To: Denis Healy (National Bureau of Economic Research)
From: Simon Gervais (Duke University) and Terrance Odean (UC Berkeley)
Date: March 20, 2017
Re: HF research grant

Dear Denis,

Following a recent announcement from the National Bureau of Economic Research (NBER), we would like to apply for an NBER Household Finance Working Group Small Grant.

To this end, this document includes a two-page proposal for a research project on "**A Model of Financial Choice in the Presence of Cognitive Decline**," a one-page budget, and our CVs.

Thank you for considering our application. Please do not hesitate to contact us if have any question or if you require any additional information.

Sincerely,

Simon Gervais

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Terrance Odean

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NBER Household Finance Working Group Small Grant
"A Model of Financial Choice in the Presence of Cognitive Decline"
Research Proposal

Cognitive decline together with accumulated wealth make seniors increasingly vulnerable to financial fraud. Approximately 24% of people between 80 and 89 years old suffer from dementia (Plassman et al., 2007), while 29% have cognitive impairment without dementia (Plassman et al., 2008). About 75% of those over 90 have dementia or impairment. Among those without dementia or even mild cognitive impairment, old persons and those with more rapid cognitive decline are more susceptible to financial scams (Boyle et al., 2012). Unfortunately, those suffering from cognitive decline usually do not recognize or acknowledge their loss of the ability to make sound financial decisions. Confidence in financial decision-making does not decline in old age and may even increase (Finke, Howe, and Huston, 2016).

More than 25% of the population in the United States is over 53 years old and this percentage is rapidly increasing. Households with a head age of 55 or older control 72% of household net wealth. Defined-benefit plans, which provide retirees with a regular income, are being replaced by defined contribution plans, which give retirees access to and discretion over their entire retirement savings. While home equity loans and reverse mortgages benefit some consumers, they can be difficult for consumers with cognitive decline to understand and may provide liquidity that can be easily misspent. Annual financial losses from financial exploitation of older Americans are estimated to be $2.9 billion (MetLife Mature Market Institute, 2011). Fraud is growing. Fraud complaints filed with the FTC Consumer Sentinel Network—including non-financial fraud and victims of all ages—more than doubled between 2007 and 2012.

Cognitively sound consumers face the risk that cognitive decline will lead their future selves to fall prey to financial fraud. One way to limit this risk is for a consumer to limit the financial choices available to her future self. In practice the risk of being defrauded as a result of cognitive decline can be reduced by purchasing an irrevocable income annuity or giving a fiduciary control of one's finances.

In this research project, we seek to analyze the tradeoffs faced by households as they approach an age at which cognitive decline becomes more likely. In particular, we consider a multi-period model in which consumers face the threat of being taken advantage of by sellers of dubious financial products (whom we refer to as fraudsters). These products can be characterized by the possibility that they are inappropriate for some consumers (e.g., a high-risk fund for an old individual), they carry excessive fees (e.g., high fees for an index fund), or they are pure frauds or scams.

Consumers realize that cognitive decline can hit them at any time, and that the risk of such decline increases over time. They also understand that, once they are hit by decline, they become vulnerable to fraudsters. That is, while consumers are initially able to sort through and turn down bad product offers, they lose this ability after suffering from cognitive decline. To preemptively protect themselves from the potential losses associated with bad decisions in that compromised state, consumers can purchase insurance, which can take many forms. For example, young consumers can limit how much of their wealth their old selves will have discretion to spend by purchasing annuity products. Another example would be the hiring of a financial advisor, who is contracted to assist a consumer in her future financial decisions.

Fraudsters can choose the intensity with which they look for vulnerable consumers. In this choice, they internalize the fact that only uninsured consumers who suffer from cognitive decline will fall prey to their offers. In particular, if they anticipate consumers to be well protected, they reduce their search intensity, and vice versa if they think that most are unprotected. On the other side, insurers understand the consumers' tradeoff (paying for insurance vs. the possibility of being defrauded) and the strategy of fraudsters when they price their products. The resulting game is one in which two parties, the insurers and the fraudsters, effectively compete to extract consumer wealth. The equilibrium to this game, we anticipate, will serve to guide government intervention and regulation.

For example, the purchase of protection by some consumers create a positive externality on other consumers, as it reduces the appeal for fraudsters to look for vulnerable consumers. In essence, if everyone else is protected, a consumer has no need to purchase protection as he can rationally expect fraudsters to stop their activities given that it is costly to attempt fraud and fail. Because of this externality that consumers have on each other, the equilibrium level of protection for the average consumer is below the social optimum, and only a social planner's intervention can restore this optimum.

The benefit of our game theoretical approach lies in the possibility to compare the benefits and costs of the various mechanisms at the government's disposal. In the previous example, one could imagine that regulation, taxes, and subsidies could be used, singly or jointly, to ensure that consumers are appropriately protected. We expect that our model will allow us to assess the most economical and efficient way for the government to proceed.

References

Boyle, P. A., L. Yu, R. S. Wilson, K. Gamble, A. S. Buchman, and D. A. Bennett, 2012, "Poor Decision Making Is a Consequence of Cognitive Decline among Older Persons without Alzheimer's Disease or Mild Cognitive Impairment," *PLoS One*, 7(8), 1-5.

Finke, M. S., J. S. Howe, and S. J. Huston, 2016, "Old Age and the Decline in Financial Literacy," *Management Science*, 63(1), 213-230.

Plassman, B. L., K. M. Langa, G. G. Fisher, S. G. Heeringa, D. R. Weir, M. B. Ofstedal, J. R. Burke, M. D. Hurd, G. G. Potter, W. L. Rodgers, D. C. Steffens, R. J. Willis, and R. B. Wallace, 2007, "Prevalence of Dementia in the United States: The Aging, Demographics, and Memory Study," *Neuroepidemiology*, 29(1-2), 125-132.

Plassman, B. L., K. M. Langa, G. G. Fisher, S. G. Heeringa, D. R. Weir, M. B. Ofstedal, J. R. Burke, M. D. Hurd, G. G. Potter, W. L. Rodgers, D. C. Steffens, J. J. McArdle, R. J. Willis, and R. B. Wallace, 2008, "Prevalence of Cognitive Impairment without Dementia in the United States," *Annals of Internal Medicine*, 148(6), 427-434.

