CURRICULUM VITAE

Tim Bollerslev

Personal Information:

Date and place of birth:	May 11, 1958, Copenhagen, Denmark.
Marital status:	Married with three children.
Citizenship:	Danish; U.S. Permanent Resident.

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Education:

Master of Science in Economics and Mathematics (Cand. Scient. Oecon.), University of Aarhus, Denmark, 1983 (Svend Hylleberg, main advisor).
Ph.D. in Economics, University of California, San Diego, 1986 (Robert F. Engle, main advisor; Clive W.J. Granger and Halbert White, committee members).

Academic Positions:

Juanita and Clifton Kreps Professor of Economics, Department of Economics, Duke University, 1998-present.
Professor of Finance, Fuqua School of Business, Duke University, 1998-present.
Commonwealth Professor of Economics, University of Virginia, 1996-1998.
Nathan S. and Mary P. Sharpe Professor of Finance, J.L. Kellogg Graduate School of Management, Northwestern University, 1995.
Associate Professor of Finance, Northwestern University, 1991-1995.
Assistant Professor of Finance, Northwestern University, 1988-1991.
Assistant Professor of Economics, Northwestern University, 1986-1988.

Editorial Positions:

Journal of Applied Econometrics, Associate Editor, 1990-2002; Co-Editor, 2003-present.
Journal of Empirical Finance, Associate Editor, 1991-2002.
Journal of Business and Economic Statistics, Associate Editor, 1992-2000.
Review of Financial Studies, Associate Editor, 1994-1998.
Studies in Nonlinear Dynamics and Econometrics, Associate Editor, 1995-2001.
Journal of Macroeconomic Dynamics, Associate Editor, 1996-2000.
International Financial Markets, Institutions & Money, Associate Editor, 1996-present.
European Finance Review, Associate Editor, 1996-present.
Net Exposure, Editorial Board, 1996-1998.
Economic Policy Review, Advisory Board, 1997-present.

Selected Honors and Awards:

Elected Fellow of the Econometric Society, 1999.
Listed in *Marquis Who's Who in America*, 2000-present.
Listed in *Marquis Who's Who in Science and Engineering*, 2002-present.
Listed in *Marquis Who's Who in the World*, 2004-present.
Listed in *Who's Who in Economics*, Edward Elgar Publishing Ltd., 2003-present.
Listed in *2000 Outstanding Scholars of the 21st Century*, Cambridge, UK, 2001.
Two of the three most cited papers in the *Journal of Econometrics*, Vol.1-100, 2000.
ISI Web of Knowledge HighlyCited Researcher in Economics and Business, 2003-present.
Cited in the Press Release for the 2003 *Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel*.
NBER Faculty Research Fellow, 1992-1995.
NBER Faculty Research Associate, 1995-present.
Institute for Quantitative Research in Finance Grant, 1995.
BSI Gamma Foundation Research Grant, 2002.
Morgan Stanley Market Microstructure Research Grant, 2003.
National Science Foundation Grants, 1990-1991, 1998-2001, 2001-2004.

Refereed Academic Publications:

"Volatility Puzzles: A Simple Framework for Gauging Return-Volatility Regressions" (with Hao Zhou), ***Journal of Econometrics***, forthcoming, 2005.

"Correcting the Errors: Volatility Forecast Evaluation using High-Frequency Data and Realized Volatilities" (with Torben G. Andersen and Nour Meddahi), ***Econometrica***, forthcoming, 2005.

"Analytic Evaluation of Volatility Forecasts" (with Torben G. Andersen and Nour Meddahi), ***International Economic Review***, forthcoming, 2004.

"Parametric and Nonparametric Volatility Measurement" (with Torben G. Andersen and Francis X. Diebold), in ***Handbook of Financial Econometrics*** (eds. Yacine Aït-Sahalia and Lars P. Hansen). Amsterdam: Elsevier Science B.V., forthcoming, 2004.

"Measuring and Modeling Systematic Risk in Factor Pricing Models using High-Frequency Data" (with Benjamin Y.B. Zhang), ***Journal of Empirical Finance***, Vol.10, No.5, pp.533-558, 2003.

