

Research Statement

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My research studies how agents form expectations and how the resulting beliefs aggregate to shape macroeconomic and financial dynamics. Its premise starts from how agents construct the economic world through the way they interpret institutions, markets, and other agents' beliefs and choices: a credit supply decision carries news about future income; an income shock distorts beliefs about permanent earnings; a debt burden weighs on work effort beyond its present value; a price decline in the stock market looks like a buying opportunity; and other investors' optimism can be a reason for caution rather than confidence. Across these settings, I provide novel practices to measure beliefs, and study the causal effects of beliefs on choices and the extent to which they are quantitatively important for aggregate financial and macroeconomic outcomes.

My current work mainly proceeds in two strands. The first studies *household beliefs and consumption-saving decisions*: how households draw inferences from credit decisions, income realizations, and debt obligations, and how those inferences shape spending, borrowing, labor supply, and financial fragility. The second studies *investors in the asset markets*: how investors trade on belief structures that depart systematically from representative-agent benchmarks, and how those structures feed back into equilibrium prices and volatility.

Two features distinguish this agenda within the rapidly growing literature on subjective expectations. First, this agenda overcomes a notorious lack of reliable data that has long constrained the empirical study of subjective expectations. While eliciting clean subjective beliefs is inherently challenging, observing how those beliefs causally impact real-world financial decision-making is even harder due to a lack of exogenous variation in observational data. To bridge this gap, I field randomized controlled trials (RCTs) run in settings where experiments are rarely feasible: specifically, through direct partnerships with commercial banks and via targeted information-provision experiments embedded in customized investor surveys. Second, I close the loop from measurement to equilibrium: each strand pairs this experimental identification with structural models that map the estimated micro responses into aggregate consequences, e.g., credit cycles, return volatility, and price informativeness. The broad combination of experimental identification and structural estimation allows my works to quantify how beliefs move markets and the macroeconomy.

1. Household Beliefs and Consumption-Saving Decisions

My solo-authored paper, **Learning in the Limit: Income Inference from Credit Extensions** (*Journal of Finance*, 2026), provides clean evidence for the informational view of credit. Using an RCT with a large commercial bank, matched to administrative and survey data, I show that exogenous credit-limit increases raise both spending and income expectations, and that, once the change in income expectations is accounted for, the spending response weakens substantially. That is, consumers do not treat credit supply events purely as liquidity adjustments; they treat the bank's decision as a signal about their own earnings prospects, plausibly because lenders observe information that consumers do not. Moreover, consumers tend to over-infer from credit supply from perceiving credit expansion as a signal that is more optimistic than it is. This reinterprets a foundational object in consumption theory: the informational content of credit supply is itself a state variable. The mechanism explains why even financially unconstrained consumers respond to credit-limit increases, a long-standing puzzle for the pure liquidity view, and implies that identical credit expansions can have very different aggregate effects depending on what households infer from them.

This mechanism also points to a broader agenda. If credit supply shifts spending partly by reshaping income expectations, then credit expansions themselves can generate belief-driven macro cycles: over-optimistic income forecasts following credit expansions elevate borrowing and consumption beyond the predictions of a benchmark noisy-information buffer-stock model. In **Investing in Lending Technology: IT Spending in Banking** (with Zhiguo He, Sheila Jiang, and Douglas Xu, *Management Science* 2026), we show that banks aggressively invest in information technology in the aftermath of the 2008 financial crises, significantly enhancing their capabilities for information acquisition and processing. Consequently, the income-inference channel is likely growing in importance. As fintechs and data-rich lenders condition credit offers on ever-finer borrower attributes, the signal embedded in a credit decision becomes sharper, rendering household inferences more consequential. This makes the informational content of credit supply an increasingly central object for both monetary transmission and financial stability.

I attack a complementary question in **Subjective Income Expectations and Household Debt Choices** (with Francesco D'Acunto and Michael Weber), which asks what happens when households misread their own income realizations. Combining transaction-level data, credit-registry records, and repeated surveys, we show that consumers over-extrapolate from unexpected income shocks: positive shocks generate excessive optimism about future income, expanded spending and borrowing, and, when income subsequently disappoints, elevated debt and default risk. We then develop a consumption-saving model with defaultable unsecured debt and extrapolative learning and show that biased income expectations alone generate state-dependent household debt cycles.

This finding has important implications for household credit cycles and macroprudential policy. If households convert temporary income realizations into beliefs about permanent income, then leverage can

rise precisely when households feel safest, not necessarily when fundamentals justify greater borrowing. This shifts part of the explanation for credit booms from the supply side to the demand side: lenders may accommodate borrowing, but households' own distorted income expectations can generate the demand for leverage. It also implies that policies aimed only at credit supply may miss an important source of fragility. Stabilizing household balance sheets requires understanding how households interpret income news, not only how much credit lenders provide.