NBER Household Finance Working Group Small Grant
"A Model of Financial Choice in the Presence of Cognitive Decline"
Budget

We are requesting $4,000 in grant funds with which to hire a Ph.D. student as a research assistant. We expect the research assistant to explore alternative specifications for presenting our model (e.g., continuous time vs. discrete time, steady state vs. finite horizon, etc.). Given the relative infancy of academic research on cognitive decline, we also expect this research assistant to help us gather additional data on the nature and extent of the problem that we examine.

We are requesting $12,000 in travel funds. We live and teach on different coasts. Travel funds will enable us to meet and work together on this project. We have co-authored two previous papers and found that we are more creative and productive when we work together in person. We expect that this will be especially important for this new topic as few existing studies can guide our modeling choices. We also plan to use travel funds to present our work at conferences, something that both of us have done extensively in the past as this tends to increase the visibility and impact of one's project.

BUDGET SUMMARY

Purpose	Amount
Research assistance	$4,000
Travel (collaboration, conferences)	$12,000
Total	**$16,000**

March 19, 2017

Simon Gervais

Curriculum Vitae

Fuqua School of Business
Duke University
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Durham, NC 27708-0120

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Web: www.duke.edu/~sgervais

Employment

Professor, Duke University, Fuqua School of Business, 2013-present.

Associate Professor with Tenure, Duke University, Fuqua School of Business, 2008-2013.

Associate Professor without Tenure, Duke University, Fuqua School of Business, 2003-2008.

Visiting Professor, University of Pennsylvania, Wharton School, 2011, 2014.

Visiting Professor, University of California at Berkeley, Haas School of Business, 2010-2011.

Assistant Professor, University of Pennsylvania, Wharton School, 1997-2003.

Lecturer, University of Pennsylvania, Wharton School, 1996-1997.

Research and Teaching Assistant, University of California at Berkeley, Haas School of Business, 1992-1996.

Assistant Actuary, MLH+A, Toronto, Canada, 1990.

Assistant Actuary, Tillinghast, Toronto, Canada, 1989.

Education

Ph.D., Finance, University of California at Berkeley, Haas School of Business, 1997.

M.Sc., Finance, University of California at Berkeley, Haas School of Business, 1995.

Diploma, Econometrics, with Distinction, London School of Economics, England, 1991.

B.Sc., Actuarial Science, Medal of the General Governor of Canada (Valedictorian), Université Laval, Canada, 1990.

Publications

Refereed

Carlin, Bruce, Simon Gervais, and Gustavo Manso, 2013, "Libertarian Paternalism, Information Production, and Financial Decision-Making," *Review of Financial Studies* 26, 2204-2228.

Carlin, Bruce, and Simon Gervais, 2012, "Legal Protection in Retail Financial Markets," *Review of Corporate Finance Studies* 1, 68-108. [Inaugural issue]

Gervais, Simon, J. B. Heaton, and Terrance Odean, 2011, "Overconfidence, Compensation Contracts, and Capital Budgeting," *Journal of Finance* 66, 1735-1777.

Chakraborty, Archishman, Simon Gervais, and Bilge Yılmaz, 2011, "Security Design in Initial Public Offerings," *Review of Finance* 15, 327-357.

Carlin, Bruce, and Simon Gervais, 2009, "Work Ethic, Employment Contracts, and Firm Value," *Journal of Finance* 64, 785-821.

Gervais, Simon, and Itay Goldstein, 2007, "The Positive Effects of Biased Self-Perceptions in Firms," *Review of Finance* 11, 453-496.

Gervais, Simon, Anthony W. Lynch, and David K. Musto, 2005, "Fund Families as Delegated Monitors of Money Managers," *Review of Financial Studies* 18, 1139-1169. [Lead article]

Edelen, Roger, and Simon Gervais, 2003, "The Role of Trading Halts in Monitoring a Specialist Market," *Review of Financial Studies* 16, 263-300.

Gervais, Simon, Ron Kaniel, and Dan Mingelgrin, 2001, "The High-Volume Return Premium," *Journal of Finance* 56, 877-919.

Gervais, Simon, and Terrance Odean, 2001, "Learning to Be Overconfident," *Review of Financial Studies* 14, 1-27. [Lead article]

Non-Refereed

Gervais, Simon, 2010, "Capital Budgeting and Other Investment Decisions," in *Behavioral Finance: Investors, Corporations, and Markets*, Eds. H. Kent Baker and John R. Nofsinger, Wiley and Sons, Hoboken, NJ, 413-434.

Gervais, Simon, and Terrance Odean, "The Perils for Investors of Human Nature," *Financial Times*, June 18, 2001.

Working Papers

Gervais, Simon, and Günter Strobl, "Transparency and Talent Allocation in Money Management."

Foster, Dean P., Simon Gervais, and Krishna Ramaswamy, "The Benefits of Volume-Conditional Order-Crossing."

Work in Progress

Daley, Brendan, and Simon Gervais, "The Equilibrium Value of Employee Ethics."

Burkart, Mike, and Simon Gervais, "Activist Investors: Today's CEOs?"

Gervais, Simon, and Terrance Odean, "Scam the Declined or Decline to be Scammed: A Model of Financial Choice in the Presence of Cognitive Decline."

Gervais, Simon, Iván Marinovic, and Felipe Varas, "The Escalation of Cheating in Organizations: A Dynamic Tournaments Approach."

Black, Bernard S., and Simon Gervais, "Incentives in the Market for Mortgage-Backed Securities."

Dasgupta, Amil, and Simon Gervais, "A Theory of Block Acquisitions by Activist Investors."

Teaching Experience

Duke University, Fuqua School of Business
- Global Financial Management (core finance), 2013-2016.
- Corporate Finance, MBA, 2003-2013.
- Corporate Finance, Cross-Continent Executive MBA, 2012-2016.
- Foundations of Corporate Finance, MMS, 2010.
- Corporate Finance, Weekend Executive MBA, 2006-2007, 2012-2016.

University of Pennsylvania, Wharton School
- Accelerated Corporate Finance, MBA, 1998-2002, 2011, 2014.
- Corporate Finance, Undergraduate, 1997-1998.

University of California at Berkeley, Haas School School of Business
Introduction to Finance, MBA, 2010.

