Arjun Chatrath
Art Schulte Distinguished Professor of Finance
The Robert Pamplin Jr. School of Business Administration
University of Portland
5000 N. Willamette Blvd.
Portland, OR 97203
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EDUCATION

1994 Doctor of Business Administration, Finance, Cleveland State University
1989 Master of Business Administration, University of Notre Dame
1985 Bachelor of Arts, Economics, University of Delhi

ACADEMIC APPOINTMENTS

Assist-/Assoc-/Professor 1997-Present	R.B. Pamplin Jr. School of Business University of Portland
Professor 2006 Spring	Warsaw School of Economics
Assistant Professor 1994-1997	Department of Graduate Studies Lake Erie College
Teaching Assistant 1990 –1994	Department of Finance Cleveland State University

TEACHING EXPERIENCE

International Finance	Derivatives & Risk Mgt
Corporate Finance	Financial Institutions
Finance Theory	Applied Financial Analysis
Financial Mgt for New Ventures	International Business
Research Methods in Finance	Applied Portfolio Analysis

SCHOLARSHIP

Journal Articles:

Peer Reviewed Journals:

"The Effects of Options Listing and Delisting in a Short-Sale Constrained Market: Evidence from the Indian Equities Markets." *Global Finance Journal*, February 2018, 157-169. With R. Christie-David, P. Banerjee, and D, Maitra.

"Crude Oil Price Volatility Spillovers into Other Asset Classes, *Oil and Gas Energy Quarterly*, September 2017. With B. Adrangi, J. Macri, Kambiz Raffiee.

"Crude oil Price Volatility Spillovers and Agricultural Commodities: A Study in Time and Frequency Domains. *Review of Economics and Finance*, August 2017, 42-56. With B. Adrangi, J. Macri, Kambiz Raffiee

"Examination on the Flow Characteristic of Crude Oil: Evidence from the Risk-Neutral Moments." *Energy Economics, 54*, 2016, 213-233. With H. Miao, S. Ramchander, and T. Wang.

"Short Term Options: Clientele and Event Induced Premia". *Journal of Banking and Finance, 61*, 2015, 237-250. With H. Miao, S. Ramchander, and R. Christie-David.

"Price Responsiveness and the Stock Flow Distinction in Commodities." *Journal of Futures Markets, 35*, 2015, *1003-1025,* With B. Adrangi, R. Christie-David, S. Ramchander, and H. Miao.

"Crude oil Price Volatility Spillovers across Major Equity Markets of Americas." *Journal of Energy Markets* 2015, 8(1), 77-95. With B. Adrangi, J. Macri, Kambiz Raffiee.

"The Forecasting Efficacy of Risk-Neutral Moments for Crude Oil Volatility." *Journal of Forecasting 34*, 2014, 177-190. With H. Miao, S. Ramchander, and T. Wang.

"Currency Jumps, Cojumps and the Role of Macroeconomic News." *Journal of International Money and Finance 40*, 2014, 42-62. With S. Ramchander, H. Miao, and S. Villupuram.

"Crude Oil Moments and PNG Stock Returns." *Energy Economics 44*, 2014, 222-235. With S. Ramchander and H. Miao.

"Market Comovements, Regulation, and Financial Crisis", *Review of Futures Markets 22(1),* 2014, 21-48. With B. Adrangi, D. Maitra, R.

Christie-David.

"Hedging Silicon", *Applied Economic Letters*, 2014, With G. Malik, M. Guk, B. Adrangi and R. Christie-David.

"Energy Price Volatility and Commodity Prices in the United States." *Oil and Gas Energy Quarterly,* 62(2), 2013. With B. Adrangi and K. Raffiee.

"The Effects of Foreign Ownership of U.S. Treasuries." *Financial Review 48(1),* 2013, 49-76. With Chunrong Ai, R. Christie-David, Frank Song.

"Corporate Bonds, Macroeconomic News and Investor Flows*." Journal of Fixed Income 22(1),* 2012, 25-40. With H. Miao, S. Ramchander, and S. Villupuram.

"Public Information, REIT Responses, Size, Leverage, and Focus*." Journal of Real Estate Research, 34(4),* 2012, 463-514. With R. Christie-David and S. Ramchander.

