Department of
Mathematical & Statistical Sciences
University of Alberta

Abel Cadenillas
Professor
Ph.D., Columbia University

Office: CAB 639
Phone: (780) 492-0572
Fax: (780) 492-6826
Email: abel@ualberta.ca

Research Interests

I have been working on optimal stochastic control, optimal government debt control, optimal insurance, optimal risk-sharing, optimal consumption-investment, optimal portfolio management when there are taxes and transaction costs, optimal control of the exchange rate, optimal manager compensation, optimal risk and dividend policies, optimal control of inventories, optimal production, and business cycles.

Academic Honours and Visiting Positions

World Class University Distinguished Professor of Financial Engineering, awarded by the South Korean Ministry of Education, Science and Technology.

J.M. Mitchell Mentorship Award, awarded by the Department of Mathematical and Statistical Sciences, University of Alberta, 2009.

Visiting Professor of Information, Operations and Management Sciences, Stern School of Business, New York University (September 2008 - August 2009).

Humboldt Research Fellowship to pursue research at the Institut für Mathematik, Humboldt Universität zu Berlin, Summer 2001 - Summer 2002.

Rosenbaum Visiting Fellowship for the Programme on Financial Mathematics organized by the Isaac Newton Institute for Mathematical Sciences, University of Cambridge, January 1995 - June 1995.

Representative Publications

R. Huaman-Aguilar and A. Cadenillas, and (2015a): Government Debt Control: Optimal Currency, Portfolio and Payments. Operations Research, accepted. download

A. Bensoussan, A. Cadenillas, and H.K. Koo (2015): Entrepreneurial Decisions on Effort and Project with a Non-Concave Objective Function, *Mathematics of Operations Research*, in press.

B. Zou and A. Cadenillas (2014b): Explicit Solutions of Optimal Consumption, Investment and Insurance Problems with Regime Switching, *Insurance: Mathematics and Economics*, vol 58, pp 159-167. publication link

B. Zou and A. Cadenillas (2014a): Optimal Investment and Risk Control Policies for an Insurer: Expected Utility Maximization, *Insurance: Mathematics and Economics*, vol 58, pp 57-67. publication link

A. Cadenillas, P. Lakner and M. Pinedo (2013): Optimal Production Management When Demand Depends on the Business Cycle, *Operations Research*, vol 61, issue 4, pp 1046-1062.

L.R. Sotomayor and A. Cadenillas (2013): Stochastic Impulse Control for the Optimal Dividend Policy When There Are Business Cycles, Taxes and Fixed Costs, *Stochastics: An International Journal of Probability and Stochastic Processes* , vol 85, issue 4, pp 707-722.

L.R. Sotomayor and A. Cadenillas (2011): Classical and Singular Stochastic Control for the Optimal Dividend Policy When There Is Regime Switching, *Insurance: Mathematics and Economics*, vol 48, issue 3, pp 344-354.

A. Cadenillas, P. Lakner and M. Pinedo (2010): Optimal Control of a Mean-Reverting Inventory, *Operations Research*, vol 58, number 6, pp 1697-1710.

L.R. Sotomayor and A. Cadenillas (2009): Explicit Solutions of Consumption-Investment Problems in Financial Markets with Regime Switching, *Mathematical Finance,* vol 19, issue 2, pp 251-279.

A. Cadenillas, J. Cvitanic and F. Zapatero (2007): Optimal Risk-Sharing with Effort and Project Choice [previous versions were titled "Dynamic Principal-Agent Problems with Perfect Information"], *Journal of Economic Theory,* vol 133, issue 1, pp 403-440.

A. Cadenillas, S. Sarkar and F. Zapatero (2007): Optimal Dividend Policy with Mean-Reverting Cash Reservoir, *Mathematical Finance*, vol 17, pp 81-110.

C. Buescu and A. Cadenillas (2007): Investors' Preference for Positive Tax Rate Depends on the Level of the Interest Rate, *Mathematics and Financial Economics*., vol 1, pp. 163-180.

C. Buescu, A. Cadenillas, S. Pliska (2007): A Note on the Effects of Taxes on Optimal Investment, *Mathematical Finance*., vol 17, issue 4, pp. 447-485.

