit rating methodologies and the applicability in the South African context, *Politeia*, 32(3): 74 - 99.
- Jacobs, J., van Vuuren, G. and Styger, P. 2012. The regulatory treatment of liquidity risk in South Africa, *South African Journal of Economics and Management Sciences*, 15(3): 294 – 308.
- van Vuuren, G. 2012. Basel III countercyclical capital rules: implications for South Africa, *South African Journal of Economics and Management Sciences*, 15(3): 309 – 324.
- Esterhuysen, J., van Vuuren, G. and Styger, P. 2012. Liquidity creation in South African banks under stressed economic conditions, *South African Journal of Economics*, 80(1): 106 – 122.
- van Dyk, F., van Vuuren, G. 2012. Improved investment performance using the portfolio diversification index, *Journal of Economic and Financial Sciences*, 5(1): 153 – 173.
- van Vuuren, G. 2011. Modelling systemic liquidity risk with feedback effects in the UK banking sector, *Risk Management in Financial Institutions*, 5(1): 36 – 59.
- Smit, W., van Vuuren, G. and Styger, P. 2011. Economic capital for credit risk in the trading book, *South African Journal of Economics and Management Sciences*, 14(2): 138 – 154.
- Esterhuysen, J., van Vuuren, G. and Styger, P. 2011. The effect of stressed economic conditions on credit risk in Basel II, *South African Journal of Economics and Management Sciences*, 14(2): 122 – 137.
- Holemans, N., van Vuuren, G. and Styger, P. 2011. Pricing weather derivatives for the Chardonnay cultivar in Wellington using a credit default swap methodology, *Agrekon*, 50(4): 25 – 44.
- Esterhuysen, J. and van Vuuren, G. 2010. The effect of stressed economic conditions on operational risk loss distributions, *South African Journal of Economic and Management Sciences*. 13(4): 477 – 492.
- Esterhuysen, J. and van Vuuren, G. W. 2011. The effect of stressed economic conditions on systemic risk within the South African banking sector. *South African Journal of Economics*, 12(1): 270 – 289.
- Botha, M. and van Vuuren, G. 2010. Implied asset correlation in retail loan portfolios, *The Journal of Risk Management in Financial Institutions*, 3(2): 156 – 173.
- Morris, Q., van Vuuren, G. and Styger, P. 2009. Further evidence of long memory in the South African stock market, *South African Journal of Economics*, 77(1): 81 – 101.
- van Vuuren, G. and Botha, M. 2009. Retail credit capital charge optimisation and the new Basel Accord, *The Journal of Risk Management in Financial Institutions*, 2(3): 265 – 283.
- Esterhuysen, J., Styger, P. and van Vuuren, G. 2008. Calculating operational Value at Risk in a retail bank, *South African Journal of Economics and Management Sciences*, 11(1): 1 – 16.
- van Vuuren, G. and Styger, P. 2008. Adjusting the Macaulay Duration for defaultable and option-embedded securities, *SA Journal of Economics and Management Sciences*, 11(2): 172 – 189.
- van Vuuren, G. and Styger, P. 2006. Duration analysis in South Africa: the search for superior measures, *South African Journal of Economics*, 74(2): 266 – 293.
- McLeod, W. and van Vuuren, G. 2004. Interpreting the Sharpe Ratio when excess returns are negative, *Investment Analysts Journal*, 59(1): 15 – 20.
- van Vuuren, G., Botha, M. and Styger, P. 2003. Risky Business, *GARP Risk Review*, Nov. 16 – 20.
- van Vuuren, G., Botha, M. and Styger, P. 2001. The Vagaries of portfolio risk measurements, *SAFA conference paper*, Cape Town, January.
- Botha, M., van Vuuren, G., Styger, P. 2001. The effect of a dynamic exponential decay factor on volatility and VaR, *PJAS*, 1(1): 24 – 32.
- van Vuuren, G., Botha, M. and Styger, P. 2000. Effects of a changing Lambda, *South Africa: A Risk Special Report, Risk Supplement*, 22 – 25.

