Tim de Silva
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January 17, 2022

Entrepreneurship Research Boot Camp
National Bureau of Economic Research

Dear Selection Committee,

Thank you for the opportunity to be considered for this Boot Camp and taking time to review my application. Please find in the pages of this PDF document the following list of documents:

1. My CV
2. List of Courses Taken
3. Application Essay

For reference, David Thesmar from MIT Sloan is writing my letter of recommendation. Please let me know if you need anything else regarding my application.

I am looking forward to hearing back regarding my application status!

Best Regards and Happy New Year,

Tim de Silva

This Version: January 17, 2022
Latest Version: here

TIM DE SILVA

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EDUCATION

2024*	Ph.D. in Management (Economics, Finance, & Accounting Area) (* = expected) MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SLOAN SCHOOL OF MANAGEMENT
2021	M.S. in Management MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SLOAN SCHOOL OF MANAGEMENT
2018	B.A. in Financial Economics and Applied Mathematics, *magna cum laude* CLAREMONT MCKENNA COLLEGE
2015	Summer Program in Economic Statistics THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

RESEARCH INTERESTS

Behavioral Economics, Household Finance, Entrepreneurial Finance

WORKING PAPERS

1. "Noise in Expectations: Evidence from Analyst Forecasts" with David Thesmar

   Abstract: This paper quantifies the amount of noise and bias in analysts' forecast of corporate earnings at various horizons. We first show analyst forecasts outperform statistical forecasts at short-horizons, but underperform at longer horizons. We next decompose the relative accuracy of these forecasts into three components: (i) noise, (ii) bias and (iii) analysts' information advantage over statistical forecasts. We find the information advantage is constant across forecasting horizons, while both noise and bias increase linearly. We then show most existing models lack a mechanism to account for these facts. To generate such a mechanism, we consider a parsimonious variant of the model of Patton and Timmermann (2010) with a noisy cognitive default and show it quantitatively fits the data. The intuition underlying this model is that forecasters rely on their biased and noisy defaults more at longer horizons, as rational forecasts are less accurate. This model also quantitatively matches two non-targeted empirical relationships: (i) analyst disagreement increases with horizon and (ii) noise is an increasing function of volatility.

2. "What Drives Investors' Portfolio Choices? Separating the Role of Preferences and Frictions" with Taha Choukhmane

   Abstract: We separately identify the role of risk preferences and frictions in portfolio choice. Standard cross-sectional moments, such as the life cycle of participation in the stock market, cannot distinguish between the two: agents may choose not to participate because of non-standard preferences (e.g. loss aversion) or frictions impacting their choices (e.g. participation costs). We overcome this identification problem by using variation in the default asset allocation of 401(k) plans and estimate that, absent frictions, 95% of investors would prefer stock market participation with a stock share that declines over the life cycle, which differs markedly from their observed choices. We use this variation to structurally estimate a life cycle portfolio choice model and find the evidence consistent with a relative risk aversion of 3.6. This estimate is significantly lower than most estimates in the life cycle portfolio choice literature and highlights how choice frictions can hamper the identification of risk preferences.

3. "Losing is Optional: Retail Option Trading and Earnings Announcement Volatility" with Eric C. So and Kevin C. Smith

Abstract: We provide evidence that retail investors incur large losses by buying options ahead of firms' earnings announcements with high expected abnormal volatility. Using data on options trades by clientele groups, we show retail investors herd by concentrating their positions and overpay for options of firms whose announcements are expected to trigger large stock price movements. A strategy selling straddles for high expected volatility announcements and buying straddles for low expected volatility announcements earns on average 11% on the announcement dates, which does not appear explained by retail investors seeking lottery-like payoffs. Retail investors also appear reluctant to close options after announcements with high expected volatility despite volatility quickly subsiding post-announcement, which helps explain why the straddle strategy further earns 10% on average in the two weeks following the announcement. Market makers are the primary beneficiaries of these patterns, resulting in significant wealth transfers from retail to market makers. Collectively, our results suggest retail option demand reflects in part a preference specifically for volatility, but that retail investors misprice the level and persistence of volatility driven by earnings news.

