CAROL OLIVIA ALEXANDER

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EDUCATION

1976	B.Sc. (Sussex) in Mathematics with Experimental Psychology (First Class)
1980	Ph.D. (Sussex) in Algebraic Number Theory (Supervised by Walter Ledermann)
1985	M.Sc. (LSE) in Mathematical Economics and Econometrics

PREVIOUS APPOINTMENTS

1977 – 1978	Editor, John Wiley (one year interim PhD research)
1981 – 1982	Postdoctoral Research Fellow, University of Amsterdam
1982 – 1983	Bond Analyst, UBS Phillips and Drew, London
1983 – 1985	Teaching and Research Assistant, London School of Economics (part-time)
1985 – 1996	Lecturer in Mathematics and Economics, University of Sussex
1996 – 1998	Lecturer in Mathematics, University of Sussex (part-time)
1996 – 1998	Academic Director, Algorithmics Inc., London (part-time)
1998	Director, Head of Market Risk Modelling, Nikko Securities, London
2000 – 2008	Director of Research, ICMA Centre
1999 – now	Chair of Financial Risk Management, ICMA Centre

GRANTS

1981	Leverhulme Foundation, post-doctoral research grant, University of Amsterdam
1986	Nuffield Foundation, award for new lecturers in science, University of Sussex
1994	ESRC, research grant for time series analysis in financial markets
2003	Foundation for Managed Derivatives Research, grant for research into hedge funds
2003	British Academy, research grant (with S. Burke, Henley Business School)
2005	Australian Prudential Regulatory Authority, research grant (with E. Sheedy, Macquarie)
2008	Europlace Institute of Finance, research grant (with S. Ohana, ESCP-EAP)

HONOURS, PATENTS and AWARDS

1996	Winner, First International Non-Linear Financial Forecasting Competition (with Ian Giblin)
2002	Honorary Professorship, Academy of Economic Sciences, Bucharest
2003	International Financial Risk Institute, 9th roundtable award
2007	Professional Risk Managers International Association Higher Standard Award (with Robert Merton)
2009	U.S. Patent Number 7,571,130: Hedging exchange traded mutual funds or other portfolio basket products (with NYSE, http://www.google.com/patents/US20030233302)
2011	U.S. Patent Number 7,979,336: A System for pricing financial instruments (with NYSE, http://www.google.com/patents/US7979336)

EXTERNAL ACADEMIC ACTIVITIES

1999 – 2000	Visiting Research Fellow, OCIAM, Oxford University
2001 – now	Honorary Professor, Academy of Economic Studies, Bucharest
2003 – 2006	Expert Witness, Richards Butler, London
2007 – now	Editorial Board, Journal of Portfolio Management
2011 – now	Editorial Board, Journal of Investment Strategies
2011 – now	External Assessor, PhD Programme in Economic and Finance, St. Gallen University
2011 – now	Member of CFA Advisory Council

Selected keynotes at professional conferences

2003	9th Annual Round Table of the International Financial Risk Institute (IFRI, London)
2003	1st International Congress on Financial and Derivatives Markets, (BM&F, Brazil)
2007	Risk and Return Russia, (Incisive Media, Moscow)
2009	Quant Congress USA (Incisive Media, New York)
2010	Changing Risk Landscape Dinner (Financial Times, London)

Selected plenary talks at academic conferences

2003	New Directions in Risk Management, Frankfurt
2004	German Finance Association 9th Annual Congress, Augsburg
2004	Campus for Finance, Germany
2005	Quantitative Methods in Finance Conference, Sydney
2008	3rd Annual Mathematics in Finance International Conference, Kruger, South Africa
2010	Finance and Information Management Conference, HVB-Institute for Mathematical Finance, Munich
2011	Campus for Finance, Germany

Selected workshops, seminars and conferences

2009/8/7	Quant Congress Europe (London)
2010	FOW Derivatives World (London)
	Post-Crisis Risk Measurement (CFA UK)
2011	Model risk validation seminar (Paris)
	PRMIA (series of webinars)

