The Promises and Pitfalls of Robo-advising

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JEL classification: D14, G11, O33

Keywords: FinTech, Individual Investors, Financial Literacy, Money Doctors, Behavioral Biases, Technology Adoption, Trust

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Our primary project concerns robo-advising. For this project, we have already obtained comprehensive micro-data on the entire retail base of a full-service stock broking firm in India.

Robo-Advising Project. A robust finding in the household finance literature is that individuals hold suboptimal stock portfolios that are highly under-diversified (Badarinza, Campbell, and Ramadorai, 2015). We study the effect of a robo-advisor that constructs customized diversification strategies for individual investors.

We study two main questions. One examines the effect of the robo-advising technology on the performance of individual investors. We have complete histories of trading for investors. Thus, we can track multiple aspects of investor behavior including how they trade, what portfolios they hold, how these perform ex-post using measures such as alpha, Sharpe ratio, and volatility measured over different horizons post-treatment for every investor. We exploit interesting variations within the tool that lets investors optimize within the set of stocks currently held as well as across new investments.

The second category of questions we pursue is the effect of the robo-advising tool on the interaction between investors and advisors. We have complete records of all advisor-investor interactions including calls made to advisors by investors and vice versa before and after the treatment, and the duration of the call, which captures the depth of the interaction. We have variation across advisor-investor pairs, as investors are routed elsewhere if a primary advisor is unavailable. We observe all data before and after advising, and observe whether instances of advising are followed by instances of trading, and if so, what sorts of trading.

Our analysis sheds light on the extent to which robo-advising and human advising are complements or substitutes, by identifying the channels through which each form of financial advising can replace or enhance the other one, and the nature and role of trust in advising (Genniaoli, Shleifer, and Vishny, 2015). More broadly, the setup allows us to test whether robotized technologies that are hard to understand for individual decision makers can replace fully the tasks that were performed by white-collar workers before the technology was created, or whether instead the presence of a human experts is a necessary condition for robotized technologies to be effective. The evidence potentially informs a broader literature in Economics and Finance dealing with issues such as the labor

and income inequality consequences of robotizing white-collar tasks, and the correction of experts' decision-making biases using algorithms. Because robo-advising is a new technology, our study also adds to the literature on technology adoption. We provide very granular measures on technology adoption and its consequences, including unintended side effects such as excessive trading. The work adds to a nascent literature on technology adoption in finance, or "fin tech."

Data. Our data come from a full-service brokerage house in India. Our universe comprises over 800,000 individual-investor brokerage accounts who are exposed to the new robo-advising technology. We obtain proprietary data internal to the brokerage house on portfolio holdings and trading activity of each investor. To test hypotheses concerning interactions between robo and financial advising, we obtain logs of all contacts initiated by investors with advisors and by advisors to investors. These data, coupled with data on follow up trading activities of investors help pin down the extent to which reliance on human advising changes, and the impact of human advising following robo-advising. By tracking the effects on the types of trades, e.g., trades in response to extreme movements in stocks or portfolios, in a difference-in-differences setting, we can test the effect of robo-advising on the behavioral biases of investors, such as the disposition effect.

Additional projects. Our dataset is unique in that we observe the complete supply chain of a brokerage house. Thus, we observe not only the trades by investors but also a host of nudges preceding it including research production by buy-side analysts, its dissemination to advisors, communication to investors, and subsequent trading responses of investors. This information allows us to test, for instance, whether in-housing research and advising adds value for the customers in addition to pure brokerage operations. We also have data on a "stop loss" product offered to investors. We analyze the uptake of this service and its effectiveness in mitigating the disposition effect, which is perhaps the most significant trading bias noted in the behavioral finance literature.

Budget

We request funding for $18,400 as follows

1. *Travel subject to actuals, $12,000.* The brokerage house data provider is a full service located in India. The data are highly confidential, internal data compiled by the brokerage house and provided to us for the purpose of conducting the above research projects. We include a budget for one trip one week trip per researcher to travel to India. Total budget is as follows:

    - Round trip airfare = $2,000 per person, $6,000 total.
    - Hotel, transfers, and incidentals: $2,000 per person, $6,000 total

2. *Data, $6,400.* We need to acquire a database that gives us the stock market and accounting data for Indian firms. Research grade data are available from CMIE through their CMIE Prowess DX dataset, a website paralleling the widely used WRDS system and designed specially for academics. Please see their website https://prowessdx.cmie.com. The current cost of the data quoted by the provider is $3,200 for a one year subscription. We anticipate needing this data for a 2-year cycle for handling the initial production of the paper(s) and subsequent revisions suggested by the conference presentations and refereeing process.

Francesco D'Acunto

Contact

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http://www.terpconnect.umd.edu/∼ fdacunto

Research Interests

Corporate Finance, Behavioral Economics/Behavioral Finance, Entrepreneurial Finance and Innovation, Household Finance, Political Economy

Position

University of Maryland, R.H. Smith School of Business
Assistant Professor of Finance, August 2015-

Education

University of California at Berkeley, Haas School of Business Berkeley, CA, USA
Ph.D. in Finance, 2015; *M.Sc. in Finance,* 2012

Università Tor Vergata, Rome, Italy
M.Sc. in Economics and Business Law (cum laude, dignita di stampa), 2008

Università La Sapienza, Rome, Italy
B.A. in Economics (cum laude and honors), 2006

Working Papers

The Long Shadow of Jewish Persecution on Financial Decisions
(with M. Prokopczuk and M. Weber)
Revise and Resubmit at the *Review of Economic Studies*
Presentations: 2015 NBER SI (POL), 2015 EFA, 2015 SED, 2014 NBER BE, 2014 Miami BF

Identity, Overconfidence, and Investment Decisions
Reject and Resubmit at the *Journal of Political Economy*
2015 WFA Cubist Systematic Strategies PhD Award for Outstanding Research
Presentations: 2016 AFA, 2015 WFA, 2015 SITE, 2014 NBER BE, 2014 Miami BF