Nazarbayev University, Graduate School of Business
Corporate Finance, Executive MBA, 2014-2016.

Professional Service

Member of the Economic Advisory Board of the Financial Industry Regulatory Authority (FINRA), 2010-2016.

Associate Editor of the *Journal of Financial Intermediation*, 2009-present.

Associate Editor of *Management Science*, 2008-present.

Associate Editor of the *International Journal of Behavioural Accounting and Finance*, 2008-present.

Associate Editor of the *Canadian Journal of Administrative Sciences*, 2012-present.

Faculty Co-Director of the Center for Financial Excellence at the Fuqua School of Business, 2008-2013.

President, Finance Theory Group, 2014-2015.

Member of the Board, Finance Theory Group, 2013-2015.

Program Committee Co-Chair, Annual Meeting of the Financial Intermediation Society, 2016.

Session Chair, Annual Meeting of the Financial Intermediation Society, 2015.

Session Chair, Annual Meeting of the American Finance Association, 2013, 2014, 2015.

Program Organizer, Finance Theory Group Workshop, 2012.

Program Track Chair, Annual Meeting of the European Finance Association, 2011.

Program Organizer, UNC-Duke Corporate Finance Conference, 2008, 2013.

Associate Program Chair, Annual Meeting of the Western Finance Association, 2007, 2013.

Program Track Chair, Annual Meeting of the Financial Management Association, 2007.

Program Committee

Annual Meeting of the Western Finance Association, 2003-2016.

Annual Meeting of the European Finance Association, 2000-2005, 2013-2016.

Annual Meeting of the Financial Management Association, 2004, 2005, 2009.

Annual Meeting of the European Financial Management Association, 2006.

Financial Intermediation Research Society Conference, 2004, 2006, 2008-2017.

Napa Conference on Financial Market Research, 2009-2017.

Rothschild Caesarea Center Academic Conference, 2012-2017.

Miami Behavioral Finance Conference, 2011-2016.

Colorado Finance Summit, 2015-2016.

Review of Financial Studies Conference on Investments in Imperfect Capital Markets, 2002.

Journal of Financial Intermediation Symposium on the Design of Financial Systems and Markets, 1998.

Referee for the *American Economic Review*, *Econometrica*, *Economic Journal*, *Economics Letters*, *Finance Research Letters*, *Financial Management*, *Games and Economic Behavior*, *International Economic Review*, *International Journal of Behavioural Accounting and Finance*, *Journal of Banking and Finance*, *Journal of Business*, *Journal of Econometrics*, *Journal of Economic Behavior and*

Organization, *Journal of Economic Psychology*, *Journal of Economic Theory*, *Journal of Economics and Business*, *Journal of Economics and Finance*, *Journal of Empirical Finance*, *Journal of the European Economic Association*, *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, *Journal of Financial Economics*, *Journal of Financial Intermediation*, *Journal of Financial Markets*, *Journal of Financial Research*, *Journal of Financial Services Research*, *Journal of Law, Economics, and Organization*, *Journal of Marketing Research*, *Management Science*, *Mathematical Social Sciences*, *Production and Operations Management*, *Quarterly Journal of Economics*, *Review of Economic Studies*, *Review of Economics and Statistics*, *Review of Finance*, *Review of Financial Studies*, *Scandinavian Journal of Economics*.

Grant reviewer for the National Science Foundation, Fonds pour la Formation de Chercheurs et l'Aide à la Recherche (FCAR, Canada).

Book reviewer for Addison Wesley Publishing Company.

Ph.D. dissertation committee member for Dan Mingelgrin (chair, 2000, Lehman Brothers), Clara Vega (2002, University of Rochester), Günter Strobl (2004, University of North Carolina at Chapel Hill), Jianguo Will Xu (2005, University of Hong Kong), Wei Zheng (2006), Bruce Carlin (2007, UCLA), Fei Ding (chair, 2007, HKUST), Bin Wei (2007, Baruch College), Dong Chen (2008, University of Baltimore), Wadia Haddaji (co-chair, 2009, University of Amsterdam), Justin Murfin (2010, Yale University), Jawad Addoum (2012, University of Miami), Ryan Pratt (2012, Brigham Young University), Wei Wei (2014, University of Calgary), Ying Xue (2014, Bank of Montreal), Chao Yang (2018, expected).

Member of the American Finance Association, Western Finance Association, Financial Management Association.

Associate of the Society of Actuaries, 1990-2007.

Awards and Grants

Research

Brattle Group Prize finalist for the best paper in corporate finance in Volume 66 of the *Journal of Finance*, "Overconfidence, Compensation Contracts, and Capital Budgeting," 2011.

Morgan Stanley Equity Microstructure Research Grant, "The Role of Communication on Trading Floors," 2004.

Barclays Global Investors/Michael Brennan Award for the best paper in Volume 14 of the *Review of Financial Studies*, "Learning to Be Overconfident," 2001.

Honorable Mention, Geewax, Terker & Company Prize for best paper published in Wharton's Rodney L. White Center working paper series, "The Role of Trading Halts in Monitoring a Specialist Market," 2001.

Research Grant, Rodney L. White Center for Financial Research, Wharton School, University of Pennsylvania, 1999-2003.

Teaching and Professional Service

Teaching Excellence Award, Weekend Executive MBA Program, Fuqua School of Business, Duke University, 2013, 2015, 2016.

Management Science Meritorious Service Award for service as Associate Editor, 2009, 2010, 2013.

Finalist for the Daimler Chrysler Elective Teaching Award in the daytime MBA Program, Fuqua School of Business, Duke University, 2007.

Outstanding Referee Award for the *Review of Financial Studies*, 2004.

MBA Core Curriculum Teaching Award, Wharton School, University of Pennsylvania, 1999.

Nomination for the Haas School Outstanding Graduate Student Instructor Award in the MBA Program, University of California at Berkeley, 1995.

Outstanding Graduate Student Instructor Award, University of California at Berkeley, 1994.

ACADEMIC

Canadian Social Sciences and Humanities Research Council Doctoral Fellowship, 1992-1995.

Scholarship from Fonds pour la Formation de Chercheurs et l'Aide à la Recherche, 1991-1992.

Commonwealth Scholarship, 1990-1991.

Canadian Life and Health Insurance Association Scholarship, 1990.

