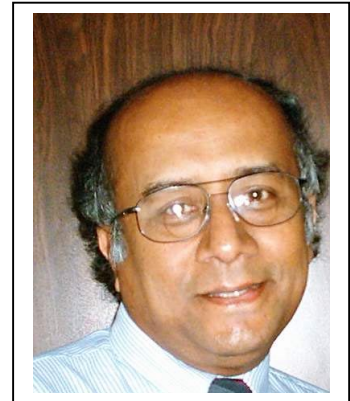


CURRICULUM VITAE

Name: Dr. Ramaprasad Bhar



Qualifications:

PhD (Thesis title “*Volatility in Interest Rates and Interest Rate Futures: Properties and Estimation in an Arbitrage-Free Framework*”), University of Technology, Sydney, August 1997.

MBA (Finance specialty strand), University of Technology, Sydney, 1989

M.A.Sc (Computer Science), University of Waterloo, Canada, 1974

M.Tech (Radio Physics & Electronics), University of Calcutta, India, 1971

B.Tech (Radio Physics & Electronics), University of Calcutta, India, 1970

B.Sc (Honours in Physics), University of Calcutta, India, 1967; Ranked Fifth in the University

Employment Summary:

July 2000 to Present: Associate Professor of Finance, School of Banking and Finance The University of New South Wales, Sydney.

July 1999 to July 2000: Associate Professor (Quantitative Finance), School of Finance and Economics, University of Technology, Sydney.

February 1998 to July 1999: Senior Lecturer, School of Banking and Finance, The University of New South Wales, Sydney.

July 1994 to February 1998: Lecturer in Finance, School of Finance and Economics, University of Technology, Sydney.

February 1992 to June 1994: Lecturer in Finance, Faculty of Business and Technology, University of Western Sydney, Macarthur

August 1984 to January 1992: Senior Systems Engineering Manager, Planning & Review, Corporate Information Technology, State Bank of NSW (Colonial State Bank)

July 1983 to August 1984: Database Administrator, Edward Lumley Limited, Sydney

December 1980 to December 1982: Technical Adviser, Database Administration and Technical Advice, Credit Lyonnais Bank, Netherlands

October 1978 to December 1980: Senior Software Engineer, Marketing Support, Tata Unisys Limited, Bombay

August 1974 to October 1978: Senior Systems Analyst, Tata Consultancy Services, Bombay

July 1972 to December 1972: Lecturer, Department of Electronics, and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur, India.

Honours and Distinctions:

1. Awarded the highest quality rating for the following publications by the ANBAR Electronic Intelligence, 60/62 Toller Lane, Bradford, West Yorkshire, England, BD8 9BY, (URL: <http://www.anbar.co.uk/anbar.htm>):
 - “The information on inflation in the Australian term structure”, *Applied Financial Economics*, (1997).
 - “Cointegration in interest rate futures trading on the Sydney Futures Exchange,” *Applied Financial Economics*, (1996).
2. Received scholarship to study at the University of Waterloo, Canada.
3. Awarded Gold medals for ranking first in both the B.Tech and the M.Tech examinations at the University of Calcutta, India.

Professional Membership:

Asia Pacific Finance Association.
 Q-Group Sydney.
 Financial Management Association (FMA)
 Graduate Management Association of Australia

Competency in Relevant Tools & Techniques:

The following is a partial illustration (in addition to the usual PC packages) of various software tools and other techniques I often use and am very conversant with, as part of my on-going research activities:

- MATHEMATICA, MAPLE
- TSP, SHAZAM, SAS, EVIEWS, GAUSS

- Fortran, C++
- Stochastic calculus and numerical solutions, optimisation (including maximum entropy approach), probability theory, non-Linear filtering, non-parametric regressions and kernel density estimation, Monte Carlo simulations, generalised lattice models, analysis of cointegrated economic variables, bootstrapping, Hidden Markov model etc.