Further details on request

Selected refereeing

Journal of Banking and Finance, Financial Analysts Journal, Finance and Stochastics, Quantitative Finance, Journal of Portfolio Management, Journal Futures Markets, Journal Economic Dynamics and Control, Journal Applied Econometrics, Journal Financial Econometrics, Journal of Business, Finance and Accounting, International Journal of Theoretical and Applied Finance, European Financial Management, Annals of Econometrics, Applied Mathematical Finance, Journal of Alternative Investments, Applied Financial Economics, European Journal of Finance, Finance Letters, European Journal of Operational Research

Selected PhD Examining

2008	External Examiner	Imperial College Student of Mark Davis
2009	External Examiner	University Paris-Dauphine Student of Helyette German

INDUSTRY LINKS

Consultancy

1990 – 1991	First generation GARCH models, Hill Samuel Bank, London
1992	Volatility trading models, Equitable House Investments, London
1994 – 2003	Hedge-fund software design, Pennoyer Capital Management, New York
1996 – 1997	Spot-futures arbitrage models, EDF Man, London
1996	Internal value-at-risk model implementation, Shell Pension Fund, Netherlands
1997 – 1998	Orthogonal GARCH models, Robert Fleming, London
2001 – 2007	High frequency pricing and hedging of active exchange traded funds, NYSE Amex LLC, New York
2007 – 2008	Risk Research Advisor, SAS International
2009 – 2010	Value-at-risk model design, Credit Agricole Asset Management, London

Professional Risk Manager's International Association

2002 – 2009	Founding Chair of the Academic Advisory Council
2003 – 2004	Produced Professional Risk Manager's Handbook (with E. Sheedy, Macquarie)
2007	Recipient of Higher Standard Award (with R. Merton)
2009 – now	Board Member
2010 – now	Chair of Board

PRMIA is run by over 600 volunteers from academia and the industry
Supported by approx 20 full-time staff
Currently 78,000 members worldwide

TEACHING

1985 – 1998	**Lecture Courses**	**University of Sussex**
	Econometrics, post-graduate	Economics Group
	Maths for Economists, 2yr under-graduate	Economics Group
	Maths for Biologists, 1yr under-graduate	Mathematics Group
	Group Theory, 2yr under-graduate	Mathematics Group
	Linear Algebra, 1yr under-graduate	Mathematics Group
1985 – 1998	**Seminars and Workshops**	**University of Sussex**
	Microeconomics, 2yr undergraduate	Economics Group
	Macroeconomics, 2yr undergraduate	Economics Group
	Statistics, 2yr undergraduate	Mathematics Group
	Game Theory, postgraduate	Mathematics Group
2000 – now	**MSc Lecture Courses**	**University of Reading**
2000 – 2004	Market Risk	ICMA Centre
2004 – now	Volatility Analysis	ICMA Centre
2005 – now	Quantitative Methods for Finance	ICMA Centre

ADMINISTRATION

1985 – 1999	**Convenor of BSc Courses** Maths with Economics Economics with Maths	**University of Sussex**
2005 – now	**Convenor of MSc Programmes** Introduced first Financial Risk Management MSc in UK First MSc programme in Europe awarded PRM accreditation Introduced Financial Engineering MSc	**ICMA Centre**
2005 – now	**Elite Postgraduate Exchange** Student exchange with HVB-Institute for Mathematical Finance Initiated programme, supervising student's dissertations	**ICMA Centre-TU Munich**
2005 – 2006	**Convenor MSc Research Projects** Student handbook Developed LMS site Supervisor allocation Student support	**ICMA Centre**
2000 – 2008	**Director of Research** Introduced online discussion paper series Introduced weekly research seminars Research strategy and plan Mentoring of junior colleagues Management of website research section	**ICMA Centre**
2008 – now	**Director of Enterprise** Industry links Research funding Student placements	**ICMA Centre**

PhD SUPERVISION

Current PhD Students with Expected Year of Completion

2012	Dimitris Korovilas	VIX Futures
2013	Annanit Sumawong	Pricing and Hedging Oil Derivatives
2013	Xi Chen	Real Options, Game Options and Investment Decisions
2014	Johannes Rauch	Trading the Skewness Risk Premium