Sun Life Scholarship, 1990.

Optimum Group Academic Excellence Scholarship, 1989.

Invited Presentations

CONFERENCES

2017: Annual Meeting of the Western Finance Association (session chair, scheduled), Society for Financial Studies (SFS) Finance Cavalcade (discussion, scheduled), Texas Finance Festival (discussion, scheduled).

2016: Paul Woolley Centre Conference on Capital Market Dysfunctionality (discussion).

2015: UBC Summer Finance Conference (discussion), Annual Meeting of the American Finance Association (discussion).

2014: Annual Meeting of the American Finance Association, Annual Penn/NYU Conference on Law and Finance, Mitsui Finance Symposium at the University of Michigan (discussion), Society for Financial Studies (SFS) Finance Cavalcade (discussion).

2013: Annual Meeting of the Western Finance Association (session chair and presentation), European Summer Symposium in Financial Markets, Gerzensee, Switzerland (discussion), Annual Meeting of the American Finance Association (session chair and discussion).

2012: Conference in Honor of Hayne Leland and Mark Rubinstein, Annual Conference on Financial Economics and Accounting, UBC Summer Finance Conference, Annual Meeting of the Western Finance Association (discussion), Paul Woolley Centre Conference on Capital Market Dysfunctionality, Caesarea Center Conference on Recent Advances in Financial Economics Research (session chair and discussion), Rodney L. White Center Conference on Household Portfolio Choice and Investment Decisions (discussion).

2011: Miami Behavioral Finance Conference (discussion), Annual Meeting of the Western Finance Association (presentation), Financial Intermediation Research Society Conference (session chair, presentation and discussion), Wharton Conference in Honor of Marshall Blume (discussion), Annual Meeting of the American Finance Association (discussion).

2010: UBC Summer Finance Conference, NBER Summer Institute in Corporate Finance, Annual Meeting of the Western Finance Association (session chair and discussion), Paul Woolley Centre Conference on Capital Market Dysfunctionality (discussion), Annual Meeting of the American Finance Association (presentation and discussion).

2009: NBER Meeting of Household Finance Group, Conference on the Role of Government Regulation in Corporate Finance at Vanderbilt University, Conference on Recent Developments in Consumer Credit and Payments at the Federal Reserve Bank of Philadelphia, Mitsui Finance Symposium at the University of Michigan, Financial Intermediation Research Society Conference (session chair, presentation and discussion), NBER Meeting of Behavioral Finance Group (discussion), Annual Meeting of the American Finance Association (discussion).

2008: Conference on Financial Innovation at Vanderbilt University (session chair), UBC Summer Finance Conference (presentation and discussion), Annual Meeting of the Western Finance Association (session chair), Paul Woolley Centre Conference on Capital Market Dysfunctionality (discussion), Financial Intermediation Research Society Conference (presentation and discussion), NBER Meeting of Behavioral Finance Group (discussion), Laurier Conference on Recent Advances in Corporate Finance, Annual Meeting of the Econometric Society.

2007: Annual Meeting of the Western Finance Association (discussion), NBER Meeting of Behavioral Corporate Finance Group, Meeting of the NBER Market Microstructure Group, Texas Finance Festival (discussion), Maryland Finance Symposium (discussion), Annual Meeting of the American Finance Association (discussion).

2006: Annual Meeting of the Financial Research Association, Annual Meeting of the American Finance Association (discussion).

2005: Annual Meeting of the Western Finance Association (presentation and discussion), Caesarea Center Conference on Recent Advances in Financial Economics Research, Annual Meeting of the American Finance Association (discussion).

2004: Annual Meeting of the Western Finance Association (discussion), Financial Intermediation Research Society Conference on Banking, Insurance and Intermediation (presentation and discussion), Annual Meeting of the American Finance Association (discussion).

2003: CIRANO Conference on Fund Management, Annual Meeting of the Western Finance Association (discussion), Workshop on New Ideas and Open Issues in Corporate Finance organized by the Amsterdam Center for Research in International Finance.

2002: NYU Stern Five Star Conference on Research in Finance, Annual Meeting of the Western Finance Association (discussion), Yale-Nasdaq-JFM Market Microstructure Conference (discussion), Rodney L. White Center Conference on Household Financial Decision Making and Asset Holdings (discussion).

2001: Annual Meeting of the Western Finance Association (discussion), Annual Meeting of the American Finance Association (discussion).

2000: Conference on Market Rationality organized by the Financial Markets Group of the London School of Economics, Annual Meeting of the European Finance Association, Annual Meeting of the Western Finance Association (discussion), Meeting of the NBER Market Microstructure Group.

1999: Annual Meeting of the Western Finance Association (presentation and discussion), Meeting of the NBER Market Microstructure Group (discussion), Nasdaq-Notre Dame Market Microstructure Conference.

1998: Annual Meeting of the Western Finance Association (presentation and discussion), UCLA Conference on the Market Efficiency Debate, Annual Meeting of the American Finance Association.

1997: Annual Symposium on Financial Markets in Gerzensee, Switzerland, Annual Meeting of the Western Finance Association (discussion).

1995: Annual Meeting of the Northern Finance Association (presentation and 2 discussions).

Seminars and Workshops

2017: University of Colorado at Boulder (scheduled), Toulouse School of Economics.

2016: McIntire School of Commerce at the University of Virginia, University of Oklahoma, HEC Montréal, University of Illinois at Chicago, McGill University, Centro de Investigación y Docencia Económicas (CIDE, Mexico).

2015: Frankfurt School of Finance and Management, Central European University (Budapest), Yeshiva University.

2014: Stockholm School of Economics, HEC Paris, University of Calgary, Babson College.

2013: University of Iowa, University of Sydney, University of New South Wales, University of Technology Sydney, University of Melbourne, University of Queensland.

2012: University of Alberta, Goethe Universität Frankfurt, Vienna University of Economics and Business, University of Amsterdam, Maastricht University, University of Mannheim, University of Colorado at Boulder, University of Minnesota.

2011: Harvard University (Law School), Federal Reserve Board, University of California at Davis, Columbia University (Law School), Stanford University, University of California at Berkeley, Aalto University, Finland, Nottingham University, Oxford University.

2010: DePaul University, Brigham Young University, University College London, Imperial College.