Flexible Prices and Leverage
(with R. Liu, C. Pflueger, and M. Weber)
Revise and Resubmit (third round) at the *Journal of Financial Economics*
Presentations: 2016 NBER CF, 2016 WFA, 2016 ASU Sonoran WFC

Innovating to Invest: The Role of Basic Education
2014 WFA Cubist Systematic Strategies PhD Award for Outstanding Research
2014 Best Finance PhD Award in Honor of Prof. Greenbaum
Presentations: 2014 NBER SI (EFG-BGZ), 2014 WFA, 2014 SFS Cavalcade

Ditching the Middle Class with Financial Regulation
(with A. G. Rossi)
Presentations: 2017 NBER CF, 2017 Duke/UNC CF, 2017 FIRS

Tear Down This Wall Street: Anti-market Rhetoric and Investment

The Effect of Unconventional Fiscal Policy on Consumption Expenditure
(with D. Hoang and M. Weber)
Presentations: 2016 AEA, 2015 NBER ME

Governance Conflicts, Ownership, and Firm Value
2012 AFBC Best Student Paper Award (second prize)

History & Finance: A Nascent Field

Publications

Telecracy: Testing for Channels of Persuasion
(with G. Barone and G. Narciso)
American Economic Journal: Economic Policy May 2015, vol. 7 (2), pp.30-60

Presentations

2017 (includes scheduled, * by coauthor)

American Economic Association (Chicago, 3 papers), NBER Corporate Finance (Spring)*, Duke/UNC Corporate Finance Conference*, 2017 SFS Finance Cavalcade (Nashville, *discussant*), 2017 Financial Intermediation Research Society Meeting (Hong Kong), GFLEC/Fed Financial Literacy Seminar*, 2017 CESifo Summer Institute (New Evidence on Consumption, Household Behavior, and Inequality), Harvard University (HBS Finance/Financial Economics), University of Notre Dame (Mendoza Finance), Maastricht University (Finance)

2016 (* by coauthor)

American Economic Association (San Francisco), American Finance Association (San Francisco), NBER Corporate Finance (Spring), NBER Summer Institute (Capital Markets and the Economy)*, 2016 Western Finance Association (Utah), 2016 ASU Sonoran Winter Finance Conference, 2016 European Finance Association (Oslo, *discussant*), 2016 Corporate Finance Symposium (Stockholm), 2016 Summer Research Conference in Finance (Indian School of Business), First Awesome Junior Finance Conference (Yale SOM), First Caltech Behavioral Finance Junior Faculty Conference, First Maryland Junior Corporate Finance Conference (*discussant*), 2016 Barcelona GSE Summer Forum (Towards Sustained Economic Growth: Geography, Demography and Institutions), 2016 Household Finance Workshop (Deutsche Bundesbank), University of Miami (Finance)

2015

NBER Summer Institute (Political Economy), NBER Monetary Economics (Fall), NBER Behavioral Finance (Fall, *discussant*), Stanford Institute for Theoretical Economics (Experimental Economics Workshop), 2015 Western Finance Association (Seattle), 2015 European Finance Association (Vienna), Society for Economic Dynamics (Warsaw), 2015 SFS Finance Cavalcade (*discussant*), 2015 Northern Finance Association (*discussant*), Yale University (SOM Finance), University of Maryland (Smith Finance), University of California at Irvine (Merage Finance), New York University (Stern Finance), London Business School (Finance), University of North Carolina at Chapel Hill (Kenan-Flager Finance), University of British Columbia (Sauder Finance), Einaudi Institute for Economics and Finance, University of Washington at Seattle (Foster Finance)

2014

NBER Summer Institute (Income Distribution and Macroeconomics), NBER Behavioral Finance (Fall), 2014 Western Finance Association (Monterey), 5th Miami Behavioral Finance

Conference (2 papers), 2014 SFS Finance Cavalcade (Georgetown), 11th Annual Conference on Corporate Finance - session in honor of Prof. Greenbaum (Washington University at Saint Louis), 10th Whitebox Advisors Graduate Conference - Behavioral Finance (Yale SOM), UC Berkeley (Finance, Financial Economics, Political Economy Lunch)

2011-2013

NBER Behavioral Economics (Fall 2013), 9th Whitebox Advisors Graduate Conference - Behavioral Economics (Yale SOM), 2013 MOOD Doctoral Workshop in Economic Theory and Econometrics (Einaudi Institute for Economics and Finance), UC Berkeley (Psychology & Economics, Financial Economics), 2013 American Law and Economics Association (Stanford), X Media Economics Workshop (Bogotá), 2013 European Economic Association Congress (Malaga), 2013 Econometric Society, European Meeting (Malaga), Trans-Atlantic Doctoral Conference (London Business School), 2012 MILLS Workshop (Milan), 2012 EEA-ESEM Annual Meeting (Oslo), 24th Australasian Finance and Banking Conference (Sydney), UC Berkeley (Finance, Psychology & Economics, Financial Economics)

Honors & Awards

Cubist Systematic Strategies Phd Award for Outstanding Research, WFA 2015
Hayase Award, for the best mentor of fellow Phds, 2015
Best Paper Award in Honor of Prof. Greenbaum, 2014
Cubist Systematic Strategies Phd Award for Outstanding Research, WFA 2014
EIEF Travel Fellowship, 2013
White Foundation Research Fellowship, 2011-2014
European Economic Association Travel Grant, 2012
American Finance Association Travel Grant, 2013
AFBC Best Student Paper Award (second prize), 2012
Claudius N. and James N. White Fellowship, 2010-2011
RBC Dain Rauscher Fellowship, 2009-2010
Sebastiano and Rita Raeli Graduate Award, 2009
Federazione Nazionale Cavalieri del Lavoro Fellowship, 2003-2008
Italian Champion, XI International Philosophy Olympiads. International Section, Honorable Mention
Certamen in Ponticulo Herae, honorable mention, 2000

Workshops (invited)