A. Cadenillas, T. Choulli, M. Taksar, and L. Zhang (2006): Classical and Impulse Stochastic Control for the Optimization of the Risk and Dividend Policies of an Insurance Firm, *Mathematical Finance*, vol 16, pp. 181-202.

A. Cadenillas, J. Cvitanic and F. Zapatero (2004): Leverage Decision and Manager Compensation with Choice of Effort and Volatility. *Journal of Financial Economics*, vol 73, issue 1, pp. 71-92.

A. Cadenillas and F. Zapatero (2000): Classical and impulse stochastic control of the exchange rate using interest rates and reserves. *Mathematical Finance*, vol 10, number 2, pp. 141-156.

Cadenillas and F. Zapatero (1999): Optimal Central Bank intervention in the foreign exchange market. *Journal of Economic Theory*, vol 87, issue 1, pp. 218-242.

A. Cadenillas and S. Pliska (1999): Optimal trading of a security when there are taxes and transaction costs. *Finance and Stochastics*, vol 3, number 2, pp. 137-165.

A. Cadenillas and I. Karatzas (1995): The stochastic maximum principle for linear, convex optimal control with random coefficients. *SIAM Journal on Control and Optimization*, vol 33, number 2, pp. 590-624.

A. Cadenillas and U. G. Haussmann (1994): The stochastic maximum principle for a singular control problem. *Stochastics and Stochastics Reports*, vol 49, pp. 211-237.

Research Grants

Research Grant of the World Class University program of the South Korean Ministry of Education, Science and Technology: *Financial Engineering.*

Research Grant of the Social Sciences and Humanities Research Council of Canada (principal investigator): *Financial Crises and Business Cycles*, April 2010 - March 2013.

Research Grant of the Natural Sciences and Engineering Research Council of Canada (principal investigator): *Stochastic Control*, April 2010 - March 2015.

Research Grant of the Social Sciences and Humanities Research Council of Canada (principal investigator): *Optimal Contracts*, April 2006 – March 2009.

Research Grant of the Natural Sciences and Engineering Research Council of Canada (principal investigator): *Stochastic Control*, April 2005 - March 2010.

Research Grant of the Social Sciences and Humanities Research Council of Canada (principal investigator): *Risk Management and Optimal Dividend Policies*, April 2003 - March 2006.

Research Grant of the Natural Sciences and Engineering Research Council of Canada (principal investigator): *Stochastic Control*, April 2001 - March 2005.

Research Grant of the Social Sciences and Humanities Research Council of Canada (principal investigator): *Option Pricing and Consumption-Investment Problems*, April 2000 - March 2003.

Research Grant of the Natural Sciences and Engineering Research Council of Canada (principal investigator): *Stochastic Control*, April 1997 - March 2001.

Research Grant of the Social Sciences and Humanities Research Council of Canada (principal investigator): *Mathematical Finance*, April 1997 - March 2000.

Faculty of Sciences of the University of Alberta: *Start-up funds*, July 1996 - March 1997.

Invited Conference Presentations

2014 Annual Meeting of the Korean Association of Financial Engineering, Busan, South Korea, August 22 - 23, 2014.

20th Conference of the International Federation of Operational Research Societies (IFORS), Barcelona, Spain, July 13 - 18, 2014.

3rd Rutgers Applied Probability Conference, Piscataway, New Jersey, June 6 - 7, 2014.

INFORMS Annual Meeting, Minneapolis, Minnesota, October 6 - 9, 2013.

INFORMS Applied Probability Society 17th Conference, San Jose, Costa Rica, July 15 - 17, 2013.

26th European Conference on Operational Research, Rome, Italy, July 1 - 4, 2013.

INFORMS Annual Meeting, Phoenix, Arizona, October 14 - 17, 2012.

Conference on Financial Engineering Trends, Suwon, South Korea, August 16 - 17, 2012.

2012 Financial Engineering Research Forum, Seoul, South Korea, July 20, 2012.

Ajou International Workshop in Financial Economics and Mathematics, Suwon, South Korea, July 13 - 15, 2012.

Segunda Jornada Internacional de Probabilidad y Estadistica, Pontificia Universidad Catolica del Peru, Lima, Peru, February 1 - 3, 2012.