2009: Northwestern University, Yale University, University of Colorado at Boulder, University of South Carolina, American University, U.S. Securities and Exchange Commission, University of Virginia (Darden).

2008: Texas A&M University, University of Texas at Austin, Rice University, University of Miami, University of Florida, London Business School, London School of Economics.

2007: University of Toronto, University of Amsterdam, University of Oregon, University of California at Los Angeles, Cornell University, University of British Columbia, Emory University, Vanderbilt University, University of North Carolina at Chapel Hill, INSEAD, University of California at Irvine.

2006: Hong Kong University of Science and Technology, National University of Singapore, Singapore Management University, London School of Economics, University College London.

2005: University of Maryland, University of Minnesota, Baruch College.

2004: University of Chicago, University of Wisconsin at Madison, University of Cincinnati.

2003: Massachusetts Institute of Technology, Cornell University, University of California at Berkeley, Stanford University.

2002: INSEAD, Duke University, Rice University, HEC Montréal, Virginia Tech, University of North Carolina at Chapel Hill, Texas Christian University, University of Pennsylvania.

2001: London Business School, London School of Economics, Washington University, Queen's University, Carnegie Mellon University, University of Pennsylvania.

2000: McGill University, Temple University, Duke University, Dartmouth College, New York University, University of Oregon, Ohio State University, Massachusetts Institute of Technology.

1999: University of Texas at Austin, University of Pennsylvania.

1998: Rutgers University.

1997: HEC Montréal, University of Pennsylvania.

1996: London Business School, INSEAD, University of Chicago, University of British Columbia, University of Pennsylvania, Ohio State University.

1995: University of Toronto, Georgia State University, University of California at Berkeley.

1994: Université Laval.

Terrance Odean

CURRENT POSITION
(2008 to present)

Rudd Family Foundation Professor
Haas School of Business
University of California at Berkeley
Berkeley, CA 94720-1900
+1-510-642-6767
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PREVIOUS POSITIONS

(2006-2008)
Willis H. Booth Professor of Banking and Finance
Haas School of Business
University of California at Berkeley

(2005-2006)
Professor
Haas School of Business
University of California at Berkeley

(2003-2005)
Associate Professor
Haas School of Business
University of California at Berkeley

(2001-2003)
Assistant Professor
Haas School of Business
University of California at Berkeley

(1997-2001)
Assistant Professor
Graduate School of Management
University of California at Davis
Davis, CA 95616-8609

EDUCATION

Walter A. Haas School of Business
University of California at Berkeley
Ph.D., Finance, May, 1997
Masters of Science, Finance , December 1992
University of California at Berkeley
Bachelors of Arts, Statistics, May 1990

HONORS

James R. Vertin Award from CFA Institute
Carleton College Alumni Distinguished Achievement Award, 2012
Barclays Global Investors Award for Best Conference Paper at European Finance Association Meetings, Moscow 2005
Barclays Global Investment / Michael Brennan Prize for the Best Paper of the year (2001) in the *Review of Financial Studies*
Graham and Dodd Award of Excellence, 2000
National Science Foundation Career Grant
National Science Foundation Research Grant (SES-0111470)

Roger F. Murray Prize (from the Institute for Quantitative Research in Finance)
American Association of Individual Investors 1997 Completed Dissertation Award
Nasdaq Foundation Dissertation Fellowship
University of California Regents Fellowship
Departmental Citation for outstanding undergraduate accomplishment in statistics
Phi Beta Kappa

PROFESSIONAL ACTIVITIES

Member of WU Gutmann Center Academic Advisory Board, Vienna, (2009 to present) http://www.gutmann-center.at/gc/
Member of the Russell Sage Behavioral Economics Roundtable (2005 to present) http://www.russellsage.org/programs/other/behavioral/
Member of *The Journal of Investment Consulting* Editorial Advisory Board (2006 to present)
SSRN Behavioral and Experimental Finance Abstracts Advisory Board (2005 to present) http://www.ssrn.com/update/fen/fen_behav-exper-fin.html
Member of *Borsa Istanbul Review* Advisory Board (2013 to present)
Member of *Critical Finance Review* Editorial Board (2012 to present)
Chair of Haas Finance Group (2008-2010, 2012-2014)
Visiting Professor, University of Stavanger, Norway, 2011, 2012, 2014
Editor, Management Science, special issue on Behavioral Economics, 2010 http://mansci.journal.informs.org/
Associate Editor, *Journal of Finance*, (2006 to 2012) http://www.afajof.org/
Director, UC Berkeley's Xlab (2005-2006) <xlab.berkeley.edu>
Editor, *The Review of Financial Studies* (2005-2006) <www.sfsrfs.org>
Associate Editor, *Review of Financial Studies* (2004-2005)
Associate Editor, *Journal of Behavioral Finance* (2002 to present)
Co-organizer NBER Behavioral Finance Working Group meeting, November 2008
Nominating Committee, American Finance Association, (2004)
Program Committee, Western Finance Association Meetings (2004, 2005, 2010, 2013)
European Finance Association Meeting, Track Chair (2015, 2017), Session Chair (2015) Program Committee (2000- 2005, 2009, 2012-2014)
Program Committee Center for Analytical Finance Summer Research Conference (2008, 2009)
Program Committee 2009 Sixth Annual Napa Conference on Financial Markets
Session Chair, Western Finance Association Meetings (2004, 2005, 2010, 2012)
Session Chair, American Finance Association Meetings (2004, 2010)
Session Chair, WU Gutmann Center Symposium, Vienna, 2011, 25th Australasian Finance and Banking Conference, Sydney, Session Chair (2012), Selection Committee (2013-2015)
Chair, Berkeley Program in Finance, Fall 2002, Co-Chair Fall 1999
Orals Committee Examiner, London Business School, October 2003

WORKING PAPERS

"Family, Values, and Women in Finance," with Renée Adams and Brad Barber.

"Scam the Declined or Decline to be Scammed: A Model of Financial Choice in the Presence of Cognitive Decline," with Simon Gervais.

"Do Day Traders Rationally Learn About their Ability" with Brad Barber, Yi-Tsung Lee and Yu-Jane Liu.