"Micro Effects of Macro Announcements: Real-Time Price Discovery in Foreign Exchange" (with Torben G. Andersen, Francis X. Diebold, and Clara Vega), ***American Economic Review***, Vol.93, No.1, pp.38-62, 2003.

"Modeling and Forecasting Realized Volatility" (with Torben G. Andersen, Francis X. Diebold, and Paul Labys), ***Econometrica***, Vol.71, No.2, pp.579-625, 2003.

"Bridging the Gap Between the Distribution of Realized (ECU) Volatility and ARCH Modeling (of the Euro): The GARCH-NIG Model" (with Lars E. Forsberg), ***Journal of Applied Econometrics***, Vol.17, pp.535-548, 2002.

"Estimating Stochastic Volatility Diffusions Using Conditional Moments of Integrated Volatility" (with Hao Zhou), ***Journal of Econometrics***, Vol.109, pp.33-65, 2002. "Corrigendum," Vol.119, pp.221, 2004.

"Volatility Forecasting, High-Frequency Data, and Frequency Domain Inference" (with Jonathan H. Wright), ***Review of Economics and Statistics***, Vol.83, pp.596-602, 2001.

"The Distribution of Realized Stock Return Volatility" (with Torben G. Andersen, Francis X. Diebold, and Heiko Ebens), ***Journal of Financial Economics***, Vol.61, pp.43-76, 2001.

"The Distribution of Realized Exchange Rate Volatility" (with Torben G. Andersen, Francis X. Diebold, and Paul Labys), ***Journal of the American Statistical Association***, Vol.96, pp.42-55, 2001. "Errata," Vol.98, pp.501, 2003.
Reprinted in ***Stochastic Volatility*** (ed. Neil Shephard), Oxford: Oxford University Press, 2004.

"Variance-Ratio Statistics and High-Frequency Data: Testing for Changes in Intraday Volatility Patterns" (with Torben G. Andersen and Ashish Das), ***Journal of Finance***, Vol. 56, No.1, pp.305-327, 2001.

"Exchange Rate Returns Standardized by Realized Volatility are (Nearly) Gaussian" (with Torben G. Andersen, Francis X. Diebold, and Paul Labys), ***Multinational Finance Journal***, Vol.4, No.3&4, pp.159-179, 2000.
Best Paper of the Year Award.

"The Forward Premium Anomaly is Not as Bad as You Think" (with Richard T. Baillie), ***Journal of International Money and Finance***, Vol.19, No.4, pp.471-488, 2000.

"Semiparametric Estimation of Long-Memory Volatility Dependencies: The Role of High-Frequency Data" (with Jonathan H. Wright), ***Journal of Econometrics***, Vol.98, No.1, pp.81-106, 2000.

"Intraday and Interday Volatility in the Japanese Stock Market" (with Torben G. Andersen and Jun Cai), ***Journal of International Financial Markets, Institutions & Money***, Vol.10, No.2, pp.107-130, 2000.

"Intraday Periodicity, Long-Memory Volatility, and Macroeconomic Announcement Effects in the U.S. Treasury Bond Market" (with Jun Cai and Frank M. Song), ***Journal of Empirical Finance***, Vol.7, No.1, pp.37-55, 2000.

"Forecasting Financial Market Volatility: Sample Frequency vis-à-vis Forecast Horizon" (with Torben G. Andersen and Steve Lange), ***Journal of Empirical Finance***, Vol.6, No.5, pp.457-477, 1999.

"Long-Term Equity AnticiPation Securities and Stock Market Volatility Dynamics" (with Hans O. Mikkelsen), ***Journal of Econometrics***, Vol.92, No.1, pp.75-99, 1999.

"Equity Trading Volume and Volatility: Latent Information Arrivals and Common Long-Run Dependencies" (with Peter D. Jubinski), ***Journal of Business and Economic Statistics***, Vol.17, No.1, pp.9-21, 1999.

"DM-Dollar Volatility: Intraday Activity Patterns, Macroeconomic Announcements, and Longer-Run Dependencies" (with Torben G. Andersen), ***Journal of Finance***, Vol.53, No.1, pp.219-265, 1998.