Past PhD Students with Current Occupation

2004	Ali Bora Yigitbasioglu	Defaultable Convertible Bonds with Volatility Uncertainty and Call Notice Periods
	Senior portfolio manager emerging markets rates and FX macro prop trading Cambridge Strategy, London	
2004	Anca Dimitriu	Portfolio Optimization Models for Traditional and Alternative Investments
	Prop trader, Millenium Capital Partners	
2005	Dmitri Lvov	Pricing Convertible Bonds and Bermudan Swaptions by Monte Carlo Simulation
	VP commodities quant research, JP Morgan-Chase Bank, London	
2006	Leonardo Nogueira	Pricing and Hedging Options with Local and Stochastic Volatility Models
	Lecturer in finance, ICMA Centre Head of quant research, Brazilian Central Bank	
2006	Emese Lazar	Multi-State Volatility Models: Theory and Applications
	Lecturer in finance, ICMA Centre	
2007	Andreza Barbosa	Pricing and Hedging Exchange Traded Funds
	VP prime brokerage and OTC clearing risk JP Morgan-Chase Bank, London	
2008	Naoufel El Bachir	Stochastic Default Intensity Modeling with Dependent Jump Processes
	Launching new credit ratings software company	
2008	Aanand Venkatrammanan	Multi-Asset Option Pricing
	Algorithmic trader, Goldman Sachs, London	
2010	Joydeep Lahiri	Jump Diffusions for Modelling Default Intensity
	Senior analyst, Hermes Asset Management, London	
2010	Stamatis Leontsinis	Model-Free Moment Indices
	Quantitative analyst, Fulcrum Asset Management, London	
2010	Silvia Stanescu	Analytic Moments for GARCH Processes
	Lecturer in finance, Kent University	
2010	Andreas Kaeck	Equity Index and Index Derivative Dynamics
	Post-doc researcher, ICMA Centre	
2010	Daniel Ledermann	Random Orthogonal Matrix Simulation
	Quantitative analyst, Sungard, London	

Further details: http://www.carolalexander.org/phd_students.php.

PUBLICATIONS

Refereed Academic Journal Articles

1. Alexander, C., Cordeiro, G., Ortega, E. and J-M. Sarabia. Generalized beta generated distributions. *Computational Statistics and Data Analysis*. DOI:10.1016/j.csda.2011.11.015
2. Alexander, C. and A. Venkatramanan (2011) Analytic approximations for multi-asset option pricing. *Mathematical Finance*. DOI: 10.1111/j.1467-9965.2011.00481.x
3. Alexander, C. and A. Kaeck. (2011) Does model fit matter for hedging? Evidence from FTSE 100 options. *Journal of Futures Markets*. DOI: 10.1002/fut.20537
4. Venkatramanan, A. and C. Alexander (2011) Closed-form approximations for spread options. *Applied Mathematical Finance*. DOI:10.1080/1350486X.2011.567120
5. Kaeck, A. and C. Alexander (2011) Stochastic volatility jump-diffusions for European equity index dynamics. *European Financial Management*. DOI: 10.1111/j.1468-036X.2011.00613.x
6. Alexander, C., A. Rubinov, M. Kalepky and S. Leontsinis (2011) Regime-dependent smile-adjusted delta hedging. *Journal of Futures Markets*. DOI: 10.1002/fut.20517
7. Ledermann, W., Alexander, C. and D. Ledermann (2011) Random orthogonal matrix simulation. *Linear Algebra and its Applications*, 434, 1444-1467
8. Alexander, C. and E. Lazar (2009) Modelling regime-specific stock price volatility. *Oxford Bulletin of Economics and Statistics*, 71:6, 761 - 797
9. Alexander, C., A. Kaeck and L. Nogueira (2009) Model risk adjusted hedge ratios. *Journal of Futures Markets*, 29:11, 1021-1045
10. Alexander, C. and E. Sheedy (2008) Developing a stress testing framework based on market risk models. *Journal of Banking and Finance*, 32:10, 2220-2236
11. Alexander, C. and A. Kaeck (2008) Regime dependent determinants of credit default swap spreads. *Journal of Banking and Finance*, 32:6, 1008 - 1021.
12. Alexander, C. and A. Barbosa (2008) Hedging exchange traded funds. *Journal of Banking and Finance*, 32:2, 326-337
13. Alexander, C. and L. Nogueira (2007) Model-free price hedge ratios for homogeneous claims on tradable assets. *Quantitative Finance*, 7:5, 473 - 479
14. Alexander, C. and A. Barbosa (2007) Effectiveness of minimum variance hedging. *Journal of Portfolio Management*, 33:2, 46 - 59
15. Alexander, C. and L. Nogueira (2007) Model-free hedge ratios and scale-invariant models. *Journal of Banking and Finance*, 31:6, 1839-1861
16. Yigitsbasioglu, A. and C. Alexander (2006) Pricing and hedging convertible bonds: delayed calls and uncertain volatility. *International Journal of Theoretical and Applied Finance*, 9:2, 415-437
17. Alexander, C. and E. Lazar (2006) Normal mixture GARCH 1,1 : applications to foreign exchange markets. *Journal of Applied Econometrics*, 21:2 307-336
18. Alexander, C. and A. Dimitriu (2005) Rank alpha funds of hedge funds. *Journal of Alternative Investments*, 8:2, 48-61
19. Alexander, C. and A. Dimitriu (2005) Detecting switching strategies in equity hedge funds returns. *Journal of Alternative Investments*, 8:1, 7-13