"Does the Price of Crude Respond to Macroeconomic News?" *Journal of Futures Markets 32(6),* 2011, 536-559. With S. Ramchander and H. Miao.

"Dominant Markets, Staggered Openings, and Price Discovery." *Journal of Futures Markets 31(10),* 2011, 915-946. With Rohan Christie-David, Bahram Adrangi, and Kiseop Lee.

"Futures Trading and Oil Price Movements."*Review of Futures Markets,* 18(4), Spring 2010, 347-362. With Rohan Christie-David, Victoria Lugli and Cynthia Santoso.

"Competitive Inventory Management in Treasury Markets*." Journal of Banking and Finance*, 33(5), May 2009, 800-809. With R. Christie-David and W. T. Moore.

"How Potent are News Reversals?" *Journal of Futures Markets*, 29(1), January 2009, 42-73. With R. Christie-David and Kiseop Lee.

"Do Commodity Traders Herd?" *Financial Review*, 43(3), August 2008, 461-476. With B. Adrangi.

"A Semiparametric Estimation of the Optimum Hedge Ratio." *Quarterly Review of Economics and Finance,* 47(2), May 2007, 366-381. With Chunrong Ai and Frank Song.

"What Puts the Convenience in Convenience Yield?" *Review of Futures Markets*, 15(2), 2007. With William T. Moore, R. Christie-David, and B. Adrangi.

"The Macroeconomic News Cycle and Uncertainty Resolution." *Journal of Business*, 79(5), September 2006, 2633-2657. With R. Christie-David and William T. Moore.

"On the Excess Comovement of Commodity Prices." *American Journal of Agricultural Economics,* 88(3), August 2006, 574-588. With Chunrong Ai and Frank Song.

"The Information in Petroleum Spreads." *Applied Economics***,** 38(16), September 2006, 1917-29**.** With B. Adrangi and F. Song.

"Future Contract Switching and Price Behavior*.*" *Journal of Derivatives, 12, 2004,* 58-72. With R. Christie-David.

"Index Futures Leadership, Basis Behavior, and Trader Selectivity*.*" *Journal of Futures Markets, 22(7), 2002,* 649-677. With Timothy Koch, Kathy Dhanda, R. Christie-David.

"Price Discovery and Behavior in Crude, Gasoline, and Heating Oil Futures." *Oil and Gas Quarterly,* 51(2), 279-300, December 2002. With B. Adrangi and K. Raffiee.

"Nonlinear Dynamics in Palladium and Platinum Futures." *Computational Economics, 19, 2002,* 179-195. With B. Adrangi.

"Are Commodity Prices Chaotic?" *Agricultural Economics, 27, 2, 2002,* 123-137. With B. Adrangi and K. Dhanda.

"Alaskan Crude Price and California Diesel Price Behavior." *Energy Economics, 2001*. With B. Adrangi and K. Raffiee and R. Ripple.

"Chaos in Oil Prices? Evidence from Futures Markets." *Energy Economics, 23, 2001,* 405-425. With B. Adrangi, K. Dhanda, and K. Raffiee.

"The Demand for US Air Transport Service: a Chaos and Nonlinearity Investigation." *Logistics and Transportation Review, 37, 2001,* 337-353. With B. Adrangi, and K. Raffiee

"Nonlinear Dependence in Gold and Silver Futures: Is it Chaos?" *American Economist, 45, 2, 2001.* With B. Adrangi and T. Shank.

"The Impact of Margin Requirements in Futures Markets: Evidence from the Gold and Silver Markets." *Quarterly Journal of Economics and Finance, 2001*. With M. Allender and B. Adrangi.

"Price Dynamics and Information Flows in Strategically-Linked Debt Instruments: The NOB and MOB Constituents*." Journal of Business Finance and Accounting, 2000*. With Rohan Christie-David and M. Chaudhry.

"The Asymmetric REIT Beta Puzzle*." Journal of Real Estate Portfolio Management, 6, 2000, 101-112.* With Y. Liang and W. McIntosh.

"Real Asset Ownership and the Risk and Return to Stockholders*." Journal of Real Estate Research, 2000.* With M. Seiler and J. Webb.

"Can We Hedge REIT Returns?" *Real Estate Finance, 15, 1999,* 78-84. With Y. Liang and W. McIntosh.