6th NBER Entrepreneurship Research Boot Camp, Boston 2013
Behavioral Economics Annual Meeting (BEAM), 2013
Whitebox Advisors Graduate Conference, Yale 2013, 2014
Yale Summer School in Behavioral Finance, Yale 2013
CEPR-Gerzensee European Symposium on Financial Markets, 2011
Grossman and Hart at 25, selected student participant
Second Philosophy Day, Unesco, session speaker *Les jeunes et la philosophie*

Grants

Kauffman Foundation/New York Univeristy, 2016
"Innovative Measurement Initiative" (PI: Liu Yang)

Fama-Miller Research Center (University of Chicago), 2015-2016
"Inflation Expectations and Households' Portfolios" (PI: Michael Weber)

Clausen Center for International Business Research Grant, 2014-2015
"Basic Education and Economic Growth Across Regions and Countries"

Clausen Center for International Business Research Grant, 2013-2014
"The Deep Roots of Entrepreneurship and Financial Development"

UC Berkeley Graduate Division Travel Grant, 2012, 2013

UC Berkeley Graduate Division Summer Grant, 2012, 2013

American Finance Association Travel Grant, 2012

2014 AFBC Travel Grant, 2011

European Economic Association Travel Grant, 2011

Professional Activities

Session Chair, *Financial History*, 2016 Western Finance Association

Session Chair, *Ambiguity in Finance*, 2016 FMA Annual Meeting

Program Committee, 2017 Midwest Finance Association (MFA) Annual Meeting

Program Committee, 2017 FIRS Meeting, Hong Kong

Program Committee, 2017 ISB CAF Summer Research Conference, Hyderabad (IND)

Refereeing

American Economic Review, Economic Journal, Explorations in Economic History, Journal of Behavioral and Experimental Economics, Journal of the European Economic Association, Journal of Finance, Journal of Monetary Economics, Quarterly Journal of Economics, Review of Corporate Finance Studies, Review of Economics and Statistics, Review of Financial Studies

Teaching Experience

R.H.Smith School of Business, University of Maryland

- Entrepreneurial Finance and Private Equity, Winter 2016
  Teaching Evaluations: MBA-1: 3.7/4, MBA-2: 3.9/4, MFin: 3.7/4

Haas School of Business, UC Berkeley

Graduate Student Instructor (TA)

- Corporate Finance (MBA), Professor Ulrike Malmendier, Spring 2014
  Evaluation: mean 6.6/7, median 7/7

Academic Service

Dingman Center for Entrepreneurship, R.H.Smith School of Business

Judge, Award for Best Doctoral Paper in Entrepreneurship

Academic Work Experience

University of Chicago, Booth School of Business

Research Assistant

- Professor Luigi Zingales, October 2008 – May 2009

Languages

Italian (native) English (fluent), French (fluent), Mandarin (basic)

References

Prof. Ulrike Malmendier
University of California at Berkeley
Department of Economics
and Haas School of Business
ulrike@berkeley.edu

Prof. Stefano DellaVigna
University of California at Berkeley
Department of Economics
and Haas School of Business
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Prof. Ross Levine
University of California at Berkeley
Haas School of Business
ross_levine@haas.berkeley.edu

Prof. Gustavo Manso
University of California at Berkeley
Haas School of Business
manso@haas.berkeley.edu

Prof. Adair Morse
University of California at Berkeley
Haas School of Business
morse@haas.berkeley.edu

Media Coverage

Ditching the Middle Class with Financial Regulation
(with A. G. Rossi)

Wall Street Journal, Bloomberg View, Washington Post, U.S. News & World Report, CBS Radio, Chicago Tribune, Morningstar, Smith Brain Trust, Oxford Business Law Blog

The Long Shadow of Jewish Persecution on Financial Decisions
(with M. Prokopczuk and M. Weber)

The Economist, The American Interest, La Stampa, Die Welt, Haaretz, L'Opinion, Share Radio, The Marker, Tablet Magazine, Världen idag, Dinheiro Vivo, 444.hu, NEWSru, Merdeka, Al Balad, Actualite Juive Hebdo, Cree En la Tolerancia, Ökonomenstimme, Chicago Booth Review, VoxEu.org

Identity, Overconfidence, and Investment Decisions

Bloomberg View, Reuters, World Economic Forum, U.S. News & World Report, Daily Mail, The Globe and Mail, The Peninsula, China Economic Information Network, SigFig Blog, China Tells, CalvinAyre.com, PokerGround.pl, Oe! (proexpansion), Smith Brain Trust, VoxEu.org

The Effect of Unconventional Fiscal Policy on Consumption Expenditure
(with D. Hoang and M. Weber)

Wall Street Journal, Bloomberg Radio, World Economic Forum 1, World Economic Forum 2, Il Fatto Quotidiano, Die Welt, Main Street, Penzügyi Szelme, Poleconomix, Mendimi ekonomik i javës, Econbrowser, Science Daily, lavoce.info, Ökonomenstimme, VoxEu.org, NBER Digest

Telecracy: Testing for Channels of Persuasion
(with G. Barone and G. Narciso)

Wall Street Journal (Real Time Economics), Il Fatto Quotidiano, lavoce.info, VoxEu.org

Alberto G.P. Rossi

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https://sites.google.com/site/albertorossifrb/home

OFFICE ADDRESS AND TELEPHONE:
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4457 Van Munching Hall
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301-405-0703
arossi@rhsmith.umd.edu

DATE OF BIRTH: 04/26/1982

EMPLOYMENT:

Assistant Professor of Finance, Robert H. Smith School of Business, August 2012 to present
Economist, Board of Governors of the Federal Reserve System, August 2011- August 2012

EDUCATION:

Ph.D. Economics, University of California, San Diego, June 2005-2011
M.Sc. Economics, Tilburg University, The Netherlands, 2004-2005
B.A. International Economics and Management, Bocconi University, Italy, 2001-2004

PUBLISHED AND FORTHCOMING PAPERS:

1. "The Freedom of Information Act and the Race Towards Information Acquisition," with Antonio Gargano and Russ Wermers, 2016, *Forthcoming* in the *Review of Financial Studies*