PUBLISHED OR FORTHCOMING

"Made Poorer by Choice: Worker Outcomes in Social Security v. Private Retirement Accounts," with Javed Ahmed and Brad Barber, forthcoming in the *Journal of Banking and Finance.*

"Which risk factors matter to investors? Evidence from mutual fund flows," with Brad Barber and Xing Huang, forthcoming in the *Review of Financial Studies*.

"Bubbling with Excitement: An Experiment" with Eduardo Andrade and Shengle Lin, *Review of Finance*, 2016, Vol. 20, 2, 447-466.

"The Cross-Section of Speculator Skill: Evidence from Day Trading" with Brad Barber, Yi-Tsung Lee and Yu-Jane Liu, *Journal of Financial Markets,* 2014, Vol. 18, 1-24.

"Once Burned, Twice Shy: How Naïve Learning, Counterfactuals, and Regret Affect the Repurchase of Stocks Previously Sold" with Brad Barber and Michal Strahilevitz, 2011, *Journal of Marketing Research,* Vol. 48, 102-120.

"Overconfidence, Compensation Contracts, and Capital Budgeting" with Simon Gervais and J. B. Heaton, 2011, *Journal of Finance*, Vol, 66, 5, 1735-1777.

"Systematic Noise" with Brad Barber and Ning Zhu, *Journal of Financial Markets*, 2009, Vol. 12, 547-569.

"Just How Much Do Investors Lose from Trade?" with Brad Barber, Yi-Tsung Lee and Yu-Jane Liu, *Review of Financial Studies*, 2009, Vol. 22, 2, 609-632.

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"All that Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors" with Brad Barber. Expanded version of *Review of Financial Studies* paper republished in *The Handbook of News Analytics in Finance*, 2011, edited by Gautam Mitra and Leela Mitra, John Wiley & Sons, Chichester: UK.

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Reprinted in *Behavioral Finance, Volume III*, 2000, edited by Hersh Shefrin, Edward Elgar Publishing, Northhampton: MA.

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Also reprinted in *Behavioral Finance, Volume III*, 2000, edited by Hersh Shefrin, Edward Elgar Publishing, Northhampton: MA.

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PROFESSIONAL PRESENTATIONS

Pontificia Universidad Católica de Chile, Santiago, November 2016
CFA Institute Alpha and Gender Diversity Conference, Boston, September 2016
Unisinos University, Brazil, (by video uplink), September 2016
Matson Money, Cincinnati, July 2016
WU Gutmann Center for Portfolio Management, Vienna, June 2016
Society for Experimental Finance, Annual Conference, Mannheim, June 2016
University of Innsbruck, June 2016
Copenhagen Business School, June 2016
Boulder Summer Conference on Consumer Financial Decision Making, May 2016
Salone del Risparmio, Milan, April 2016
Bocconi University, Milan, April 2016
University of Miami, March 2016
Morningstar Institutional Conference, Phoenix, March 2016
JOIM Conference, Rohnert Park, March 2016
Experimental and Behavioral Aspects of Financial Markets Conference, Chapman University, January 2016
Financial Planning Association of San Francisco, November 2015
University of South Florida, Tampa, October 2015
Thinking Ahead Institute, New York, October 2015
Thalerfest, Chicago, September 2015
BlackRock, San Francisco, September 2015
Boulder Summer Conference on Consumer Financial Decision Making, June 2015
19/19 Investment Counsel, Baltimore, May 2015

University of Indiana, April 2015
Matson Money, Scottsdale, March 2015
American Economics Association meetings, Boston, January 2014
Bloomberg, New York, November 2014
Q-Group, Dana Point, October 2014
European Finance Association, Lugano, August 2014
Helsinki Finance Summit, August 2014
Matson Money, Cincinnati, August 2014
Boulder Summer Conference on Consumer Financial Decision Making, May 2014
CFA Vancouver Investor 1st Wealth Conference, May 2014
Pioneer Global Investments Conference, Boston, April 2014
Private Asset Liaisons Group, San Francisco, March 2014
JOIM Conference, San Diego, March 2014
University of Stavanger, March 2014
Institute for Private Investors, San Francisco, February 2014
American Institute of CPAs, Las Vegas, January 2014
Dodge and Cox, San Francisco, December 2013
Dimensional Fund Advisors, Santa Monica, November 2013
McGill & HEC Montreal, November 2013
China Securities Regulatory Commission, Beijing, October 2013
The 10th Chinese Finance Annual Meeting, Beijing, October 2013
Matson Money, Scottsdale, October 2013
Cal Alumni Association & Charles Schwab, San Francisco, October 2013
Dimensional Fund Advisors, Austin, September 2013
University of Bologna, June 2013
Anima, Milan, June 2013
Best of IMCA, Dallas, June 2013
Princeton University, April 2013
Tulane University, April 2013
NYU Stern School of Business, March 2013
Benefits Canada Conference, Banff, February 2013
Matthews International Capital Management, San Francisco, February 2013
Borsa İstanbul, January 2013
Vienna School of Economics and Business (WU), January 18, 2013
Vienna Seminar on Asset Management, January 17, 2013
Expertengespräch, Palais Coburg, Vienna, January 16, 2013
2012 Auckland Finance Meeting, December 2012
Risk Minds Conference, Amsterdam, December 2012
Tri-Valley Cal Alumni Group, Pleasanton, CA, September 2012
Conference on Behavioral Finance, University of Stavanger, September 2012
Experimental Finance 2012, University of Luxembourg
Helsinki Finance Summit, August 2012
Carleton College, Northfield, MN, June 2012
ITAM Finance Conference, Mexico City, June 2012
100 Women in Hedge Funds, New York, June 2012
UC San Diego, May, 2012
SIGFIRM Systemic Risk Workshop, UC Santa Cruz April 2012