RESEARCH PAPERS

Refereed Journals

1. **Bhar, R. and S. Hamori:** "[Alternative Characterisation of the Volatility in the Growth Rate of Real GDP](#)," (forthcoming), 2002, *Japan and the World Economy*.
2. **Alaganar, V.T. and R. Bhar:** "[Information and Volatility Linkage Under External Shocks: Evidence from Dually Listed Australian Stocks](#)", *International Review of Financial Analysis*, 2002, Vol. 11(1), pp. 59-71.
3. **Bhar, R.** "[Return and Volatility Dynamics in the Spot and Futures Markets in Australia: An Intervention Analysis in a Bivariate EGARCH-X Framework](#)", *The Journal of Futures Markets*, Vol. 21 (9), 2001, pp. 833-850.
4. **Bhar, R., Chiarella, C., El-Hassan, N. and Xiaosu Zheng:** "[The Reduction of Forward rate Dependent Volatility HJM Models to Markovian Form: Pricing European Bond Options](#)", *The Journal of Computational Finance*, Vol. 3, No. 3, 2000, pp.47-62.
5. **Bhar, R. and C. Chiarella:** "[Expectations of Monetary Policy Changes in Australia Implied by the Probability Distribution of Interest Rate Derivatives](#)", *The European Journal of Finance*, Vol. 6, 2000, pp. 113-125.
6. **Alaganar, V.T. and R. Bhar:** "[Diversification Gains from ADRs and Foreign Equities: Evidence from Australian Stocks](#)", in press 2000, *Journal of International Financial Markets, Institutions & Money*.
7. **Bhar, R. and A.G. Malliaris:** "[Volume and Volatility in Foreign Currency Futures Markets](#)", *Review of Quantitative Finance and Accounting*, 10, 1998, 281-298.
8. **Bhar, R. and L. Alles:** "The Information on Inflation in the Australian Term Structure", *Applied Financial Economics*, 7, 1997, 721-730.
9. **Bhar, R. and C. Chiarella:** "[Interest Rate Futures: Estimation of the Volatility Parameters in an Arbitrage-Free Framework](#)", *Applied Mathematical Finance*, 4(4), 1997, 181-200.
10. **Bhar, R. and C. Chiarella:** "[Transformation of the Heath-Jarrow-Morton Models to Markovian System](#)", *The European Journal of Finance*, 3, 1997, 1-26.
11. **Bhar, R. and C. Chiarella:** "[Pricing of Futures Options by Use of Generalised Binomial Lattice Model - An Empirical Study on the SFE](#)", *Hong Kong Economic Papers*, 24, 1996, 41-54.
12. **Bhar, R.:** "[Cointegration in Interest Rate Futures Trading on the Sydney Futures Exchange](#)", *Applied Financial Economics*, 6, 1996, 251-257.

13. **Bhar, R.:** “[Modelling Australian Bank Bill Rates: A Kalman Filter Approach](#)”, *Accounting Finance*, 36 (1), May, 1996, 1-14.
14. **Bhar, R.:** “Do Australian Foreign Exchange Markets Still Show Evidence of Cointegration?”, *Accounting and Finance*, Vol. 35 (2), 197-205, November 1995.
15. **Bhar, R.:** “[Martingale Property in Bond Futures Return Including Volatility Spillover Effect From Bank Bill Futures](#)”, *Asia Pacific Journal of Management*, 12(1), 37-48, 1995.
16. **Bhar, R.:** “[Testing For Long-Term Memory in Yen/Dollar Exchange Rate](#)”, *Financial Engineering and the Japanese Markets*, 1 (2), 101-109, 1994.
17. **Bhar, R.:** “Interest Rate Futures Options - An Empirical Test of the Ho and Lee Model in the Australian Context”, *Review of Futures Markets*, 12(3), 661-684, 1993.
18. **Bhar, R. and B. F. Hunt:** “Predicting the Short Term Interest Structure Using A Parsimonious Model”, *Review of Futures Markets*, 12(3), 577-590, 1993.
19. **Bhar, R. and B. F. Hunt:** “An Empirical Test of Efficiency of the Market for Bank Accepted Bills Futures”, *International Review of Economics and Finance*, 2(4), 403-415, 1993.

Refereed Edited Volume

1. **Bhar, R., Chiarella, C. and W. Runggaldier:** “[Estimation of Models of the Instantaneous Short Term Interest Rate by Use of a Dynamic Bayesian Algorithm](#)”, in *Advances in Finance and Stochastics*, Klaus Sandmann and Phillip, J. Schonbucher (eds.), Springer, Germany, 2002, pp. 177-196, ISBN: 3-540-43464-X.
2. **Bhar, R. and A.G. Malliaris:** “[Are There Rational Bubbles in the U.S. Stock Market? Overview and a New Test](#),” *Elsevier Science*, Asset Price Bubbles: Implications for Monetary and Regulatory Policies, Vol. 13, ed. George Kaufman, Loyola University of Chicago, pp. 125-144, ISBN: 0-7623-0845-1.
3. **Bhar, R. and C. Chiarella:** “[Analysis of Time Varying Forward Exchange Risk Premia](#)”, *Kluwer Publication*, *Advances in Quantitative Asset Management*, ed. C. L. Dunis, Liverpool Business School, *Kluwer Publication*, (2000), ISBN: 0-7923-7778-8, pp. 255-274.
4. **Bhar, R. and C. Chiarella:** “Estimating Interest rate Futures Model in the Heath-Jarrow-Morton Framework”, *Advances in Pacific Basin Financial Markets*, Vol. IV, edited by T. Bos and T. A. Fetherston, JAI Press, Greenwich, Connecticut, USA, 1998, 211-226, ISBN: 0-7623-0319-0.
5. **Bhar, R. and C. Chiarella:** “Estimating The Term Structure of Volatility in Bond Prices Using Kalman Filter Methodology”, *Advances in Pacific Basin Financial Markets*, Vol. III, edited by T. Bos and T. A. Fetherston, JAI Press, Greenwich, Connecticut, USA, forthcoming, 1997, 243-256, ISBN: 0-7623-0196-1.