2. "Network Centrality and Delegated Investment Performance," with David Blake, Allan Timmermann, Ian Tonks and Russ Wermers, 2016, *Forthcoming* in the *Journal of Financial Economics.* (Lead Author)

3. "A Spanning Series Approach to Options," with Steve Heston, 2016, *Forthcoming* in the *Review of Asset Pricing Studies*

4. "Decentralization in Pension Fund Management," with David Blake, Allan Timmermann, Ian Tonks and Russ Wermers, 2015, *Journal of Investment Management*, 13 (3), 35-56

5. "Modeling Covariance Risk in Merton's ICAPM," with Allan Timmermann, 2015, *Review of Financial Studies*, 28 (5), 1428-1461

6. "Decentralized Investment Management: Evidence from the Pension Fund Industry," with David Blake, Allan Timmermann, Ian Tonks and Russ Wermers, 2013, *Journal of Finance* 68, 1133-1178

PAPERS IN THE REVISE & RESUBMIT STAGE:

7. "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," with Gurdip Bakshi and Xiaohui Gao, 2016, *R&R* at *Management Science*

WORKING PAPERS:

8. "Ditching the Middle Class with Financial Regulation," with Francesco D'Acunto

9. "Does it Pay to Pay Attention?" with Antonio Gargano

10. "Towards a Theoretical Explanation of Time Varying Trading"

11. "A Utility-Based Model Combination for Portfolio Choice," with Georgios Skoulakis

12. "Asset Allocation with High-Dimensional Information Sets"

HONORS, SCHOLARSHIPS, AND FELLOWSHIPS:

2016: Winner of the 2016 Crowell Prize (First Prize) – PanAgora Asset Management – for the paper "The Freedom of Information Act and the Race Towards Information Acquisition"
2016: Visiting Research Scholar Award from the University of Melbourne: AUD 5,000
2015: CFA Institute Asia Pacific Capital Markets Research Award for the paper: "The Freedom of Information Act and the Race Towards Information Acquisition"
2013: Top 15% Award for Outstanding Teaching – Smith School of Business at the University of Maryland
2009: Society of Financial Econometrics Travel Grant – NYU Stern Business School
2009: Economics Department Research Fellowship - UCSD
2008: Walter P. Heller Honorable Mention of Outstanding Third-Year Paper - UCSD
2006: Van Lanschot Prize for Best Master's Thesis in Economics - Tilburg University
2005: Master's Degree Awarded with Highest Honors - Tilburg University
2004: Bachelor's Degree Awarded with Highest Honors - Bocconi University
2005-2011: Tuition Scholarship, UCSD

MEDIA COVERAGE:

- The paper "Ditching the Middle Class with Financial Regulation" was featured on: Wall Street Journal, Bloomberg View, Chicago Tribune, CBS Radio Baltimore, Smith Brain Trust.

- The paper "Does it Pay to Pay Attention?" was featured on Reuters, CNBC, Business Insider, WBNews, Yahoo Finance, Smith Brain Trust Smith Brain Trust.

- The paper "The Freedom of Information Act and the Race Towards Information Acquisition" was featured on: ValueWalk, Alpha, Nfoic.org, National Affairs, Smith Brain Trust.

- The paper "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns" was featured on: QuantPedia, Quantocracy.

- The paper "Decentralized Investment Management: Evidence from the Pension Fund Industry" was featured on CFA Digest.

SEMINAR AND CONFERENCE PRESENTATIONS:
(* Indicates presentation by co-author)

2017
WFA Annual Meeting – Whistler, June 2017
Barcelona GSE Summer Forum – Barcelona, June 2017
FIRS Annual Meeting – Hong Kong, June 2017
UNC / Duke Corporate Finance Conference – Chapel Hill, April 2017
FSU SunTrust Beach Conference – Destin, April 2017
NBER Corporate Finance Meeting – Boston, March 2017
Conference on Financial Decisions and Asset Markets, Wharton – Philadelphia, March 2017
Finance Down Under Conference – Melbourne, March 2017
FED/GFLEC Financial Literacy Seminar – Washington DC, March 2017

2016
NBER Behavioral Meeting – Boston, November 2016
PanAgora Asset Management – Boston, November 2016
University of Maryland – College Park, October 2016
Johns Hopkins Carey Business School – Baltimore, May 2016
University of Melbourne – Melbourne, April 2016
HEC-McGill Winter Finance Workshop – Fernie, March 2016
Netspar International Pension Workshop – Leiden, January 2016*
American Finance Association Annual Meeting – San Francisco, January 2016

2015
European Finance Association Annual Meeting – Vienna, August 2015
Society of Financial Econometrics Annual Meeting – Aarhus, June 2015
FMA Asia Annual Meeting – Seoul, June 2015*
Western Finance Association Annual Meeting – Seattle, June 2015
SIRE Conference on Asset Pricing – Glasgow, June 2015*
Texas Finance Festival – Austin, April 2015
Finance Down Under Conference – Melbourne, March 2015*
UBC Winter Finance Conference – Vancouver, March 2015
ASU Sonoran Winter Finance Conference – Phoenix, February 2015
7th Annual Hedge Fund Research Conference – Paris, January 2015
American Finance Association Annual Meeting – Boston, January 2015

2014
Imperial College – London, December 2014*
Fifth Risk Management Conference Mont Tremblant – Québec, February 2014*
5th Annual CIRPÉE Applied Financial Time Series Workshop – Montreal, February 2014

2013
Federal Reserve Bank of New York, December 2013
Queen Mary University of London conference on advances in commodity markets, November 2013
NBER 2013 conference on the economics of commodity markets, October 2013
University of Maryland - Smith School of Business, October 2013*

2012
Federal Reserve Board of Governors, Washington DC, November 2012*
Barclays Capital, New York, November 2012*
University of Virginia – McIntire School of Commerce, April 2012
Finance Down Under Conference, Melbourne, March 2012
University of Maryland - Smith School of Business, February 2012