PUBLICATIONS

4. "Are Volatility Expectations in Different Countries Interdependent? A Data-Driven Solution to Structural VAR Identification for Implied Equity Volatility Indices" *Undergraduate Economic Review*, Vol. 14(1), 2017. WINNER, BEST SENIOR THESIS IN FINANCIAL ECONOMICS
5. "Is Google Search Behavior Related to Volatility? Incorporating Google Trends Data into a GARCH Model for Equity Volatility" *Undergraduate Economic Review*, Vol. 13(1), 2016.

INDUSTRY EXPERIENCE

2017	Institutional Equity Derivatives Trading and Research, Morgan Stanley
2016	Quantitative Researcher, Analytic Investors
2016-2018	Director, Claremont Consulting Group
2015-2016	Lead Consultant, Claremont Consulting Group

RESEARCH EXPERIENCE

2021	Research Assistant for Professor Taha Choukhmane
2020	Research Assistant for Professor Eric C. So
2018-2019	Research Assistant for Professor Eben Lazarus
2016	Research Assistant at the Lowe Institute of Political Economy

TEACHING EXPERIENCE

Spring 2022	TA for 15.453: Finance Lab (MFin) Professors Gita Rao and Bhushan Vartak, MIT Sloan
Spring 2022	TA for 15.539: Ph.D Seminar in Empirical Methods (Ph.D) Professors Eric C. So and Charles C.Y. Wang, MIT Sloan
Summer 2020	TA for 15.511: Financial Accounting (Sloan Fellows MBA) Professor Bala Dharan, MIT Sloan Rating: Mean = 6.3/7, Median = 7/7
Summer 2019	TA for 15.511: Financial Accounting (Sloan Fellows MBA) Professor Joe Weber, MIT Sloan Rating: Mean = 5.9/7, Median = 6/7
Spring 2018	TA for ECON101: Intermediate Microeconomics (undergraduate) Professor Saman Olfati, Claremont McKenna College

SEMINAR PRESENTATIONS

2022	Yale SOM*
2021	MIT Sloan (x2) , MIT Economics (x2), Duke Fuqua*
2020	MIT Sloan (x2)
2019	MIT Sloan
	(* = presentation by co-author)

CONFERENCE PRESENTATIONS

2021	Transatlantic Doctoral Conference (LBS), SoFiE Annual Conference (UCSD)
2020	Stanford GSB Rising Scholars Conference

INVITED PARTICIPATION

2021	Mitsui Summer School on Structural Estimation in Corporate Finance (Michigan Ross)
2019	Big Data Analytics for Accounting Research (MIT Sloan)

FELLOWSHIPS AND AWARDS

2020	FARS Excellence in Reviewing Award
2018	Phi Beta Kappa, International Honor Society of Economics (Omicron Delta Epsilon), Best Senior in Economics, Best Senior Thesis in Financial Economics, Dean's List (Top 15%)
2016	Best Sophomore in Economics
2015-2018	Robert Day BA Scholar
2015, 2016	Athletic Director's Honor Roll

PROFESSIONAL ACTIVITIES

Referee	Management Science, Journal of Financial Econometrics, Journal of Accounting and Economics

SKILLS

Software	PYTHON, FORTRAN, R, SAS, STATA, MATLAB, EVIEWS, BLOOMBERG TERMINAL, GOOGLE ANALYTICS, LaTeX
Languages	English (native), Spanish (beginner)

OTHER ACTIVITIES

Auto Racing	Team USA Scholarship Nominee (2015), Team USA Scholarship Finalist (2016), 5x Formula 2000 Track Record Holder (2016-2017), Pacific F2000 Pro Series Champion (2016), Mazda Road to Indy $250,000 Shootout Competitor (2016)
Golf	Member of CMS NCAA Division III Men's Golf Team (2014-2016), NCAA Division III National Team Champion (2016), Ocean League Conference Champion (2012, 2014)

PERSONAL INFORMATION

Born: June 21st, 1996. Citizenship: USA.