Pensions & Investments P&I 401(k) Investment Lineup Summit, San Francisco and Dallas, April 2012
Q-Group, Tampa, Florida, April 2012
University of Michigan, March 2012
Notre Dame, March 2012
McMaster University, March 2012
UC Santa Cruz, February 2012
University of Southern California, December 2011
Ascend Capital Management, San Francisco, December 2011
Global Derivatives USA, Chicago, November 2011
Fund Forum USA, Boston, November 2011
Thrivent Investment Management, Minneapolis, November 2011
International Association of Credit Portfolio Managers, New York, November 2011
2011 Behavioral Finance Symposium, University of Tennessee, Chattanooga, October 2011
University of Stravanger, Norway, September 2011
SKAGEN Funds, Stravanger, Norway, September 2011
S.W. Mitchell Capital, Oxford, June 2011
University of Illinois at Chicago, April, 2011
1st European Retail Investment Conference, Stuttgart Stock Exchange, February 2011
SKAGEN Funds, Copenhagen, Oslo, and Stockholm, January 2011
University of Washington, December 2010
Securities Exchange Commission, Washington DC, November 2010
Woodruff-Sawyer Inc. Sonoma, November 2010
Russell Investments, Pepperdine University, November 2010
University of Texas at Dallas, October 2010
Conference on Closing the Gender Gap, Harvard Kennedy School, October 2010
Institute of East Asian Studies, UC Berkeley, September 2010
National University of Singapore, August 2010
Capital Group, Los Angeles, June 2010
Blackrock, San Francisco, May 2010
Lasecke Weil Wealth Advisory Group, Saratoga, CA, May 2010
JOIM Conference, San Francisco, March 2010
University of Minnesota, December, 2009
Sinopia Asset Management Quant Seminar, Paris, November 2009
Imperial College, London, November 2009
Haas Alumni Association, New York, October 2009
Mackenzie Investments, London, Ontario, April 2009
Mackenzie Investments, Calgary, April 2009
IMCA Retirement Conference, San Antonio, March 2009
American Institute of Certified Public Accountants Advanced Personal Financial Planning Conference, San Diego, January 2009
16th Conference on Securities and Financial Markets, Kaohsiung, Taiwan, December 2008
Taiwan Stock Exchange, December 2008

UC Berkeley Alumni Association, Taipei, December 2008
Barclays Global Investors, San Francisco, November 2008
Harvard Business School, November 2008
Gerson Lehrman Group, Boston, November 2008
Gerson Lehrman Group, New York, November 2008
Southern Methodist University, November 2008
Strategic Legacy Planning Forum, Dallas, November 2008
IMCA Advanced Wealth Management Conference, Costa Mesa, October 2008
Q-Group, Dana Point, October 2008
First Annual DC Investment Forum, Toronto, October 2008
Alliance Bernstein, New York, September 2008
6th Annual Integrated Wealth Management Forum, New York, September 2008
Capital Group, Los Angeles, September 2008
Santa Fe Institute, July 2008
2008 Morningstar Investment Conference, Toronto, June, 2008
Royal Society for the Encouragement of Arts, Manufactures, and Commerce, London, June, 2008
Behavioral Finance Conference, Oxford-Man Institute and Saïd Business School, University of Oxford, May, 2008
Financial Planning Association, San Francisco, May, 2008
2008 Morningstar UK Investment Conference, London (by video uplink), May, 2008
Franklin Templeton Investments, San Mateo, May, 2008
Orkla Finans, Oslo, April, 2008
Wirtschaftsuniversitaet, Vienna, April, 2008
University of Sydney, April 17, 18, 2008
Merrill Lynch, Denver, March 2008
Psych-Econ Seminar Series, UC Berkeley, December 2007
University of Texas, Austin, October 2007
Haas Alumni Los Angeles, September 2007
Santa Fe Institute Public Lecture Series, August 2007
Melbourne Centre for Financial Studies, July 2007
University of Melbourne, July 2007
Behavioral Finance Symposium, Beijing University, June 2007
CFA Institute, The Efficient Market and Behavioral Finance Conference, Boston, June 2007
Pensions and Investments Absolute Return/Alpha Conference, San Francisco, May 2007
Edward Jones, St. Louis, May 2007
Fuller Thaler Asset Management, San Mateo, May 2007
New York Private Equity Network, New York, May 2007
Gerson Lehrman Group, Boston, May 2007
Wellington Investments, Boston, May 2007
Pensions and Investments Absolute Return/Alpha Conference, New York, May 2007
Enterprise Risk Management Symposium, Chicago, March 2007
WellsCap Montgomery Fixed Income, Walnut Creek, February 2007

Merrill Lynch Investor Choice Symposium, Atlanta, February 2007
School of Law—Boalt Hall, UC Berkeley, January 2007
Fidelity, Boston, December 2006
Citigroup Smith Barney, San Diego, November 2006
Franklin Templeton Investments, San Mateo, November 2006
Gerson Lehrman Group, San Francisco, November 2006
Program on Investment Decisions and Behavioral Finance, Kennedy School of Government, Harvard University, April 2000, December 2000, May 2002, November 2002, October 2003, October 2004, November 2005, November 2006
Santa Fe Institute, October 2006
Rockbay Capital Management, New York, October 2006
Gerson Lehrman Group, New York, October 2006
Golden Gate University, September 2006
Columbia University, September 2006
Simon Fraser University, September 2006
European Finance Association Meetings, Zurich, August 2006
Institutional Investor's Fixed Income Forum, Whistler, B.C., July 2006
Private Wealth Management Conference, Singapore, June 2006
Singapore Management University, June 2006
Western Finance Association Meeting, June 2006
IMCA, Toronto, June 2006
Consulting Services Support Corporation, La Jolla, June 2006
Berkeley/Stanford Joint Finance Seminar, May 2006
Emory University, April 2006
CFA Society of Chicago, April 2006
NBER Asset Pricing Meeting, March 2006
Cornell University, March 2006
IMCA, Tucson, March 2006
American Finance Association Meetings, Boston 2006
IMCA, Sante Fe, December 2005
BSI/Gamma Foundation, Zurich, December 2005
Gutmann Center, Vienna, December 2005
Delahaye IABC Research & Measurement Conference, New York, November 2005
IMCA, Chicago, November 2005
Financial Supervisory Commission, Taipei, Taiwan, October 2005
Taiwan Academy of Banking and Finance and National Science Council, Taipei, October 28 & 29, 2005
Morgan Stanley, San Diego, October 2005
The Art of Indexing Conference, Washington D.C., September 2005
Edward Jones, St. Louis, September 2005
World Presidents Organization, Chicago, September, 2005
CFA Conference, Calgary, Alberta, June 2005
Mistui Life Symposium on Institutional Investors, University of Michigan, June 2005
Family Office Exchange, New York, June 2005
UCLA, May 2005