"Margin Requirements and Futures Activity: Evidence from the Soybean and Corn Markets*." Journal of Futures Markets, 19, 4, 1999*, 433-456. With B. Adrangi.

"Price Discovery among Strategically Linked Markets: The Case of the TED Spread*." Journal of Derivatives, Vol. 6, 4, 1999,* 77-87. With M. Chaudhry and R. Christie-David.

"Futures Commitments and Commodity Price Jumps*." Financial Review, 34, 1999,* 95-111. With F. Song.

"Margin Requirements and Currency Futures Trading." *International Journal of Finance. 11, 1999*, 1291-1307. With Frank Song.

"REITs and Inflation: A Long-Run Perspective*." Journal of Real Estate Research, 16, 1998*, 311-326. With Y. Liang.

"Are REIT Returns Hedgeable*?" Journal of Real Estate Research, 16, 1998,* 87-98. With Y. Liang and Michael J. Sieler. (Paper was abstracted by the Pension Real Estate Association's *Research Review*)

"Futures Commitments and Exchange Rate Volatility*." Journal of Business Finance and Accounting, 25, 1998,* 501-520. With B. Adrangi.

"Information and the Volatility in Futures and Spot Markets: The Case of the Japanese Yen*." Journal of Futures Markets, 18, 1998,* 201-224. With Frank Song.

"Speculative Activity and Stock Market Volatility." *Journal of Economics and Business, 50, 1998,* 323-337. With F. Song.

"Commitment of Traders, Basis Behavior, and the Issue of Risk Premia in Futures Markets." *Journal of Futures Markets, 17, 1997,* 707-731. With Y. Liang and F. Song.

"The Cost of Capital and the Capital Budgeting Decision." *Managerial Finance, 23, 1997,* 16-23. With M." *J*. Sieler.

"International Linkages in Bank Lending and Borrowing Markets: Evidence from Six Industrialized Countries." *Applied Financial Economics, 7, 1997,* 403-411. With S. Ramchander and F. Song.

"Stock Prices, Inflation, and Output." *Applied Financial Economics, 7, 1997,* 439-445. With S. Ramchander and F. Song.

"The Role of Futures Trading Activity in Exchange Rate Volatility." *Journal of Futures Markets, 16, 1996,* 561-584. With S. Ramchander and F. Song.

"Apartment REITs and Apartment Real Estate." *Journal of Real Estate Research, Vol. 11, 1996,* 277-289. With Y. Liang and W. McIntosh (Best Paper Award, 1997).

"Hedged REIT Indices." *Journal of Real Estate Literature, 4, 1996,* 175-184. With Y. Liang and J. Webb.

"Teaching How Size and Industry Affiliation Impact Portfolio Risk." *Financial Practices and Education, 6, 1996,* 86-92, With R. Kamath and M. Chaudhry.

"Real Activity and Stock Prices: Evidence from India." *Indian Economic Journal, Oct/Dec, 1995*. With F. Song and S. Ramchander.

"Does Option Trading Impact Cash Volatility?" *Journal of Futures Markets, 15, 1995,* 785-803. With S. Ramchander and F. Song.

"Are Market Perceptions to Corporate Layoffs Changing?" *Economics Letters, 47, 1995,* 335-342. With S. Ramchander and F. Song.

"REIT Investments and Hedging Against Inflation," *Journal of Real Estate Portfolio Management, 2004*. With B. Adrangi and K. Raffiee.

"Gains From Leverage. FM Letter" in *Financial Management, 22, 1993,* 21-22. With J. Sharma, S. Ramchander and M. Chaudhry.

"Economic Activity, Inflation, and Hedging: The Case of Gold and Silver Investments," *Journal of Wealth Management*, *Fall 2003*, 1-18. With B. Adrangi and K. Raffiee.

"The Time Dependence in Return Generating Processes: Volume Versus ARCH and GARCH Effects in Thailand." *International Journal of Finance, 6*, *1993*, 613-624. With R. Kamath and M. Chaudhry.

Books/Chapters:

Finance - *with Investment and Risk Management Applications,* National Social Science Press, 2007, with Brian Adams.

In Search of Deterministic Complex Patterns in Commodity Prices. In *Computional Methods in Decision-making in Economics, and Finance,* Erricos Kontoghiorghes, Editor, Kluver Applied Optimization Series, 2001, With B. Adrangi and K. Dhanda.