MIT REGISTRAR'S OFFICE

Grade Report

Your grade report contains private information for internal use only, including + and - grade modifiers, dropped subjects, listener subjects, and non-passing freshman grades. It is for you, your advisor(s), and your departmental academic administrators. If you need to provide a copy of your grades to anyone else, you can request a transcript from the Registrar's Office.

Fall Term 2018-2019

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.121	Microeconomic Theory I	6	G	B+	
14.122	Microeconomic Theory II	6	G	A-	
14.381	Statistical Method in Econ	12	G	A	
15.470	Asset Pricing	12	G	A	
15.539	Doctoral Seminar in Accounting	12	G	A	

Units Earned: 48 **Term GPA:** 4.9 **Academic:**

Spring Term 2018-2019

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.123	Microeconomic Theory III	6	G	B	
14.124	Microeconomic Theory IV	6	G	A	
14.382	Econometrics	12	G	A-	
15.471	Corporate Finance	12	G	A	
15.539	Doctoral Seminar in Accounting	12	G	A+	

Units Earned: 48 **Term GPA:** 4.9 **Academic:**

Summer Term 2019

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
15.THG	Thesis	24	G	J	Thesis

Units Earned: 24 **Term GPA:** **Academic:**

Fall Term 2019-2020

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.281	Contract Economics	12	G	LIS	
14.385	Nonlinear Econometric Analysis	12	G	LIS	
15.472	Advanced Asset Pricing	12	G	A	
15.539	Doctoral Seminar in Accounting	12	G	A	
HAA.0084	ECON 2410A: Macro-Finance:	12	N	A	

	Rat			
HAA.1755	ECON 2142: Time Series Analysi	12	N	A

Units Earned: 48 **Term GPA:** 5.0 **Academic:**

Spring Term 2019-2020

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.386	New Econometric Methods	12	G	PE	
15.473	Advanced Corporate Finance	12	G	PE	
15.474	Current Topics in Finance	12	G	PE	
15.539	Doctoral Seminar in Accounting	12	G	PE	
18.152	Intro: Partial Diff Equations	12	N	LIS	
18.676	Stochastic Calculus	12	G	LIS	

Units Earned: 48 **Term GPA:** **Academic:**

Summer Term 2020

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
15.THG	Thesis	24	G	J	Thesis

Units Earned: 24 **Term GPA:** **Academic:**

Fall Term 2020-2021

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
6.860	Statistical Learning Theory	12	G	LIS	
14.160	Behavioral Economics	12	G	LIS	
14.451	Dynamic Optimization Methods	6	G	LIS	
14.452	Economic Growth	6	G	LIS	
15.472	Advanced Asset Pricing	12	G	LIS	
15.539	Doctoral Seminar in Accounting	1	G	LIS	
15.540	Theory Stud in Accting Rsrch	6	G	A	
15.THGM	Thesis	24	G	A	Thesis

Units Earned: 30 **Term GPA:** 5.0 **Academic:** SM15MR

January Term 2020-2021

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
18.S097	Special Subject in Mathematics	1	N	LIS	

Units Earned: 0 **Term GPA:** **Academic:**

Spring Term 2020-2021

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.388	Inference Causal Parameters	12	G	LIS	

14.453	Econmic Fluctuations	6	G	LIS	
14.454	Economic Crises	6	G	LIS	
15.471	Corporate Finance	12	G	LIS	
15.473	Advanced Corporate Finance	12	G	LIS	
15.474	Current Topics in Finance	12	G	LIS	
15.540	Theory Stud in Accting Rsrch	6	G	A	
15.THG	Thesis	36	G	J	Thesis

Units Earned: 42 **Term GPA:** 5.0 **Academic:**

Summer Term 2021

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
15.THG	Thesis	36	G	J	Thesis

Units Earned: 36 **Term GPA:** **Academic:**

Fall Term 2021-2022

Year: G R **Course(s):** 15 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.271	Industrial Organization I	12	G	LIS	
14.461	Advanced Macroeconomics I	12	G	LIS	
15.475	Current Resrch in Financ Econ	6	G	P	
15.540	Theory Stud in Accting Rsrch	6	G	DR	
15.THG	Thesis	36	G	J	Thesis