"Answering the Skeptics: Yes, Standard Volatility Models do Provide Accurate Forecasts" (with Torben G. Andersen), ***International Economic Review***, Vol.39, No.4, pp.885-905, 1998. Reprinted in ***The International Library of Critical Writings in Economics: Forecasting Financial Markets*** (ed. Terence C. Mills), London: Edward Elgar Publishing Limited, 2002.

"Order Flow and the Bid-Ask Spread: An Empirical Probability Model of Screen-Based Trading" (with Ian Domowitz and Jianxin Wang), ***Journal of Economic Dynamics and Control***, Vol.21, pp.1471-1491, 1997.

"Heterogeneous Information Arrivals and Return Volatility Dynamics: Uncovering the Long-Run in High Frequency Returns" (with Torben G. Andersen), ***Journal of Finance***, Vol.52, No.3, pp.975-1005, 1997.

"Intraday Periodicity and Volatility Persistence in Financial Markets" (with Torben G. Andersen), ***Journal of Empirical Finance***, Vol.4, No.2-3, pp.115-158, 1997.

"Fractionally Integrated Generalized Autoregressive Conditional Heteroskedasticity" (with Richard T. Baillie and Hans O. Mikkelsen), ***Journal of Econometrics***, Vol.74, pp.3-30, 1996.
Reprinted in ***The International Library of Critical Writings in Econometrics: Recent Developments in Time Series*** (eds. Paul Newbold and Stephen J. Leybourne), London: Edward Elgar Publishing Limited, 2003.

"Modeling and Pricing Long-Memory in Stock Market Volatility" (with Hans O. Mikkelsen), ***Journal of Econometrics***, Vol.73, No.1, pp.151-184, 1996.

"Periodic Autoregressive Conditional Heteroskedasticity" (with Eric Ghysels), ***Journal of Business and Economic Statistics***, Vol.14, No.2, pp.139-151, 1996.

"Financial Market Efficiency Tests" (with Robert J. Hodrick), in ***Handbook of Applied Econometrics, Vol.I*** (eds. M. Hashem Pesaran and Michael Wickens). London: Basil Blackwell, 1995.

"The Long-Memory of the Forward Premium" (with Richard T. Baillie), ***Journal of International Money and Finance***, Vol.13, No.5, pp.565-571, 1994.

"Cointegration, Fractional Cointegration, and Exchange Rate Dynamics" (with Richard T. Baillie), ***Journal of Finance***, Vol.49, No.2, pp.737-745, 1994.

"Bid-Ask Spreads and Volatility in the Foreign Exchange Market: An Empirical Analysis" (with Michael Melvin), ***Journal of International Economics***, Vol.36, No.3/4, pp.355-372, 1994.

"ARCH Models" (with Robert F. Engle and Daniel B. Nelson), in ***Handbook of Econometrics, Vol.IV*** (eds. Robert F. Engle and Daniel McFadden). Amsterdam: Elsevier Science B.V., 1994.

"Common Persistence in Conditional Variances" (with Robert F. Engle), ***Econometrica***, Vol.61, No.1, pp.167-186, 1993.

"Bear Squeezes, Volatility Spillovers, and Speculative Attacks in the Hyperinflation 1920's Foreign Exchange" (with Richard T. Baillie and Michael Redfearn), ***Journal of International Money and Finance***, Vol.12, No.5, pp.511-521, 1993.

"Trading Patterns and Prices in the Interbank Foreign Exchange Market" (with Ian Domowitz), ***Journal of Finance***, Vol.48, No.4, pp.1421-1443, 1993.

"Quasi-Maximum Likelihood Estimation and Inference in Dynamic Models with Time Varying Covariances" (with Jeffrey M. Wooldridge), ***Econometric Reviews***, Vol.11, No.2, pp.143-172, 1992.

"Prediction in Dynamic Models with Time Dependent Conditional Variances," (with Richard T. Baillie), ***Journal of Econometrics***, Vol.52, No.1, pp.91-113, 1992.
Reprinted in ***The International Library of Critical Writings in Economics: Economic Forecasting*** (ed. Terence C. Mills), London: Edward Elgar Publishing Limited, 1998.