2011
Warwick Business School - February 2011
Federal Reserve Board of Governors - February 2011
McGill University - Desautels Faculty of Management, February 2011
Duke University - Department of Economics, February 2011
University of Iowa - Tippie College of Business, January 2011
University of Maryland - Smith School of Business, January 2011
Northern Illinois University - Department of Economics, January 2011
University of New South Wales - Australian School of Business, January 2011
Federal Reserve Bank of San Francisco - January 2011
Swiss Finance Institute - Lugano, January 2011
University of Chicago - Booth School of Business, January 2011
Swiss Finance Institute - Geneva, January 2011

2010
University of California San Diego - Department of Economics, November 2010
Financial Management Association – Annual Meeting, New York, October 2010
European Finance Association - Annual Meeting, Frankfurt, August 2010
University of California San Diego - Rady School of Management, March 2010

COMPUTER SKILLS:

Matlab, R, Mathematica, STATA, SAS, EViews, LaTeX, UNIX, Linux, Microsoft Office, HTML

PROFESSIONAL ACTIVITIES:

Discussant for the paper "Lottery-Related Anomalies: The Role of Reference-Dependent Preferences," by Li An, Huijun Wang, Jian Wang, and Jianfeng Yu, European Finance Association Annual Meeting – Oslo (2016)

Discussant for the paper "Dividend Growth Predictability and the Price-Dividend Ratio," by Ilaria Piatti and Fabio Trojani, European Finance Association Annual Meeting – Vienna (2015)

Discussant for the paper "Oil Volatility Risk and Expected Stock Returns," by Peter F. Christoffersen and Xuhui Pan, SFS Finance Cavalcade – Atlanta (2015)

Discussant for the paper "Valuation Risk and Asset Pricing," by Rui Albuquerque, Martin Eichenbaum, and Sergio Rebelo, SFS Finance Cavalcade – Miami (2013)

Discussant for the paper "Firm Volatility in Granular Networks," by Bryan Kelly, Hanno Lustig and Stijn Van Nieuwerburgh, European Finance Association Annual Meeting – Cambridge (2013)

Discussant for the paper "Anatomy of a Meltdown: the Risk Neutral Density for the S&P 500 in the Fall of 2008" by Justin Birru and Stephen Figlewski, European Finance Association Annual Meeting – Frankfurt (2010)

Member of the review committee for the Conference in honor of Pete Kyle – 2016
Member of the review committee for the Midwest Finance Association Annual Meeting – 2015
Member of the review committee for the National University of Singapore Annual Risk Management Conference – 2012, 2013, 2014, 2015

Journal referee:
Journal of Finance; Review of Financial Studies; *Management Science; Review of Asset Pricing Studies; Review of Finance*; *Journal of Financial Econometrics*; *Journal of Futures Markets; Journal of Empirical Finance*; *Mathematical Finance; Review of Derivatives Research*; *Journal of Financial Services Research; European Central Bank Paper Series; Handbook of Economic Forecasting*

Member:
American Economic Association; American Finance Association; European Finance Association; Western Finance Association

Nagpurnanand Prabhala

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University of Maryland, College Park, MD 20742
phone: +1 301 962 3491 email: prabhala@umd.edu

A. PERSONAL INFORMATION

A1. EDUCATION

STERN SCHOOL OF BUSINESS, NEW YORK UNIVERSITY, NY 1990-1994
M. Phil, PhD (Finance); Phi Beta Gamma

INDIAN INSTITUTE OF MANAGEMENT, AHMEDABAD, INDIA 1984-1986
PGDM

INDIAN INSTITUTE OF TECHNOLOGY, DELHI, INDIA 1979-1984
B. Tech (Chemical Engineering)

A2. EMPLOYMENT

Professor of Finance 2015-
Associate Professor, Finance 2002-
Assistant Professor, Finance 1999-2002
Robert H. Smith School of Business, University of MD, College Park

Assistant Professor, Finance 1994-1999
Yale School of Management, New Haven, CT

Corporate Banking Officer 1986-1989
Bank of America

Other Appointments
On sabbatical leave to Yale (2005-2006); NUS (2012-2013)
Chief Mentor and Head of Research, CAFRAL, RBI (2014-2016)

A3. VISA STATUS

U.S. Citizen.
Overseas Citizen of India

B. RESEARCH, SCHOLARLY, OR CREATIVE ACTIVITIES

B1. RESEARCH AND TEACHING INTERESTS

Research: Corporate finance, Banking, Indian Financial Markets, Financial Econometrics
Teaching: (Masters level) Corporate finance, capital markets, finance core
(PhD level) Financial econometrics, empirical finance.

B2. HONORS AND AWARDS

Keynote Speaker, India Finance Conference 2016, IIM Amedabad; Presidency University, 2017

Management Science Best Paper Award, 2015.
Vice-Chairman, OMFIF Economists Network, 2015
Founding Officer, CEBRA, 2015
Senior Academic Fellow, Center for Analytical Finance, ISB, 2014-
NYU-National Stock Exchange Research Grant, 2012-2013, 2014-2015
Associate Editor, *Financial Management*, 2012-current
Faculty Panel, European FMA Doctoral Student Symposium, 2012
Best Referee Award, *Journal of Financial Intermediation*, 2011
Journal of Financial Economics all-star paper award, 2008
Associate Editor, *Journal of Financial Services Research*, 2007-current
Associate Editor, *Review of Financial Studies*, 2001-2004
Program Committees
EFA, FIRS (2016 Co-Chair), FMA, IDC, WFA, CAF (Chair 2014, 2015)
Napa Valley Conference.
Best Referee Award, *Review of Financial Studies*, 2001
Western Finance Association NASDAQ Best Paper Award, 1999
Jules I. Bogen and University Doctoral Fellowships, NYU, 1990-1993.
Phi Beta Gamma, New York University, 1993.
National and other merit scholarships, 1978-1984.