The subjective channel extends beyond beliefs to the psychological experience of debt. In **The Stress of Debt: Mortgage Refinancing and Labor Supply** (with Martina Rocchi), using a field experiment around mortgage refinancing, we find the opposite for financially stretched households: reductions in monthly mortgage payments increase working hours, labor income, and spending while lowering perceived stress at work, with the strongest effects among younger, lower-wealth, and more constrained households. Debt is not only a present-value liability; it is a cognitive burden that degrades labor-market performance.

This evidence uncovers an additional layer through which expansionary monetary policy transmits to the real economy. Beyond the traditional cash-flow channel, which merely alters disposable income, monetary easing that facilitates refinancing acts as a cognitive stimulus. By alleviating the psychological tax of debt, expansionary policy restores mental bandwidth, unlocking labor supply and productivity precisely among the most constrained agents. This changes the calculus for debt relief and forbearance programs. It also has important implication of the refinancing channel of monetary policy, whose benefits are typically evaluated through cash flows alone.

2. Investors in the Asset Markets

The second strand of my research agenda turns to investors and runs from measurement of beliefs and identification to its quantification in equilibrium. In **Higher-Order Beliefs and Risky Asset Holdings** (with Yuriy Gorodnichenko, Revise and Resubmit at *American Economic Review* 2026), we provide among the first causal evidence on how higher-order beliefs shape portfolio choice. Beauty-contest and strategic-complementarity mechanisms are ubiquitous in asset-pricing theory, yet they had not been tested with exogenous variation. Combining a customized survey with an RCT, we separately shift investors' first-order beliefs — their own return expectations, and higher-order beliefs — their perception of other investors' expectations. The two move portfolios in opposite directions: exogenous optimism about returns raises risky asset holdings, while exogenous optimism about others' beliefs lowers them. Beliefs about others are not noisy copies of own beliefs; they are a distinct state variable through which information moves asset demand, and through which information shocks can transmit to prices via belief hierarchies rather than cash flows or discount rates.

A natural next step from the experimental evidence is to ask whether higher-order beliefs can be measured outside the laboratory and tracked in real-world settings. While surveys and experiments are well suited for identifying causal effects, they are difficult to scale across thousands of firms and over long periods of time. Understanding the role of beliefs about others in financial markets therefore requires a way to observe these beliefs in naturally occurring data.

I do a step forward to scale the measurement of such speculative concern to naturally occurring data. In **Sentiment about Others** (with Yukun Liu), applying large language models to more than 46 million StockTwits posts, we separate messages expressing an author’s own outlook from those describing other investors’ expected beliefs or actions — a relational distinction that lexicon-based methods cannot capture — and construct firm-week measures of first-order and higher-order sentiment for over 4,300 firms across a decade. References to others are pervasive and systematically more optimistic than investors’ own views, and the two sentiments relate to markets in sharply different ways: retail order imbalance increases with first-order sentiment but decreases with higher-order sentiment, and higher-order sentiment positively predicts short-horizon returns while first-order sentiment predicts reversals. Both the contrarian flow response and the return continuation are modest on average but an order of magnitude stronger where retail trading is intense, uncertainty is elevated, and liquidity is low. A stylized model in which investors observe noisier signals about others’ beliefs rationalizes these joint patterns: the equilibrium price incorporates higher-order sentiment more than retail’s valuation but less than institutions’, so retail trades against it and the unincorporated component is realized as return continuation. This project, together with the experimental evidence in Gorodnichenko and Yin (2026), gives the literature both a causal benchmark and a scalable measurement technology for beliefs about others.

Retail investors have become a major force in U.S. equity markets. Their share of trading volume has tripled over the past decade, to about a third of the total. In **Buying the Dip in Retail Trading** (with Dongchen Zou), we provide equilibrium quantification of how retail investors respond to past returns, a long-standing question in the literature of retail trading. Using a comprehensive dataset that covers approximately 80 percent of actual U.S. retail trading, we document that retail investors buy the dip: retail flow rises significantly after price declines but is roughly flat after gains. We then estimate a structural model where retail traders have sparse attention to historical prices and a short-sale constraint. The model successfully predict that retail traders buy the past return dip. In addition, we use the model to study the effects of retail investor shares and market volatility. The model predicts that doubling the retail share from the baseline of 25% increases return volatility from 19% to 26%, and that buying the dip produces a larger rise in volatility on the loss side. We confirm both predictions in the cross-sectional data.