20. Alexander, C. (2005) The present and future of risk management. *Journal of Financial Econometrics*, 3:1, 3-25
21. Alexander, C. and A. Barbosa (2005) The spider in the hedge. *Review of Futures Markets*, 11:1, 89-113
22. Alexander, C. and A. Dimitriu (2005) Indexing and statistical arbitrage: tracking error or cointegration? *Journal of Portfolio Management*, 31:2, 50-63
23. Alexander, C. and A. Dimitriu (2005) Indexing, cointegration and equity market regimes. *International Journal of Finance and Economics*, 10, 213-231
24. Alexander, C. and A. Scourse (2004) Bivariate normal mixture spread option valuation. *Quantitative Finance*, 4:6 1-12
25. Alexander, C. (2004) Normal mixture diffusion with uncertain volatility: modelling short and long term smile effects. *Journal of Banking and Finance*, 28:12, 2957-2980
26. Alexander, C. and A. Dimitriu (2004) Sources of out-performance in equity markets: common trends, mean reversion and herding. *Journal of Portfolio Management*, 30:4, 170-185
27. Alexander, C. and A. Dimitriu (2004) Equity indexing: optimising passive investments. *Quantitative Finance*, 4:3 C30 - C33
28. Alexander, C. (2002) Principal component models for generating large covariance matrices. *Review of Banking, Finance and Monetary Economics, Economic Notes*, 31:2, 337-359
29. Alexander, C., I. Giblin and W. Weddington (2002) Cointegration and asset allocation: a new active hedge fund strategy. *Research in International Business and Finance*, 16, 65-90
30. Alexander, C. (2000) Measuring operational risks with Bayesian belief networks. *Derivatives, Use Trading and Regulation*. 6:2, 166-196
31. Alexander, C. (1999) Optimal hedging using cointegration. *Philosophical Transactions of the Royal Society Series A*, 357, 2039-2058
32. Alexander, C. and C. Leigh (1997) On the covariance matrices used in value-at-risk models. *Journal of Derivatives*, 4:3 50-62
33. Alexander, C. and I. Giblin (1996) Multivariate embedding methods: forecasting high-frequency data in the first international non-linear financial forecasting competition. *Journal of Computational Intelligence in Finance*, 5:6, 17-24
34. Alexander, C. and W. Ledermann (1996) Are Nash bargaining wage agreements unique? An investigation into bargaining sets for firm/union negotiations. *Oxford Economic Papers*, 48:2, 1-11
35. Alexander, C. and J. Wyeth (1996) Causality testing in models of spatial market integration. *Journal of Development Studies*, 32:1, 144-146
36. Alexander, C. (1996) Evaluating the use of RiskMetrics as a risk measurement tool for your operation. *Derivatives: Use Trading and Regulation*, 2:3, 277-285
37. Alexander, C. and H. Rendall (1995) Data generation processes of spatial series: Analysis of ephemeral channel form. *Geographical Analysis*, 27:1, 78-93
38. Alexander, C. (1995) Common volatility in the foreign exchange market. *Applied Financial Economics*, 5:1, 1-10.
39. Alexander, C. and J. Wyeth (1994) Cointegration and market integration: an application to the Indonesian rice market. *Journal of Development Studies*, 30:2, 303-308