B3. ARTICLES IN REFEREED JOURNALS

I am an equal coauthor in all joint papers, which list coauthors in alphabetical order

"Product-Market Threats, Payouts, and Financial Flexibility," 2014, *Journal of Finance* 69 (1), 293-324 (coauthors: Jerry Hoberg and Gordon Phillips).

"Judging Borrowers by the Company They Keep: Friendship Networks and Information Asymmetry in Online Peer to Peer Lending" 2013, *Management Science* 59(1), 17-35,(coauthor: Mingfeng Lin and Siva Viswanathan)
Winner of 2015 INFORMS/Management Science Best Paper Award

"Post-merger Restructuring and the Boundaries of the Firm", 2011, *Journal of Financial Economics* 102, 317-343 (coauthors: Gordon Phillips and Vojislav Maksimovic).

IPOs with and without Allocation Discrimination: Empirical Evidence, 2011, *Journal of Financial Intermediation* 20, 530-561 (coauthor: Amit Bubna).

Executive compensation: An overview of research on corporate practices and proposed reforms, 2010, *Journal of Applied Corporate Finance* 22, 107-118 (coauthors: Mike Faulkender, Dalida Kadyrzhanova, and Lemma Senbet). A policy oriented review article in the wake of the 2008 financial crisis.

"Disappearing Dividends, Catering, and Risk," 2009, *Review of Financial Studies* 22, 79-116 (coauthor: Jerry Hoberg).

"Self-selection models in corporate finance," 2006, Chapter 2 in Handbook of Corporate Finance: Empirical Corporate Finance (Elsevier/North-Holland), B. Espen Eckbo, editor. (coauthor: Kai Li).

"Executive Stock Option Repricing, Internal Governance Mechanisms, and Top Management Turnover," 2003, *Journal of Financial Economics* 69, 153-189. (coauthor: N. K. Chidambaran).

"Institutional Allocation in Initial Public Offerings: Empirical Analysis," 2002, *Journal of Finance* 57, (coauthor: Reena Aggarwal and Manju Puri).

- Nominated for Brattle prize

"Disentangling The Dividend Information Implied in Splits: A Decomposition Using Conditional Event-Study Methods," 2001, *Review of Financial Studies* 14, 1083-1116 (coauthor: Subhankar Nayak).

"The Relation Between Implied And Realized Volatility," 1998, *Journal of Financial Economics* 50, 125-150 (coauthor: Bent Christensen).

- JFE all-star paper award for citations per year since publication

"Conditional Methods In Event-Studies And An Equilibrium Justification For Using Standard Event-Study Methods," 1997, *Review of Financial Studies* 10, 1-38.

- Reprinted in *Empirical Corporate Finance* vol. 7 of The International Library of Critical Writings in Financial Economics, Michael J. Brennan, ed., (Edward Elgar Publishing, 2000).

B4. COMPLETED WORKING PAPERS

"Venture Capital Communities" (coauthors: Amit Bubna and Sanjiv Das). Under revision for resubmission, *JFQA*

- Presented at CAF Summer Conference, FIRS Conference, Paris Private Equity Conference, and seminars at the following universities: Arizona State, Florida, Georgia State, Georgia Tech, ISB, Indiana, Kellogg, Maryland.

"Mutual Fund Competition, Managerial Skill, and Alpha Persistence," (coauthor: Jerry Hoberg and Nitin Kumar). Under revision for resubmission to *Review of Financial Studies*

- Presented at ABFER, ISB, NUS, University of Sydney, UTS Sydney, 2014 FDU conference, and meetings of NFA (2014), AFA (2015), FIRS (2015)

"The Power of Shareholder Votes: Evidence from Director Elections" (coauthor: Reena Aggarwal and Sandeep Dahiya). Under revision for resubmission to *Journal of Financial Economcis*

- Presented at Georgetown University and ISB.

"Creditor Rights and Banking Relationships: Evidence from a Policy Experiment" (with Prasanna Tantri and Gursharan Bhue).

- Presented at ISB, 2015 Duke/UNC conference, 2015 FIRS conference

"Do Programs Mandating Lending to SMEs Disincentivize Growth? Evidence from a Policy Experiment " (with Prasanna Tantri and Gursharan Bhue).

- Presented at Florida State University, NYU-NSE 2015 conference, MFA 2016 conference.

"Politics and Finance: Evidence from Agricultural Finance in India" (with Prasanna Tantri and Thota Raju).

"Monetary Policy Transmission *Within* Banks : Evidence from India" (with Abhiman Das and Prachi Mishra).

- Presented at Center for Social Studies, ISB CAF Conference, NIPFP-DEA conference, NCAER-ICRIER Neemrana conference, NYU, SERI Hyderabad, UCLA, UC San Diego.

B5. INDIA RESEARCH UNDER PROGRESS

POLICY AND SHORT PAPERS

"Financial Stress in Indian Corporates" (with Jugnu Ansari and Khushboo Khandelwal)

"Debt Recovery Tribunals in India: A Short Note" (with Manasi Phadnis)

"India's Corporate Bond Market" (with Reena Aggarwal and Raman Kumar)

"Masala Bonds" (with Reena Aggarwal and Nikunj Kapadia)

"Benchmarks for the Overnight Money Markets in India" (with Golaka Nath and M. Kumar)

"Benchmarking Bank Wholesale Funding Markets" (with Golaka Nath)

"Benchmarking Commercial Paper Funding Markets" (with Golaka Nath)

RESEARCH PAPERs

"Anatomy of a Banking Panic" (with Abhiman Das, Nirupama Kulkarni, Prachi Mishra)

"Bank Deposits and Monetary Transmission" (with Abhiman Das and Prachi Mishra)

"Too Big to Fail Premiums in India's Banks" (with Nikunj Kapadia and Anand Srinivasan)

"Monetary Transmission in Wholesale Funding Markets" (with Jugnu Ansari, Anand Srinivasan)

"Bank-Induced Real Business Cycle" (with Viral Acharya and Prachi Mishra)

"Credit Bureaus and Bank Lending" (with Prachi Mishra and Raghuram Rajan)