The International Transmission of Bank Lending and Borrowing Rates. In *Global Financial Markets*, D. Ghosh and E. Ortiz, Editors, London: Routledge, 1997. With F. Song and S. Ramchander.

The Optimal Futures Hedge Ratio for Commodities. Forthcoming. With Chunrong Ai and F. Song.

Research in Progress:

"Losers and Prospectors in Short-term Options."

"Forecasting commodities and the Stock/Flow Debate".

"A Multiresolution View of Commodity Price Relationships: the case of Crude oil Passthrough"

"Firm news and Macro news."

"Downsizing and Upsizing Effects."

"Foundations of Finance – A Survey".

<u>PRESENTATIONS</u>

Peer Reviewed Paper Presentations:

Losers and Prospectors in Short Term Options. Annual meeting ICBASS, 2018.

Weekly Options and Standard Options: Two Markets or One? Annual meeting of the *Financial Management Association*, 2014.

Inclusion and Exclusion in Futures & Options: Do Stock Prices React? Accepted for presentation at the *India Finance Conference, Indian Institute of Management*, 2013. With D. Maitra.

Risk Neutral Moments and Crude Oil Returns. Annual meeting of the *Financial Management Association* (European). 2013. With H. Miao, and S. Ramchander.

Crude oil moments. Annual meeting of the *Eastern Finance Association*. 2013. With H. Miao, and S. Ramchander.

Corporate Bonds, Macroeconomic News and Investor Flows. Annual meeting *Financial Management Association.* 2012. With H. Miao, S. Ramchander, and S. Villupuram.

How Potent are News Reversals? Annual meeting of the *American Statistical Association*, 2008. With R. Christie-David and Keseop Lee.

The Components of the Spread in the Multidealer Treasury Market. Annual meeting of the *American Statistical Association*, 2007. With R. Christie-David and W. T. Moore.

What Puts the Convenience in Convenience Yields? Presented at the Annual meeting *Financial Management Association.* October 2005. With B. Adrangi and R. Christie-David and W. T. Moore.

Price discovery in Soybean Crush Futures. Annual meeting *Western Decision Sciences Institute*. April 2004. With B. Adrangi and K. Raffiee.

Petroleum Spreads and the Term Structure of Futures Prices. Annual meeting *Western Decision Sciences Institute.* April 2004. With B. Adrangi

Inflation and Hedging Using REITs. Annual meeting *Applied Business Research Conference*. October 2003. With B. Adrangi and K. Raffiee.

Inflation, Hedging, and Air Transport Sector Investment, Annual meeting *American Society of Business and Behavioral Science.*" *F*ebruary 2003. With B. Adrangi, G. Battistel, and K. Raffiee.

Futures Market Hedging and the Theory of Commodity Prices. Annual meeting *Western Decision Sciences Institute*, 2002.

Inflation and Hedging Using Gold Investments. Annual meeting *Applied Business Research Conference*. March 2002. With B. Adrangi and K. Raffiee.

Price Discovery and Dynamic relationships in futures prices of Crude Oil, Gasoline, and Heating Oil. Annual meeting *Academy of Business Administration*. December 2001. With B. Adrangi and K. Raffiee.

Convenience Yields in Energy Prices and the Minimum-Variance Hedge Ratio. Annual meeting *American Society of Business and Behavioral Sciences*, February 2001. With Adrangi.

Futures Trading Activity and Stock Price Volatility: Some Extensions. *Western Decision Sciences Institute,* April 2000. With F. Song and B. Adrangi.

The Relationship between Financial Sector Volatility and Equity Markets: The Case of East Asia. *American Economic Association*, Pacific Rim Conference." *J*anuary 2000. With B. Adrangi and T. Shank.

Nonlinear Dynamics in Futures Prices: Evidence from the Coffee, Sugar, and Cocoa Exchange. Annual meeting *Global Business Trends* Conference, *Academy of Business Administration.* December 1999. With B. Adrangi.

Margins Requirements and Futures Activity: Evidence from Gold and Silver Markets. Annual meeting *Southern Finance Association.* November 1999. With B. Adrangi, and M. Allender.