"ARCH Modeling in Finance: A Review of the Theory and Empirical Evidence" (with Ray Y. Chou and Kenneth F. Kroner), ***Journal of Econometrics***, Vol.52, No.1, pp.5-59, 1992.

Reprinted in ***Volatility: New Techniques for Pricing Derivatives and Managing Financial Portfolios*** (ed. Robert Jarrow), London: Risk Publications, 1998.
Reprinted in ***The International Library of Critical Writings in Econometrics: Recent Developments in Time Series*** (eds. Paul Newbold and Stephen J. Leybourne), London: Edward Elgar Publishing Limited, 2003.

"Price Volatility, Spread Variability and the Role of Alternative Market Mechanisms" (with Ian Domowitz), ***Review of Futures Markets***, Vol.10, No.1, pp.78-102, 1991.

"Intra Day and Inter Market Volatility in Foreign Exchange Rates" (with Richard T. Baillie), ***Review of Economic Studies***, Vol.58, pp.565-585, 1991.

"A Multivariate Generalized ARCH Approach to Modeling Risk Premia in Forward Foreign Exchange Markets" (with Richard T. Baillie), ***Journal of International Money and Finance***, Vol.9, pp.309-324, 1990.

"Modelling the Coherence in Short Run Nominal Exchange Rates: A Multivariate Generalized ARCH Model," ***Review of Economics and Statistics***, Vol.72, No.3, pp.498-505, 1990.
Reprinted in ***ARCH: Selected Readings*** (ed. Robert F. Engle), Oxford: Oxford University Press, 1995.

"Common Stochastic Trends in a System of Exchange Rates" (with Richard T. Baillie), ***Journal of Finance***, Vol.44, No.1, pp.167-181, 1989.

"The Message in Daily Exchange Rates: A Conditional Variance Tale" (with Richard T. Baillie), ***Journal of Business and Economic Statistics***, Vol.7, No.3, pp.297-305, 1989.
Reprinted in ***Journal of Business and Economic Statistics***, 20th Anniversary Commemorative Issue, Vol.20, No.1, 2002.

"A Capital Asset Pricing Model with Time Varying Covariances" (with Robert F. Engle and Jeffrey M. Wooldridge), ***Journal of Political Economy***, Vol.96, No.1, pp.116-131, 1988.
Reprinted in ***ARCH: Selected Readings*** (ed. Robert F. Engle), Oxford: Oxford University Press, 1995.

"On the Correlation Structure for the Generalized Autoregressive Conditional Heteroskedastic Process," ***Journal of Time Series Analysis***, Vol.9, No.2, pp.121-131, 1988.

"A Conditionally Heteroskedastic Time Series Model for Speculative Prices and Rates of Return," ***Review of Economics and Statistics***, Vol.69, No.3, pp.542-547, 1987.

"Modelling the Persistence of Conditional Variances" and "Reply" (with Robert F. Engle), ***Econometric Reviews***, Vol.5, No.1, pp.1-50, pp.81-87, 1986.

"Generalized Autoregressive Conditional Heteroskedasticity," ***Journal of Econometrics***, Vol.31, pp.307-327, 1986.

Reprinted in ***The International Library of Critical Writings in Econometrics: Time Series*** (ed. Andrew Harvey), London: Edward Elgar Publishing Limited, 1994.
Reprinted in ***ARCH: Selected Readings*** (ed. Robert F. Engle), Oxford: Oxford University Press, 1995.
Reprinted in ***Foundations of Probability, Econometrics and Economic Games*** (eds. O.F. Hamouda and J.C.R. Rowley), London: Edward Elgar Publishing Limited, 1996.
Reprinted in ***Journal of Econometrics***, 100th Anniversary Commemorative Issue, Vol.100, No.1, 2001.

"A Note on the Relationship Between Consumers' Expenditure and Income in the United Kingdom" (with Svend Hylleberg), ***Oxford Bulletin of Economics and Statistics***, Vol.47, No.2, pp.153-170, 1985.