"Debt Forgiveness: Empirical Evidence From India's Farm Loan Waiver Program" (with Sumit Agarwal, Reena Aggarwal, Prachi Mishra, and Prasanna Tantri)

"Target Induced Lending Distortions" (with Sumit Agarwal, Reena Aggarwal, and Prachi Mishra)

"Distortions Induced by Bank Loan Ratings" (with Meghana Ayyagari, Manju Puri, Nishant Vats)

"Share Pledges" (with Anand Srinivasan)

B7. WORKING PAPERS NOT UNDER ACTIVE REVISION

"How does underwriter price support affect IPOs?" (with Manju Puri)

- Google scholar citations (49), Journal citations (16)

"Callable bonds, interest-rate risk, and the supply side of hedging (with Levent Guntay and Haluk Unal)

- Google scholar citations (21), Journal citations (7)

"The telescoping overlap problem in options data" (coauthors: Bent Christensen and Charlotte Hansen)

- Google scholar citations (32), Journal citations (16)

"Anchor investors in IPOs" (with Amit Bubna)

"Offsetting Behavior and Compensation" (coauthor: N. K. Chidambaran).

- Presented at the Western Finance Association meetings, CUNY Baruch, Darden, FDIC, Fordham, ISB, Minnesota, and Vanderbilt.

"CEO-Director Connections and Corporate Fraud," (coauthors: N. K. Chidambaran and Simi Kedia).

- Presented at European Finance Association Meetings, FIRS Conference, FMA Meetings, CAF Summer Research Conference, and seminars at: Fordham, Korea University Business School, London Business School, Nanyang Technological University, Singapore Management University, Tsinghua University, and University of Tilburg,

B8. CONFERENCES

2017: American Finance Association (Paper Acceptance)
2016: EFA, Midwest Finance Association, ABFER (Paper Acceptance)
ABFER, NBER (East Asia), Emerging Financial Markets (Discussant)
2015: American Finance Association (Paper Acceptance)
Duke-UNC conference (Paper Acceptance)
FIRS conference (Paper Acceptance)
2014: SFS Finance Cavalcade (Discussant)
ABFER (Paper Acceptance)
Western Finance Association (Discussant)
2013: Western Finance Association (Discussant)
ABFER (Discussant)
Singapore International Finance Conference (Presentation, Discussant)
2012: ISB Summer Research Conference (Discussant)
2011: American Finance Association (Discussant)
FIRS Meetings (Paper Acceptance)

ISB Summer Research Conference (Paper Acceptance, Discussant)
2010: Western Finance Association (Discussant)
American Finance Association (Discussant)
Financial Management Association (Paper Acceptance)
FIRS Meetings (Paper Acceptance, Discussant)
ISB Summer Research Conference (Paper Acceptance, Discussant)
2009: American Finance Association (Paper acceptance)
2008: Western Finance Association (Paper acceptance)
American Finance Association (Paper acceptance)
Journal of Financial Intermediation (Paper acceptance; discussant)
EFM Symposium on IPOs (Paper acceptance; discussant)
Laurier Conference, Advanced Corporate Finance (Paper acceptance)
2007: American Finance Association (Paper acceptance)
Western Finance Association (Discussant)
2006: Utah Winter Finance Conference (Paper acceptance) NBER
Corporate Finance Symposium (Paper acceptance)
2005: American Finance Association (Discussant)
2004: Western Finance Association (Discussant)
2003: American Finance Association (Paper Acceptance & Discussant)
Western Finance Association (Paper Acceptance)
European Finance Association (Paper Acceptance)
2002: American Finance Association (Paper Acceptance)
Western Finance Association (Paper Acceptance)
2001: American Finance Association (Paper Acceptance)
Western Finance Association (Paper Acceptance)
Conference on Financial Economics and Accounting, Rutgers University.
2000: American Finance Association (discussant for two papers)
Western Finance Association (Paper Acceptance)
American Financial Economics Association (Paper Acceptance) Tuck-
Journal of Financial Economics Conference on Contemporary
Corporate Governance Issues (Paper Acceptance)
1999: American Finance Association (Discussant)
Western Finance Association (Paper Acceptance)
Won NASDAQ best paper award at the meetings
1998: Western Finance Association (Discussant)
1997: American Finance Association (Paper Acceptance)
1996: American Finance Association (Discussant)
Western Finance Association (Paper Acceptance)
Cornell-Queens Derivative Securities Conference (Paper Acceptance)
Financial Management Association (Paper Acceptance)
1995: Western Finance Association (Discussant)
1994: European Finance Association (Paper Acceptance, Discussant)
Financial Management Association (Paper Acceptance)

B9. RESEARCH SEMINARS

American University (2006), University of Alabama (2002), Boston College (1996), University of British Columbia (1994,1999), Bentley (2016), Boston University (1997), Copenhagen Business School (2003, 2013), University of California, Los Angeles (1995), Carnegie Mellon University (1999), Case Western Reserve University (1997), Cornell University (1995), Columbia University (1995), Copenhagen Business School (2015), Duke University (2008), Florida State (2016), Fordham University (2015), University of Georgia (1999), Georgia Institute of Technology, (1995), George Mason University (2009), George Washington University (2003), Hebrew University of Jerusalem (2012), Helsinki (2015), Hong Kong University of Science and Technology (2003, 2010), IIM Bangalore (2013), ISB (2008, 2010, 2014), INSEAD (1998), London Business School (1998), National University of Singapore (2010), Northeastern (2016), Norwegian School (2015), University of Maryland (1998), University of Massachusetts, Amherst (2000), University of Michigan, Ann Arbor (1995), University of Minnesota (2005), University of New South Wales (2013), University of North Carolina, Chapel Hill (1999), Northeastern University (2016), Northern Illinois University (2005), NTU Singapore (2010), NUS Singapore (2010, 2012, 2015), NYU (2016), Ohio University (2004), Purdue University (1995), Rice University (2006), Rutgers University (1995, 2004, 2015), SEC (2012), Sabanci University (2013), Singapore Management University (2010), Southern Methodist University (2011), Stanford (1998), Stockholm School of Economics (1998), University of Sydney (2013), University of Technology (2013), Tel Aviv University (2012), Temple (2012), Texas A&M (2015), Tulane University (2000),Virginia (2000), Vanderbilt University (2004), Virginia Polytechnic Institute and State University (1998), Washington University, St. Louis (1998), Wilfrid Laurier (2008), Yale University (1999, 2006)