The Wisdom of Active Portfolio Management: Investor Time Horizon Considerations. Annual meeting *Southern Finance Association.* November 1999. With B. Adrangi and T. Shank.

The Impact of Margins in Futures Markets: Evidence from the Gold and Silver Markets. Annual meeting *Western Economic Association.* 1999. With B. Adrangi and Mary Allender.

Alaskan Crude Price and California Diesel Price Behavior. Annual meeting *Western Economic Association.* 1999. With B. Adrangi and K. Raffiee and D. Ripple.

Margins Requirements and Futures Activity: Evidence from Soybean and Corn Markets. Annual meeting *Western Decision Sciences.”* January 1999. With B. Adrangi.

Price Discovery in Strategically Linked Markets: The Case of the Gold-Silver Spread. Annual meeting *Financial Management Association*, Chicago. October 1998. With B. Adrangi and R. Christie-David.

Inflation, Output, and Stock Prices. Annual meeting *Academy of Financial Services*, Chicago. October 1998. With B. Adrangi and T. Shank.

Inflation, Output, and Stock Prices: Evidence from Latin America. Annual meeting *Southern Finance Association.* November 1998. With B. Adrangi and T. Shank.

Price Dynamics and Information Flows in Strategically Linked Debt Markets: The NOB and MOB Constituents. Annual meeting *Southwestern Finance Association* in Dallas. March 1998. With R. Christie-David and M. Chaudhry.

Stock Returns and Volatility Persistence. Annual meeting *North American Economic and Finance Association* Chicago.*”* January 1998. With B. Adrangi and K. Raffiee.

Equity Market Volatility in Pacific Basin Countries. Annual meeting *Academy of Business Administration.* April, 1998. With R. Kamath and B. Adrangi.

Information and the Volatility in Futures and Spot Markets: The Case of the Japanese Yen. Annual meeting *Financial Management Association.* October 1997. With F. Song.

Futures Commitments and Exchange Rate Volatility. Annual meeting *Financial Management Association.* October 1997. With B. Adrangi.

An Empirical Investigation of Relationships Between Option Trading and Cash Market Volatility. Annual meeting *Academy of Business Administration.* April 1996. With R. Kamath.

Currency Futures Trading and Exchange Rate Behavior. Annual meeting *Financial Management Association*, October 1995. With Y. Liang and S. Ramchander.

Stock Returns, Inflation, and Real Activity. Annual meeting *MidWestern Finance Association.* 1995. With F. Song and S. Ramchander.

Apartment Real Estate and Apartment REITs. *American Real Estate Society*. 1995. With Y. Liang and W. McIntosh.

The Structure of Price-Volume Relationships in Differenced Series. Annual meeting *Academy of Business Administration.* March 1995. With R. Kamath and M. Chaudhry.

International Transmissions in Banking Markets. Annual meeting *Financial Management Association.* October 1994. With F. Song and S. Ramchander.

International Linkages in Lending and Borrowing Markets: Evidence from Six Industrialized Countries. Annual meeting *Western Economic Association.* 1994. With F. Song and S. Ramchander.

The Impact of Futures Trading on Cash Market Seasonals. Annual meeting *MidWestern Finance Association.* 1993. With M. Chaudhry and M. Mougoue'.

Interest Rates & the Determinants of Bank Profitability. Annual meeting *MidWestern Finance Association.* 1993. With M. Chaudhry.

Invited Presentations

Commodity Price Behavior. Research colloquium, Department of Economics, University of Florida, October 2002.

Futures Hedging and the Behavior of Commodity Prices. Department of Economics and Finance, University of Hong Kong, Hong Kong, January 2002.

PROFESSIONAL ASSOCIATIONS

Financial Management Association
American Finance Association.

AWARDS

Art Schulte Distinguished Professor of Finance, since 2008.

Senior Fulbright Scholar, Warsaw School of Economics, Poland, 2006.

Outstanding Graduate Professor, School of Business, University of Portland, 2002-03.

Research Scholar of the Year, University of Portland, 1999.

Pamplin Research Fellow: 1997-2005.

Institutional Real Estate, Inc. Manuscript Prize for best research study "Apartment REITs and Apartment Real Estate", *Journal of Real Estate Research*, *11, 1999*. With W. McIntosh and Y. Liang.