6. **Bhar, R. and C. Chiarella:** “The estimation of the Heath-Jarrow-Morton Model by Use of Kalman Filtering Techniques”, *Computational Approaches to Economic Problems*, edited by H. Amman, Kluwer Publishing, The Netherlands, 1997, 113-126, ISBN: 0-7923-4397-2.
7. **Bhar, R. and C. Chiarella:** “Non-Linear Filters and Estimation of Diffusion Coefficients in the Heath-Jarrow-Morton Framework”, Postprint Volume of *The 1995 IFAC/IFIP/IFORC/SEDC Symposium on Modelling and Control of National and Regional Economies*, Pergamon, 321-326, ISBN: 0-08-042376-0, February, 1996.
8. **Bhar, R.:** “Testing Uncovered Interest Rate Parity in Australian FX Market Before and After Deregulation”, *Advances in Pacific Basin Financial Markets*, Vol. II, edited by T. Bos and T. A. Fetherston, JAI Press, Greenwich, Connecticut, USA, 183-194, ISBN 0-7623-0093-0, 1996.
9. **Bhar, R. and J. Batten:** “Volume And Price Relationships in Three Yen Futures Markets”, *Advances in Pacific Basin Financial Markets*, Vol. I, edited by T. Bos and T. A. Fetherston, JAI Press, Greenwich, Connecticut, USA, 23-38, ISBN: 1-55938-861-7, 1995.

Contributed Articles

1. **Bhar, R. and L. Alles:** “Embedded Inflation”, *The Blackwell Dictionary of Finance*, edited by Dean Paxson and Douglas Wood, Manchester Business School, 1996.
2. **Bhar, R. and C. Chiarella:** “[Risk-Neutral Valuation and the State Space Framework](#)”, *The Current State of Economic Science* edited by B. Dahiya, Jan Tilbergen Institute of Development Planning, Rohtak, India, ISBN: 81-7600-042-6, June 1999, 409-416. ISBN: 81-7600-042-6, June 1999, 409-416.

Refereed Conference Volume

1. **Bhar, R. and C. Chiarella:** “Analysis of Time Varying Financial Market Risk-Premia”, 3rd High Performance Computing Asia Conference, IEEE Singapore Computer Chapter, 23-25 September 1998, ISBN: 981 04 0634 7, pp. 909-920.
2. **Bhar, R. and C. Chiarella:** “Estimating The Term Structure of Volatility in Futures Yield - A Maximum Likelihood Approach”, Presented at the Sixth Annual Chicago Board of Trade Asia-Pacific Research Symposium, Hong Kong, March, 1995, pp. 119-148.

Papers under Review with Various Journals

1. **Alaganar, V.T. and R. Bhar:** “[Impact of International Listing on Return Distribution: An Intervention Analysis with Australian Stocks](#)”.

2. **Alaganar, V.T. and R. Bhar:** [“The Impact of Exchange Rate Changes and Its Uncertainty on the Distribution of WEBS Return.”](#)
3. **Alaganar, V.T. and R. Bhar:** [“An International Study of Causality in Variance: Interest Rate and Financial Sector Return”](#).
4. **Bhar, R., Kim, S. and T. Pham:** [“Exchange Rate Volatility and Its Impact on Deviation from Covered Interest Rate Parity”](#).
5. **Bhar, R., Chiarella, C. and T. Pham:** [“Modelling the Currency Forward Risk Premium: A New Perspective”](#).
6. **Bhar, R., Chiarella, C. and P. Zhu:** [“Estimation of the Heath-Jarrow-Morton Model Via the Kalman Filter: A Bootstrap Analysis”](#).
7. **Bhar, R. and S. Hamori:** [“Evidence of Linkages Among G7 Stock Markets Using Causality in Variance Test”](#).
8. **Bhar, R. and S. Hamori:** [“Causality in Volatility Between Developed and Emerging Equity Markets: Analysis Based on the Markov Switching Heteroscedasticity Model”](#).
9. **Bhar, R. and S. Hamori:** [“Bi-Variate Model of Output and Stock Price Volatility For G7 Countries in a Markov Switching Heteroscedasticity Framework”](#).
10. **Bhar, R. and S. Hamori:** [“Link Between Inflation and Inflation Uncertainty: Evidence From G7 Countries”](#).
11. **Bhar, R. and S. Hamori:** [“Empirical Characteristics of the Transitory Component of Stock Return: Analysis in a Markov Switching Heteroscedasticity Framework”](#).
12. **Bhar, R. and S. Hamori:** [“Return Volume Dynamics in Crude Oil Futures: Causality in Variance”](#).
13. **Bhar, R. and A. G. Malliaris:** [“Speculative Bubbles in Mature Stock Markets: Do They Exist and Are They Related?”](#)