- Botha, M., van Vuuren, G. and Styger, P. 2000. Mean reversion of rates and prices in the SA market, *Studies in Economics and Econometrics*, 24(1): 55 – 67.
- Botha, M. and van Vuuren, G. 1999. The Silence of the Lambdas, South Africa: *A Risk Special Report, Risk Supplement*, 22 – 24.
- van Vuuren, G., Roberts, D. and Fletcher, J. 1996. Edge turbulence and particle transport in Tokoloshe tokamak, refereed for inclusion in *Nuclear Fusion*.
- Roberts, D. and van Vuuren, G. 1993. High frequency vibrations of coupled tearing modes in a tokamak plasma, *Plasma Physics and Controlled Fusion*, April 1993, 35(2): 1585 – 1596.
- van Vuuren, G., Balona, L. and Marang, F. 1988. Periodic Stars in NGC 3766, *Monthly Notices of the Royal Astronomical Society*, 234(5): 373 – 387.
- Catchpole, R., Menzies, J. W., et al (incl. van Vuuren, G.) 1987. Spectroscopic and photometric observations of SN 1987a-II. Days 51 to 134, *Monthly Notices of the Royal Astronomical Society*, 229(4): 15 – 25.
- Menzies, J., Catchpole, R. M. and van Vuuren, G. 1987. Spectroscopic and photometric observations of SN 1987a. The first 50 days, *Monthly Notices of the Royal Astronomical Society*, 227(2): 39 – 49.

LECTURING

INSTITUTION	COURSES	CONTACT
Sussex University, Brighton	Visiting professor: Masters risk management. 2013 – 2014.	Prof Carol Alexander
Metropolitan University, London	Visiting Professor, Economics and financial mathematics: 2009 – 2015	Prof Roman Matousek 077 8952 3278
Brunel University: Mathematics Department, London	Visiting professor: Fixed income valuation, Value at Risk methods, Basel II and operational risk since 2004 Supervised Masters and PhDs 2005 – 2015	Prof Gautam Mitra 0779 617 2727
University of the Orange Free State: Department of Financial Mathematics, South Africa	Associate professor MBA fixed income valuation, Value at Risk methods, market + credit risk. Since 2005 Supervision of PhD & Masters students	Prof Helena van Zyl, +2751 401 2874
North West University: Department of Economics, South Africa	Extraordinary professor Risk methods, market + credit risk: since 2007 Supervision of PhD & Masters students	Prof Wilma Viviers, +2718 299 1398
Senior Lecturer (part time) at University of Cape Town, School of Economics	Statistics and econometrics, fixed income valuation, risk, derivative securities, (4 th year University level) course: 2001 → 2003 Supervision of Honours projects since 2011	Prof Haim Abraham +2721 650 2720

INTERESTS

Road running:

10 Comrades marathons (92km) completed, 3 'Two Oceans' marathons and 100 marathons completed including: London (1996), New Zealand Millennium (2000), Paris (2003), Barcelona (2003), Nepal Everest (2003), Honolulu (2003), Zürich (2004), Stockholm (2004), Budapest (2004), Venice (2004), New York (2004), Florence (2004), San Francisco (2005), Jungfrau (2005), Berlin (2005), Amsterdam (2005), Dublin (2005), Vancouver (2006), Rio de Janeiro (2006), Athens (2006), Las Vegas (2006), Walt Disney – Florida (2007), Phuket (2007), Reykjavik (2007), Loch Ness (2007), Reggae – Jamaica (2007), Mumbai (2008), Big Sur (2008), Mont Blanc (2008), Kinabalu (Malaysia – 2008), Sydney (2008), Nice to Cannes (2008), Mauritius (2009), Madagascar (2009), Lake Tahoe (2009), Istanbul (2009), Miami (2010), Mount Rushmore (2010), Robin Hood (2010), Antarctica Marathon (2010) – 100th marathon and 7th continent.

Mountaineering: Member of Magaliesberg Section of *The Mountain Club of South Africa* since May 1992. Served on committee for 6 years (newsletter editor & Journal sub-editor 6 years, club evenings organiser: 3 years, Search & Rescue: 5 years. International Year of the Mountains co-ordinator (2002). Member of Cape Town Section of MCSA 8/99 –8/02.

- Climbed extensively in Kwa-Zulu Natal Drakensberg, Magaliesberg, Western Cape, Wales, Peak District, UK.
- Mont Blanc 1995, Aconcagua 1997, Kilimanjaro 1998, 2004 & 2017, Everest Base Camp 2003, trans Alps trek 2005 & 2007, El Capitan 2008, Mt Kenya 2010, Mt Mulanje 2012, Eiger 2012, Mt Elbrus 2012.

Mountain biking: Argus Cycle Tour (120km): 1998, 2000, 2001, 2002, 2017.

Land's End to John o' Groats: 2016.

Extensive cycles around the UK since 2002.