First Runner-up Prize (Risk Management), 2005, *Financial Management Association*, "What Puts the Convenience in Convenience Yield". With B. Adrangi, R. Christie-David, and T. Moore.

Best Paper, 2005, "Price Discovery in the Soybean Crush". *Applied Business Research Conference*, With B. Adrangi.

Best Paper, *Western Decision Science Institute*, 2002, for study "Inflation Hedging using Gold Investments". With B. Adrangi.

Best Paper, *International Applied Business Research Conference*, 2002. With B. Adrangi.

Best Paper, *Western Decision Science Institute*, 1999, for study "Margin Requirements and Futures Activity: Evidence from the Soybean and Corn Markets". With B. Adrangi.

UNIVERSITY SERVICE

Finance Area Coordinator, School of Business, University of Portland, 2006-2014, 2017-2018.

Committee, Rank and Tenure, 2016-2019.

Author of Master of Sc. Finance Proposal, University of Portland, 2008/09.

Author of Masters of Sc./MBA Dual Degree Proposal, Univ. Portland, 2009/10.

Author of proposal for research measurement within the PSOB, 2007.

Taskforce on Quantitative Methods/Technology, Univ. Portland, 2007/08.

Chair, MBA Curriculum Committee, University of Portland, 2003/04 and 2004/05. Led committee in the development of the Program's Goals and Objectives and changes in curriculum.

Committee on Curriculum and Academic Regulations, 2007/08.

Committee on Faculty Development, School of Business, University of

Portland, ‘01/02. Contributions included review of faculty training in research and teaching, and the assessment of faculty compensation.

MBA Curriculum Committee 1997-2001. Worked on issues relating to curriculum reform and new course offerings.

Committee on Computing & Telecommunications, University of Portland, 1997/98, 1999/00. Contributions included surveying School of Business faculty on issues relating to the use of technology within and outside the classroom.

Graduate Assessment Committee, School of Business, University of Portland, 1999/00. Contributions included developing assessment tools for the MBA program. Authored a Survey sent out to employers of MBA students, 2000.

Economic Impact Study: Co-author of document on the impact of the University of Portland on the North Portland community, 1998/99. With B. Adrangi, K. Dhanda.

Interviewed with representatives from Enron on behalf of the School of Business, March 1999.

Presented "Price Dynamics across Strategically Related Futures Contracts: the Gold-Silver Spread" at the Dedication of the Pamplin School of Business, 1999.

Economic Impact Study: Co-author of document on the impact of the University of Portland on the North Portland community, 1998/99. Co-authors, B. Adrangi, K. Dhanda.

PROFESSIONAL SERVICE

Co-author of study to develop a model on the performance of homeless shelters in the West Coast. Case assessment of homeless youth shelter, New Avenues, Downtown Portland. Spring/Summer/Fall 2000. With K. Dhanda.

Editorial Board *Global Review of Business and Economics* (2003-2005).

Editorial Board *Indian Journal of Economics and Business* (2004-2010).

Ad hoc Journal Reviewer *American Journal of Agricultural Economics, Journal of Banking and Finance, Journal of Futures Markets, Energy Journal, Energy Economics, Quarterly Review of Economics & Finance, Quarterly Journal of Business and Economics, Review of Financial Economics, Global Finance Journal, Global Review of Business and*

Economics, Managerial Finance, Journal of Real Estate Portfolio Management, Agricultural Economics, Journal of Transportation Research Forum, International Review of Economics & Finance.

Book Reviews: *Fundamentals of International Financial Management*, Kemp, White and LaRue, McGraw-Hill/Irwin, 2001; Pricing Derivative Securities: An Interactive Dynamic Approach with Maple V and Matlab, *Prisman*, *Academic Press, 2001*. Introduction to Derivatives, *McGraw-Hill/Irwin*, *2001*. *Principles of Corporate Finance,* Brealey, Myers and Allen, McGraw-Hill 2013.

Reviewer for Other Forms of Research: *State of Louisiana*, *Reviewer for Research Submitted to the Board of Regents,* 2004; Ph.D. committee, Karen Hairong, Portland State University, 2008; Ph.D. dissertation advisor, Jinnah Univ, 2010. Ph.D. dissertation advisor, Jinnah Univ, 2011.