Units Earned: 42 **Term GPA:** **Academic:**

Cumulative Graduate GPA: 4.9 **Minor:**

Degree Audit

Graduate Work Completed (apart from thesis): Graduate Units 186

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Office of the Dean for
Undergraduate Education

I am a fourth-year Ph.D student at the MIT School of Management interested in using tools from structural behavioral economics to develop a better understanding of how households, investors, and firms make decisions. I am excited about the possibility of attending the Entrepreneurship Research Boot Camp for two reasons. First, I'm looking to expand my research agenda beyond studying households' financial decisions towards studying households' labor supply and entrepreneurship decisions. Through attending this Boot Camp, I would hope to improve my understanding of the theoretical frameworks for studying the tradeoffs inherent in entrepreneurship decisions, with a focus on how insights from behavioral economics could be incorporated into these frameworks. Secondly, this Boot Camp is particularly appealing to me because research on entrepreneurship inherently spans many sub-fields, which presents a great opportunity to develop relationships with other students that have complementary skills and interests.

My academic research began with an interest in behavioral economics and finance, in particular in models of belief formation. Given many financial decisions involve forming multi-horizon expectations about multiple state variables, I found understanding the drivers of agent's belief formation as a crucial step to understanding agent's decisions. In joint work with David Thesmar, we develop a framework for separately estimating the amount of noise and bias in expectations at different forecasting horizons and apply it to the earnings forecasts of professional analysts at financial institutions. We then use these estimates of the term structure of noise and bias to test between different models of belief formation. We find many models struggle to fit the upward sloping term structures that we estimate, leading us to propose a different model of belief formation that combines bounded rationality and cognitive noise.

Through coursework in household finance, I subsequently developed an interest in how mechanisms in theories of behavioral economics outside of non-rational beliefs, such as non-standard preferences or choice frictions, influence financial decisions. In joint work with Taha Choukhmane, we separately estimate the role of risk preferences and choice frictions in explaining observed portfolio choice decisions. Although typical estimates of relative risk aversion in portfolio choice models are around 10, we find an estimate of around 3 once we take into account the frictions associated with portfolio adjustment, which we use to study the optimal design of 401(k) default portfolio allocations. Additionally, in joint work with Eric So and Kevin Smith, we explore the role of a preference for volatility among retail investors that trade in options markets. We find this preference leads retail investors to trade at more volatile times (e.g. highly covered earnings announcements), which causes them to incur significant losses in wealth and generates predictable patterns in option prices.

My research thus far has focused on studying the connection between behavioral economics and financial decisions. In the future, I'm looking to shift my research towards focusing on households' labor supply and entrepreneurship decisions. This shift in my research interests is motivated by two factors. First, the human capital that is determined or acquired through these decisions is the biggest asset for most households. As a result, these decisions provide an ideal setting for developing a better understanding of households' preferences and beliefs. Second and more importantly, there is substantial scope for governmental policy to affect entrepreneurship decisions through

changing both households' incentives and the structure of venture capital financing. However, in an environment where households' preferences and beliefs may differ from standard models, the design of such policies requires tacking difficult issues, such as the failure of revealed preference, and generates the possibility for interesting interactions between behavioral welfare economics and entrepreneurship research.

In order to tackle such questions at the intersection of behavioral economics and entrepreneurship in my dissertation, I'm looking to accomplish three goals in which this Boot Camp would help substantially. First, I want to improve my understanding of theoretical frameworks for how individuals make entrepreneurship decisions and optimal entrepreneurship policy design, to which I've received no formal exposure outside of my own study. Secondly, I'm looking to develop more in-depth knowledge of the institutional details of the entrepreneurship process, in particular the venture capital industry, which is crucial for thinking about the design of policies. Finally, I want to strengthen my familiarity with existing empirical research on the entrepreneurial process, focusing on recognizing areas where incorporating insights from behavioral economics would be most useful.