40. Alexander, C. and M. Barrow (1994) Seasonality and cointegration of regional house prices in the UK. *Urban Studies*, 31:10, 1667-1689
41. Alexander, C. and W. Ledermann (1994) The constrained Nash bargaining solution. *Journal of the Operational Research Society*, 45:5, 954-958
42. Alexander, C. (1993) The changing relationship between productivity, wages and unemployment in the U.K. *Oxford Bulletin of Economics and Statistics*, 55:1, 87-102
43. Alexander, C. and A. Johnson (1992) Are foreign exchange markets really efficient? *Economics Letters*, 40, 449-453
44. Alexander, C., I. Giblin and D. Newton (1992) The symmetry of fractals. *Mathematical Intelligencer*, 14:2, 32-34
45. Alexander, C. (1992) The Kalai-Smorodinsky bargaining solution in wage negotiations. *Journal of the Operational Research Society*, 43:8, 779-786
46. Alexander, C. (1988) On a converse to the Tschebotarev density theorem. *Journal of the Australian Mathematical Society* Series A, 44, 287-293
47. Alexander, C. (1987) Duality in non-normal quartic fields. *American Mathematical Monthly*, 94, 279-284
48. Alexander, C. and W. Ledermann (1985) Integral bases of dihedral number fields. *Journal of the Australian Mathematical Society* Series A, 38, 351-371

Refereed Practitioner Journal Articles

49. Alexander, C. (2003) Common correlation and calibrating the lognormal forward rate model. *Wilmott* (March), 68-78
50. Alexander, C. (2002) Rules and models. *Risk*, 15:1, S2-S5
51. Alexander, C. (2001) Principles of the skew. *Risk* 14:1, S29- S32
52. Alexander, C. and R. Thillainathan (1996) The Asian connections. *Emerging Markets Investor*, 2:6 42-47
53. Alexander, C. and A. Johnson (1994) Dynamic links. *Risk*, 7:2, 56-61
54. Alexander, C. (1994) History debunked, *Risk*, 7:12, 59-63
55. Alexander, C. and I. Giblin (1994) Chaos in the system. *Risk*, 7:6, 71-76
56. Alexander, C. and N. Riyait (1992) The world according to GARCH. *Risk*, 5:8, 120-125
57. Alexander, C. (1984) Evaluation of index-linked gilts using inflation forecasts. *The Investment Analyst*, 72, 7-12

Non-Refereed Practitioner Journal Articles

58. Alexander, C. (2003) Operational risk aggregation. *Operational Risk* (April)
59. Alexander, C. (2001) Taking control of operational risk. *Futures and Options World*, 366, 60-65
60. Alexander, C. and J. Pezier (2001) Binomial gammas. *Operational Risk* (April)
61. Alexander, C. (2001) Taming the skew. *Futures and Options World*, 367, 60-65

Authored Books

62. Alexander, C. (2008) Market Risk Analysis, Volume I: Quantitative Methods in Finance. Wiley
63. Alexander, C. (2008) Market Risk Analysis, Volume II: Practical Financial Econometrics. Wiley
64. Alexander, C. (2008) Market Risk Analysis, Volume III: Pricing, Hedging and Trading Financial Instruments. Wiley
65. Alexander, C. (2008) Market Risk Analysis, Volume IV: Value at Risk Models. Wiley
66. Alexander, C. (2001) Market Models: A Guide to Financial Data Analysis. Wiley