Recent Conference Papers

1. **Bhar, R., Chiarella. C. and Thuy-Duong To:** “A Maximum Likelihood Approach to Estimation of Heath-Jarrow-Morton Models”, Asia-Pacific Finance Association Meeting, Tokyo, July 2002.
2. **Bhar, R., Chiarella. C. and W. Runggaldier:** “The Volatility of the Instantaneous Spot Interest Rate Implied by Arbitrage Pricing”, Forecasting Financial Markets, London, May 2002.

3. **Bhar, R., Chiarella. C. and W. Runggaldier:** “Filtering Equity Risk Premia from Derivative Prices”, Financial Management Association Annual Meeting, Toronto, October 17-19, 2001. *Also, presented at the Australasian Finance and Banking Conference, December 2001 and was awarded the Sydney Futures Exchange best paper award on derivatives.*

Working Papers

1. **Bhar, R. and C. Chiarella:** “Construction of Zero-Coupon Yield Curve From Coupon Bond Yield Using Australian Data”, School of Finance & Economics, University of Technology, Sydney, Working paper no. 70, 1996.
2. **Bhar, R.:** “Modelling Yen Futures Return Using Daily Data from SIMEX and IMM”, School of Finance & Economics, University of Technology, Sydney, Working paper no. 39, 1994.
3. **Bhar, R.:** “Yield Curve as a Cointegrated System: Evidence from Australian Treasury Securities”, School of Finance & Economics, University of Technology, Sydney, Working paper no. 35, 1994.

EXTERNAL/INTERNAL RESEARCH FUNDING

Large ARC Research Grants

Year	Research Topic & Grant	Amount
2001, 2002, 2003	<i>Large A. R. C. Research Grant</i> (A00103864), “Dynamic Evolution of the Term Structure of Interest Rates”, jointly with Prof. C. Chiarella	\$48,760 \$44,000 \$49,000
2000, 2001, 2002	<i>Large A. R. C. Research Grant</i> (A10010022), “The Time Variation of Beta Coefficients Implied by Prices of Derivative Securities”, jointly with Prof. C. Chiarella	\$44,000 \$45,000 \$47,000

Small ARC Research Grant

Year	Research Topic	Amount
1999	“Time Variation of Financial Market Risk Premia in Different Economies”, Jointly with Prof. C. Chiarella.	\$13,000
1998	“Modelling the Australian Forward Exchange Premium in a Markov-State Switching Framework”, Jointly with Prof. C. Kearney	\$10,500
1997	“Application of Theory and Solutions of Forward-Backward Stochastic Differential Equations in the Valuation of American Contingent Claims”, Jointly with Prof. C. Chiarella, Ms. N. El-Hassan	\$13,500

Private Industry Research Grant

Year	Research Topic	Amount
1997	<i>Australian Stock Exchange Research Grant</i> , “Price Volatility As A Determinant of Volume of Options Traded”, Jointly with Prof. C. Chiarella	\$12,000

Special Research Grants

Year	Research Topic	Amount
1998	<i>Special Research Grant, The University of New South Wales</i> , “Estimation of the Unobserved Diffusion Process for Interest rate in the Heath-Jarrow-Morton Framework”	\$4,000
1998	<i>Faculty of Business Research Grant</i> , “Time variation of Beta Coefficients implied by prices of Derivative Securities”, Jointly with Prof. C. Chiarella	\$10,000
1996	<i>Faculty Research Grant</i> , “Forward-Backward Stochastic Differential Equations and the Valuation of Contingent Claims with General Payoff Functions in Stochastic Interest Rate / Stochastic Volatility Environment”, Jointly with Prof. C. Chiarella, Ms. N. El-Hassan	\$10,000
1996	<i>Internal Large Research Grant</i> (Featured in Newsmaker section of Anchor (22 April - 5 May, 1996), “Volatility Structure of Interest Rate Markets”, Jointly with Prof. C. Chiarella	\$25,000
1995	<i>Faculty Research Grant</i> , “Asset Price Dynamics”, Jointly with Prof. C. Chiarella, Dr. A. Khomin	\$15,000
1994	<i>Macarthur Research Board Award</i> (University of Western Sydney), “The Effects of Volume on Australian Dollar Currency Prices”, Jointly with J. Batten	\$ 4,250