Miscellaneous Academic Publications:

"Financial Econometrics: Past Developments and Future Challenges," ***Journal of Econometrics***, Vol.100, No.1, pp.41-51, 2001.

"Great Realizations" (with Torben G. Andersen, Francis X. Diebold, and Paul Labys), ***Risk***, Vol.13, pp.105-108, 2000.

"Towards a Unified Framework for High- and Low-Frequency Return Volatility Modeling" (with Torben G. Andersen), ***Statistica Neerlandica***, Vol.52, No.3, pp.273-302, 1998.

"ARCH and GARCH Models" (with Torben G. Andersen), in ***Encyclopedia of Statistical Sciences Vol.II*** (eds. Samuel Kotz, Campbell B. Read and David L. Banks). New York: John Wiley and Sons Inc., 1998.

"Introduction: Modelling Stock Market Volatility - Bridging the GAP to Continuous Time" (with Peter E. Rossi), in ***Modelling Stock Market Volatility*** (ed. Peter E. Rossi). San Diego: Academic Press, 1996

"Dan Nelson Remembered" (with Peter E. Rossi), ***Journal of Business and Economic Statistics***, Vol.13, No.4, pp.361-364, 1995.

"On the Interdependence of International Asset Markets" (with Richard T. Baillie), in ***Global Portfolio Diversification: Risk Management, Market Microstructure, and Implementation Issues*** (eds. Raj Aggarwal and David C. Schirm). Orlando, Florida: Academic Press, 1994.

"Nominal Exchange Rates" (with Richard T. Baillie), in ***The New Palgrave Dictionary of Money and Finance*** (ed. Peter Newman). London: MacMillan Press Limited, 1993.

"Some Effects of Restricting the Electronic Order Book in an Automated Trade Execution System" (with Ian Domowitz), in ***The Double Auction Market: Institutions, Theories, and***

Evidence (eds. Daniel Friedman and John Rust). Reading, Massachusetts: Addison-Wesley Publishing Company, 1993.

"Les Modèles ARCH en Finance: Un Point sur la Théorie et les Résultats Empiriques" (with Ray Y. Chou, Narayanan Jayaraman and Kenneth F. Kroner), ***Annales D'Économie et de Statistique***, No.24, pp.1-59, 1991.

Recent Working Papers and Work in Progress:

"Volatility Forecasting" (with Torben G. Andersen and Peter Christoffersen), in preparation for ***Handbook of Economic Forecasting*** (eds. Graham Elliott, Clive W.J. Granger and Allan Timmermann). Amsterdam: Elsevier Science B.V.

"Macroeconomic Determinants of Systematic Stock Market Risk" (with Torben G. Andersen and Francis X. Diebold), in preparation for ***American Economic Review, Papers and Proceedings***, 2005.

"Volatility and Correlation Modeling in Market Risk Management: Pitfalls and Opportunities" (with Torben G. Andersen, Peter Christoffersen, and Francis X. Diebold), in preparation for ***Risks of Financial Institutions and the Financial Sector*** (ed. Rene Stulz).

"Real-Time Price Discovery in Stock, Bond and Foreign Exchange Markets" (with Torben G. Andersen, Francis X. Diebold, and Clara Vega).

"Some Like it Smooth and Some Like it Rough: Untangling Continuous and Jump Components in Measuring, Modeling and Forecasting Asset Return Volatility" (with Torben G. Andersen and Francis X. Diebold).

"Realized Beta: Persistence and Predictability" (with Torben G. Andersen, Francis X. Diebold, and Ginger Wu).

"Volatility Asymmetry in High Frequency Data" (with Julia Litvinova and George Tauchen).

"Estimating Time-Varying Volatility Risk Premia and Investor Risk Aversion from Options Implied and Realized Volatilities" (with Michael Gibson and Hao Zhou).

"Order Flow, Market Risk, and Daily Stock Returns" (with Hao Zhou).

"Microstructure Bias and Volatility Signatures" (with Torben G. Andersen, Francis X. Diebold, and Paul Labys).