Edited Books

67. Alexander, C. and E. Sheedy eds. (2008) The Professional Risk Manager's Guide to Finance Theory and Application. McGraw-Hill
68. Alexander, C. and E. Sheedy eds. (2008) The Professional Risk Manager's Guide to Financial Markets. McGraw-Hill
69. Alexander, C. and E. Sheedy eds. (2008) The Professional Risk Manager's Guide to Financial Instruments. McGraw-Hill
70. Alexander, C. and E. Sheedy eds. (2004) The Professional Risk Manager's Handbook: Volume 1, Finance Theory, Instruments and Markets. PRMIA Publications, Illinois
71. Alexander, C. and E. Sheedy eds. (2004) The Professional Risk Manager's Handbook: Volume 2, Financial Mathematics. PRMIA Publications, Illinois
72. Alexander, C. and E. Sheedy eds. (2004) The Professional Risk Manager's Handbook: Volume 3, Financial Risk Management. PRMIA Publications, Illinois
73. Alexander, C. ed. (2003) Operational Risk: Regulation, Analysis and Management. FT-Prentice Hall
74. Alexander, C. ed. (2001) Mastering Risk Volume II. FT-Prentice Hall
75. Alexander, C. ed. (2000) Visions of Risk. FT-Prentice Hall
76. Alexander, C. ed. (1998) Risk Management and Analysis Volume I: Measuring and Modelling Financial Risk. Wiley
77. Alexander, C. ed. (1998) Risk Management and Analysis Volume II: New Markets and Products. Wiley
78. Alexander, C. ed. (1996) The Handbook of Risk Management and Analysis. Wiley
79. Alexander, C. (1980-1990) The Handbook of Applicable Mathematics. Assistant editor volumes I - V and co-editor volume VI. Wiley

Book Chapters, Reports and Conference Papers

80. Alexander, C. (2008) Hedging the risk of energy futures portfolios. Risk-Management in Commodity Markets: From Shipping to Agriculturals and Energy, H. Geman ed., Wiley
81. Alexander, C. (2008) Moving average models for volatility and correlation. Handbook of Finance, Volume 1, F. J. Fabozzi ed., Wiley
82. Alexander, C. (2008) Statistical models of operational loss. Handbook of Finance, Volume 1, F. J. Fabozzi ed., Wiley

83. Alexander, C. and A. Venkatramanan (2008) Commodity options. Handbook of Commodity Investing, F.J. Fabozzi, R. Fuss and D.G. Kaiser eds., Wiley
84. Alexander, C. and A. Dimitriu (2006) Rank alpha funds of hedge funds. Fund of Hedge Funds: Performance, Assessment, Diversification and Statistical Properties, G. N. Gregoriou ed., Elsevier
85. Alexander, C. (2005) Assessment of operational risk capital. Risk Management: Challenge and Opportunity, M. Frenkel, U. Hommel and M. Rudolf eds., Springer
86. Alexander, C. and A. Dimitriu (2005) Hedge Fund Index Tracking. Hedge Funds: Insights in Performance Measurement, Risk Analysis, and Portfolio Allocation, G.N. Gregoriou, G. Hubner, N. Papageorgiou, and F. Rouah eds., Wiley
87. Alexander C. and A. Dimitriu (2004) The Art of Investing. Hedge Funds: Fund Selection and Optimal Allocations. Intelligent Hedge Fund Investing, Barry Schachter ed., Risk Publications
88. Alexander, C. and L. Nogueira (2004) Stochastic local volatility. Proceedings of the second international IASTED conference on financial engineering and applications, MIT, 136-141
89. Alexander, C. and E. Lazar (2004) Time aggregation of normal mixture GARCH. Proceedings of the second international IASTED conference on financial engineering and applications, MIT, 210-215
90. Alexander, C. (2004) Principles of the skew. Exotic Options, Alexander Lipton ed., Risk Publications
91. Alexander, C. (2004) Correlation in crude oil and natural gas markets. Managing Energy Price Risk 3rd Edition V. Kaminsky ed., Risk Publications
92. Alexander, C. (2004) Advanced value-at-risk Models. Professional Risk Managers Handbook, Volume III, C. Alexander and E. Sheedy eds., PRMIA Publications
93. Alexander, C. (2004) Operational value-at-risk. Professional Risk Managers Handbook, Volume III, C. Alexander and E. Sheedy eds., PRMIA Publications
94. Alexander, C. and Pezier, J. (2003) Assessment and aggregation of banking risks. Commissioned report. International Financial Risk Institute (IFCI)
95. Alexander, C. (2003) Statistical models for operational loss. Operational Risk: Regulation, Analysis and Management, C. Alexander ed., Pearson
96. Alexander, C. (2003) Managing operational risks with Bayesian networks. Operational Risk: Regulation, Analysis and Management, C. Alexander ed., Pearson
97. Alexander, C. (2001) Orthogonal GARCH. Mastering Risk Volume II, C. Alexander ed., Pearson
98. Alexander, C. (2001) Bayesian methods for measuring operational risks. Mastering Risk Volume II, C. Alexander ed., Pearson
99. Alexander, C. (1999) Correlation and cointegration in energy markets. Managing Energy Price Risk, 2nd Edition. V. Kaminsky ed., Risk Publications
100. Alexander, C. (1998) Volatility and correlation: measurement, models and applications. Risk Management and Analysis: Measuring and Modelling Financial Risk. C. Alexander, ed., Wiley
101. Alexander, C. (1997) Estimating and forecasting volatility and correlation: methods and applications. Risk Management and Financial Derivatives: A Guide to the Mathematics, S. Das ed., LBC