INFORMS Annual Meeting, Charlotte, North Carolina, November 13 - 16, 2011.

The 8th Conference of Asia-Pacific Association of Derivatives, Busan, Korea, August 25 - 26, 2011.

The 4th POSTECH - Ajou - KAIST Conference in Finance and Mathematics, Pohang, Korea, July 21 - 22, 2011.

10th Conference of the Society for the Advancement of Economic Theory, Singapore, August 13 - 15, 2010.

Ajou Conference on Control Theory, Financial Mathematics and Financial Engineering in Honor of Professor Alain Bensoussan, Suwon, South Korea, July 8 - 10, 2010.

Mathematics of Information Technology and Complex Systems (MITACS) and Canadian Operational Research Society (CORS) Annual Meeting, Edmonton, May 25 - 28, 2010.

The Third Bachelier Colloquium, Metabief, France, January 6-13, 2008.

Winter 2007 Meeting of the Canadian Mathematical Society, London, Canada, December 8-10, 2007.

Conferencia Internacional de Matematicas, Pontificia Universidad Catolica del Peru, Lima, Peru, August 14-17, 2007.

35th Annual Meeting of the Satistical Society of Canada, St. John's, Canada, June 10-13.

Mathematics and Finance: from Theory to Practice, *Instituto Nacional de Matematica Pura e Aplicada* (IMPA), Rio de Janeiro, Brasil, October 30 -

November 1, 2006.

Summer 2006 Meeting of the Canadian Mathematical Society, Calgary, Canada, June 2-5, 2006

International Conference on Management Sciences: Optimization Models and Applications. A Conference in Honor of Professor Suresh P. Sethi, May 20-22, 2006, Dallas, Texas.

Workshop on Optimization in Finance, Centro Internacional de Matematica Thematic Year on Optimization, Coimbra, Portugal, July 5 - 8, 2005.

Workshop on Stochastic Modeling in Financial Mathematics, Centre de recherches mathematiques, Montreal, Canada, June 1 - 5, 2005.

Fourth World Congress of Nonlinear Analysis, Orlando, Florida, USA, June 30 - July 7, 2004.

Quantitative Methods in Finance 2003 Conference, Australia, December 10 - 13, 2003.

Workshop on Financial Mathematics, Atlantic Association for Research in the Mathematical Sciences, Memorial University of Newfoundland, St. John's, Canada, August 17 - 20, 2003.

Mathematics of Finance, Joint Research Conference of the AMS, IMS, and SIAM, Snowbird Resort, Utah, USA, June 22 - 26, 2003 .

Summer 2003 Meeting of the Canadian Mathematical Society, Edmonton, Canada, June 14 -16, 2003.

Winter 2002 Meeting of the Canadian Mathematical Society, Ottawa, Canada, December 8 -10, 2002.

Conference on Stochastic Control and its Applications, Institute of Mathematics of the Polish Academy of Sciences, Poland, June 3-8, 2002.

INTAS Workshop "Incomplete Markets and Weather Derivatives", Berlin, Germany, February 18-19, 2002.

The Second Canada-China Mathematics Congress, Vancouver, Canada, August 20 - 23, 2001.

38th IEEE Conference on Decision and Control, Phoenix, Arizona, USA, December 7 - 10, 1999.

Conference in honor of Professor (Emeritus) Ata Al-Hussaini, University of Alberta, September 18, 1999. 10th INFORMS Applied Probability Conference, Ulm, Germany, July 26 - 28, 1999.

Third Joint Meeting of the American Mathematical Society and the Sociedad Matematica Mexicana, Session on Stochastic Systems, Oaxaca, México, December 3 - 6, 1997.

CIRANO - CRM Workshop on the Mathematics of Finance, Montreal, Canada, April 30 - May 2, 1996.

Bank of England Conference - Mathematics of Finance: Models, Theory, and Computations. The Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, May 22 - June 2, 1995.

CINVESTAV - UAM Workshop on Stochastic Control, Morelia, México, August 8 - 10, 1994.

Department of Mathematical and Statistical Sciences
University of Alberta
632 Central Academic Building
Edmonton, AB T6G 2G1

Phone: 780.492.3396
Fax: 780.492.6826
Last modified July 2015