Mellon Financial, San Francisco, May 2005
University of Toronto, March 2005
Eaton Vance, New York, March 2005
2nd Behavioral Economics Workshop, Osaka, November 2004
Kwansei Gakuin University, November 2004
Osaka University, November 2004
Indian School of Business, Hyderabad, November 2004
University of Texas, Austin, October 2004
Paul Capital Partners, New York, September 2004
Stockholm Institute for Financial Research Conference on Portfolio Choice and Investor Behavior, September 3rd and 4th , 2004
Norwegian School of Economics and Business Administration, September 2004
Google, August 2004
Stanford Institute for Theoretical Economics, August 2004
Mutual Service Corporation Annual Convention, Phoenix, May 2004
Mercer Global Investment Forum, Dublin, Ireland, April 2004
Moritz College of Law, Ohio State University, February 2004
Mercer Global Investment Forum, Sydney, Australia, December 2003
McGill University, November 2003
Legg Mason Funds Management Conference, Las Vegas, November 2003
Tilburg University, October 2003
Tilburg Center of Finance, October 2003
HEC, Jouy-en-Josas, France, October 2003
Society of Quantitative Analysts, New York, October 2003
RSM McGladrey, Seattle, September 2003
Gothaer Insurance Conference, Berlin, June 2003
AIMR Annual Conference, Phoenix, May 2003
UC Foundation Investment Forum, San Francisco, April 2003
Institutional Investor Public Funds Roundtable, Pasadena, April 2003
19th Annual Risk Management Conference, CBOE, CBOT, & CME, San Antonio, March 2003
Morgan Stanley Senior Consultant's Conference, Squaw Creek, February 2003
5th Annual Investment Management Symposium, Lyon Schwabacher Group, San Francisco, December 2002
Cornell University, November 2002
2nd Annual Conference on Personal Risk Management, Individual Finance and Insurance Decisions Centre, Toronto, November 2002
Financial Management Association Doctoral Consortium, San Antonio, October 2002
Investment Management Consultants Association, Colorado Springs, October 2002
Q Group, San Diego, October 2002
AARP National Legislative Council Roundtable Meeting, Washington DC, September 2002
Barclays Global Investors Chicago Client Conference, Chicago, September 2002

Western Finance Association Meetings, June 1999, 2000, 2002
Behavioral Decision Research in Management Meeting, June 2002
Pershing Financial Products and Services Conference, June 2002
Wharton, University of Pennsylvania, March 2002
Mind Symposium III, Dartmouth College, January 2002
Risk Perceptions and Capital Markets Conference, Northwestern University, January 2002
American Finance Association Meeting, January 2002
University of Illinois, November 2001
National Bureau of Economic Research, November 2001
UC Regents Office of the Treasurer, October 2001
Schwab Impact 2001, Seattle, October 2001
Fuller Thaler Asset Management, Chicago, September 2001
Mellon Capital Management, June 2001
Prudential Investments, Nassau, May 2001
Ohio State University, May 2001
AIMR Annual Conference, May 2001
CEPS Symposium, Princeton University, May 2001
Wealth Planning Institute, May 2001
L.A. Times Investment Strategies Conference, May 2001
Stockholm School of Economics, April 2001
Copenhagen Business School, April 2001
IIR London, April 2001
CEPR/JFI Symposium at INSEAD, April 2001
UC Berkeley, April 2001
UC Irvine, April 2001
Law and Business Conference, Vanderbilt Law School, March 2001
Prudential Investments, Phoenix March 2001
Paine Webber, January 2001, November 2000
Tulane University, November 2000
SEI, November 2000
Society of American Business Editors and Writers, October 2000
MoneySense 2000, October 2000
Duke University, September 2000
North American Securities Administrators Association Meeting, September 2000
Schwab Impact 2000, Denver, October 2000
Q Group, October 2000
European Finance Association Meeting, London, August 2000
BARRA 24th Annual Research Seminar, July 2000
IRR, London, June 2000
7th Plexus Group Conference, May 2000
University of Utah, April 2000
Conference on Market Frictions and Behavioral Finance, Northwestern University, April 2000
Conference on Financial Markets, Information Technology and Electronic Commerce, Vanderbilt University, April 2000
Merrill Lynch, Chairman's Club Meetings, April-May 2000

University of Iowa, March 2000
Inquire Europe, March 2000
AIMR, February 2000
Goldman Sachs, February 2000
Barclay's Global Investment Advisors, January, February, March, 2000
National Bureau of Economic Research, December 1999
Berkeley Program in Finance, November 1999
Q Group, Fall 1999
Yale University, September 1999
Princeton University, September 1999
Securities Exchange Commission, September 1999
New England Financial, September 1999
Risk Research Initiative Group, University of Utah, June 1999
University of Alberta, April 1999
Mitsui Life Finance Mini-conference in Behavioral Finance, University of Michigan, April 1999
Conference on Household Portfolio Decision-making and Asset Holdings, The Wharton School, March 1999
American Finance Association Meetings, January 1999
INSEAD, November 1998
University of Vienna, November 1998
London Business School, November 1998
Arizona State University, November 1998
Corporate & Private Plans Summit, February 1998
American Finance Association Meetings , January 1998
Western Finance Association Meetings, June 1997
Conference on Household Financial Decision Making and Asset Allocation, The Wharton School, March 1997
Columbia University, March 1997
University of Michigan, February 1997
UCLA, February 1997
University of Texas, February 1997
Northwestern University, February 1997
University of British Columbia, February 1997
University of Chicago, February 1997
Dartmouth College, January 1997
Massachusetts Institute of Technology, January 1997
Harvard University, January 1997
University of Oregon, January 1997
Stanford University, January 1997
Wharton, University of Pennsylvania, January 1997
Duke University, January 1997
University of North Carolina, January 1997
University of Southern California, January 1997
American Finance Association Meetings , January 1997
University of California, Davis, December 1996
Yale University, November 1996
Financial Management Association Meetings , October 1996

National Bureau of Economic Research, May 1996
Berkeley Program in Finance, Ojai Valley, Spring 1996
Russell Sage Foundation Summer Institute in Behavioral Economics, 1995, 1996, 1998, 1999, 2000
The Competition for Order Flow: A Market Microstructure Conference at The University of Memphis, March 1994

OTHER Co-owned seat on Pacific Stock Exchange (1990-1991)