102. Alexander, C. (1996) Volatility and correlation forecasting. Handbook of Risk Management and Analysis. C. Alexander ed., Wiley
103. Alexander, C. (1990) Non-cooperative finite games. Handbook of Applicable Mathematics. Volume VI. W. Ledermann and C. Alexander eds., Wiley
104. Alexander, C. (1980) Groups. Handbook of Applicable Mathematics, Volume I. W. Ledermann ed., Wiley

UNPUBLISHED RESEARCH

Papers Under Review

105. Kaeck, A. and C. Alexander VIX dynamics with stochastic volatility of volatility. Revise and resubmit, *Journal of Banking and Finance*
106. Alexander, C. and J-M. Sarabia. Model risk in value-at-risk. Revise and resubmit, *Risk Analysis*
107. Ledermann, D. and C. Alexander. Random orthogonal matrix simulation: random resampling properties and value-at-risk application. Revise and resubmit, *Mathematics and Computers in Simulation*
108. Alexander, C. and S. Leontsinis. Model risk in variance swap rates. *Quantitative Finance*
109. Alexander, C., E. Lazar and S. Stanescu. Analytic moments for GARCH returns and variances. *The Econometrics Journal*
110. Alexander, C. and D. Korovilas. Is volatility diversification optimal for equity investors? A diversification threshold analysis. *Journal of Banking and Finance*
111. Alexander, C., Bell, A., Brooks, C. and T. Moore. The evolutionary dynamics of the credit relationship between Henry III and Flemish merchants, 1247-1270. *Journal of Political Economy*
112. Alexander, C., Propkopczuk, M. and A. Sumawong. The (de)merits of minimum variance hedging: application to the crack spread. *Review of Finance*

Papers in Preparation

113. Alexander, C. and X. Chen. Real options and investment decisions
114. Alexander, C., E. Lazar and S. Stanescu. Analytic GARCH value-at-risk.
115. Alexander, C. and M. Matzeder. Irreducible strategy sets in data snooping
116. Alexander, C. and M. Matzeder. Data snooping tests on nearest neighbour algorithms
117. Alexander, C. and D. Korovilas. Volatility ETNs on the VIX futures term structure
118. Alexander, C. and D. Korovilas. Predicting VIX futures: a data snooping analysis
119. Alexander, C. and M. Ruppert. Simulation of stock returns based on quantile factor regression analysis
120. Alexander, C. and J. Rauch. Generalized realised skewness and kurtosis
121. Alexander, C. and D. Ledermann. Value-at-risk and stress testing using random orthogonal matrix simulation
122. Alexander, C. and D. Ledermann. Portfolio optimization using quantile-based risk metrics and random orthogonal matrix simulation
123. Alexander, C. and E. Lazar. The continuous limit of GARCH processes

Carol Alexander, January 16, 2012