B10. HONORS AND AWARDS

Vice Chairman, OMFIF Economics Network
Keynote Speaker, 6th Annual Finance Conference, Great Lakes Institute of Management
Steering Committee, Financial Inclusion Survey of 16,000 Households, 2014-2015
Senior Academic Fellow, Center for Analytic Finance, ISB, 2014-
Grant Panel, NYU/NSE Research Grant, E&Y Emerging Markets Research, 2014-2015
Member Academic Council, National Institute of Securities Market, 2014-
NYU-National Stock Exchange Research Grant, 2012-2013, 2014-2015
Best Referee Award, *Journal of Financial Intermediation*, 2011
Journal of Financial Economics all-star paper award, 2008
Best Referee Award, *Review of Financial Studies*, 2001
Western Finance Association NASDAQ Best Paper Award, 1999
Associate Editor, *Financial Management*, 2012-current
Associate Editor, *Journal of Financial Services Research*, 2007-current
Associate Editor, *Review of Financial Studies*, 2001-2004
Faculty Panel, European FMA Doctoral Student Symposium, 2012
Program Committees, EFA, FMA,WFA, CAF (2014 Chair)

B11. CITATIONS (as of 2015)

450 SSCI journal citations
    39 to working papers.
3,120 citations on Google scholar, 2,411 since 2011, h-index 16

C. TEACHING, MENTORING, AND ADVISING

C1. TEACHING EXPERIENCE

- MBA: Finance core, Corporate Financial Strategy, Risk Management
- PhD: Finance Research Methods
- Recent course development
    - BUFN 751, Financial Strategy for Corporations
    - BMGT 828/848, Financial Research Methods

C2. TEACHING EVALUATIONS (LAST AVAILABLE YEARS)

2010: 4.11/5 (finance core, ~120 students)
2011: 4.13/5 (finance core, ~120 students)
2012: 4.80/5 (finance elective, ~100 students)
2013: N/A, on sabbatical to NUS (Ratings 4.66/5.0, elective; 5.0/5.0, PhD)
2014: 4.40/5 (finance elective, ~60 students)

C3. TEACHING AWARDS

Finalist (top 5 school wide) for Krowe award.
Top 15% teaching, most recently in 2014
Professor of the Year, ISB, 2003 and 2004.

C4. MENTORING AND ADVISING

Students for whom I was an active advisor (initial placement in parentheses)
University of Maryland
2003: Hernan Ortiz Molina (British Columbia)
2003: Levent Guntay (Indiana)
2005: Tracy Yue Wang (Minnesota)
2005: April Knill (Florida State)
2005: Kristina Minnick (Bentley College)
2006: Liu Yang (UCLA)
2009: Yun Liu (UC Riverside)
2011: Aysun Alp* (Sabanci)
2011: Kumar Pratap (returned to Indian Civil Service)
2011: Matthew Kozora (SEC)
2012: Katie Moon (SEC)
2013: Nitin Kumar (ISB)
2014: Wei Li (Johns Hopkins)
Yale University
1998: Haitao Li (Cornell)
1998: Les Gulko (General Reinsurance)
1999: Federico Bandi (University of Chicago)
2000: Charlotte Hansen (CUNY Baruch)
2005: Subhankar Nayak (Georgia Tech)

D. SERVICE

D1. INTERNAL SERVICE: HIGHLIGHTS

MBA/MS program, finance department

Chair, Finance MBA Curriculum Committee, 2007-2012. Member 1999-2007.
Redesigned, rationalized, and sequenced entire slate of finance electives.
Converted all courses from 3-credit to 2-credit format. Restructured course format supports new MS Finance program.

MBA Advising, 1999-2004, 2011-current
Helped with MBA advising, placement, and admission conversion.

Smith M&A case competition committee, 2007-2011.
Structuring of competition, case selection, and judging

Finance PhD program

Chair, Finance PhD committee, 2002-2005
Redesigned program structure, updating a prior revamp.
Developed strategies to better train students and place in academic jobs.
All students were successfully placed in tenure-track positions (after 15-yr gap).

Member, Finance PhD committee, 1999-2009 (also previously at Yale, 1994-1999)
Involved in student recruitment, advising, curriculum design, all PhD exams.

Mentoring/advising several PhD students

Course development
Developed new PhD course on micro-econometrics in corporate finance.

Other school-wide faculty service

School-wide MDDI committee, 2009-2012.
Top level committee overseeing all academic aspects of MS/MBA programs.

Faculty Council, 2011-current
Elected position. Oversight of faculty governance in Smith School

Smith brand recognition committee, 2006-2007

Faculty recruiting, 1999-2012. Chair 2011-2012

Strategic advisor to chair, 2005-2007

D2. REFEREEING ACTIVITIES AND EXTERNAL SERVICE

Referee for *Financial Management*, *Journal of Banking and Finance*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis*, *Journal of Financial Intermediation*, *Journal of Financial Markets*, *Journal of Financial Services Research*, *Journal of Risk*, *Quarterly Review of Economics and Finance*, *Real Estate Economics*, *Review of Derivatives Research*, *Review of Financial Studies*, *Sloan Management Review*

Program committee, *Western Finance Association*, *Financial Management Association, CAF Summer Conference, ISB*, *Corporate Governance Conference*, *SFS Cavalcade*

Program co-chair, 2015 European Finance Association, 2014-2016 ISB CAF Conference
Track Chair, 2013 European Finance Association; FMA Annual Meetings

Associate editorships at *Review of Financial Studies*, *Journal of Financial Services Research*, and *Financial Management*