Research Agenda

Going forward, I am advancing our understanding in behavioral macro-finance in which agents' beliefs are a core primitive of aggregate dynamics. My research agenda in the near future broadly covers the following two topics.

1. Investor Beliefs in the Stock Market

The first direction aims at building a comprehensive, multi-dimensional account of investor beliefs in asset markets. While the subjective expectations literature has grown rapidly, existing work typically measures a single expectation at a single horizon, often in an isolated cross-section. We still know surprisingly little about the deep, joint structure of investor expectations: how individuals perceive the term structure of expected returns, how they form co-moving beliefs about volatility and tail risk, and how their own outlooks interact dynamically with their higher-order beliefs about other market participants. My goal is to construct a rich, time-series empirical map of these belief hierarchies within the same individual over time.

To achieve this, I am deploying a high-frequency, large-scale panel survey of retail investors that explicitly elicits first-, second-, and third-order beliefs about stock-market returns across an explicit term structure (3-month, 6-month, 1-year, and 3-year horizons). Crucially, the survey goes beyond simple point estimates to elicit investors' subjective mental models of market dynamics — measuring whether they attribute price movements to cash-flow news, discount-rate shifts, retail demand sentiment, or strategic institutional behavior.

By matching these multi-horizon belief structures with administrative portfolio allocations, trading histories, and real-time updating responses around salient macro and market events, this project will deliver a unique data infrastructure. It allows us to analyze the persistence of behavioral biases, the subjective pricing of long-run risk, and the exact friction through which higher-order belief hierarchies generate aggregate return continuation and volatility.

2. Credit Supply with Behavioral Borrowers

The second major direction of my future agenda investigates how credit supply accommodates when borrowers' decision-making involves sub-optimal concerns. One direction builds on my solo job market paper that consumers infer future income from credit supply (Yin 2026). In the current age, as lenders increasingly deploy machine learning models trained on granular alternative data, such as high-frequency transaction cash flows, the informational content of a credit decision becomes hyper-individualized. The importance of a belief channel of credit supply could become increasingly important. This agenda asks a critical macro-finance question: does credit supply exploit or curtail income overreaction?

As a first step, I am analyzing how lenders strategically manage or exploit borrower expectation overreaction under different market structures. Based on Yin (2026), I develop a structural framework where credit supply decisions can inform about borrower income, and consumers systematically overreact to these signals when updating their income prospects. The core of this mechanism hinges on a strategic trade-off: a lender can choose to expand credit to amplify consumer optimism and capture short-term relationship rents, or they can choose to curtail credit extensions to discipline the heightened default risks that stem from borrower over-optimism. Whether financial institutions exploit or curtail consumer overreaction depends critically on the intensity of banking competition.

This project has direct implications for the structural design of credit markets and the implementation of macroprudential policies. By establishing that credit supply does not merely relax budget constraints but actively manages subjective borrower beliefs, the framework reveals how shifts in market power can fundamentally alter the stability of household debt cycles. In highly concentrated or less competitive markets, lenders may have greater incentives to exploit consumer biases, meaning that financial innovation or deregulation can amplify systemic fragility through behavioral channels. Ultimately, these insights suggest that optimal credit regulation and lending restrictions must be calibrated to the competitive structure of the banking sector, as market power dictates whether lenders act as stabilizers or amplifiers of borrower overreaction.

Methodological Contribution

Methodologically, the agenda is built on two commitments that are difficult to satisfy together. The first is experimental identification in settings where it is rarely attempted: bringing randomization directly into credit supply through bank partnerships, and into belief formation through information-provision experiments in investor surveys, so that the belief channels I study are identified rather than inferred from correlations. The second is structural estimation that takes the resulting micro estimates and disciplines a general-equilibrium or quantitative model with them, using experimentally identified sensitivities as moments for simulated method of moments, or as the empirical targets a calibrated model must match. Surveys and large-scale textual measurement extend belief elicitation beyond what experiments alone can reach, and administrative, transaction-level, and credit-registry data tie beliefs to economically meaningful behavior. The methodological contribution is the pipeline itself: experiments establish causal effects that observational data cannot, and structural models turn those effects into statements about credit cycles, volatility, price informativeness, and welfare that reduced-form evidence cannot deliver.

The broader contribution of my research is to further our understanding of agent beliefs in macroeconomics and finance. Household beliefs are not residual noise around rational decisions; they are economic state

variables that shape spending, borrowing, labor supply, and portfolio choice, and that determine how credit, monetary, and financial shocks propagate. By measuring these beliefs, identifying their causal effects, and embedding them in quantitative models, my research aims to provide a more empirically grounded account of how households, and through them, how economies, respond to the signals around them.

References

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