# Application: NBER Tutorial on Digital Economics and AI

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## CONTACT INFORMATION


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## GRADUATE STUDY

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| **Program:** | Ph.D. candidate in Economics, Princeton University. Fourth year (Fall 2023 to present). |
| **Fields:** | Corporate finance and industrial organization. |
| **Committee:** | Wei Xiong (co-chair), Jakub Kastl (co-chair), Markus Brunnermeier, and Daniel Chen. |
| **Coursework:** | Microeconomics (I and II), macroeconomics (I and II), econometrics (I and II), asset pricing, corporate finance, industrial organization (I and II), financial modeling, theory for applications, and financial and monetary economics (GPA 3.840/4.000). |
| **Training:** | Yale Behavioral Finance Summer School (June 2026). |
| **Awards:** | Torres Prize for the best third-year paper; Graduate Teaching Award for ECO 363. |
| **Experience:** | Quantitative trading intern, Jane Street Capital (summer 2024). |

## RESEARCH INTERESTS

I study the industrial organization of financial markets. My central question is how financial intermediaries, including ETF issuers, retail brokers, banks, and blockchain builders, set prices and compete when investors are inattentive, face switching costs, or search imperfectly. I quantify the size of the resulting markups and investigate how regulators could mitigate the associated inefficiencies.

I am applying to the tutorial to extend this agenda to AI along two lines described below. The first asks how the build-out of AI is financed in the presence of these frictions. The second asks how AI agents that alleviate investor frictions may change competition among financial intermediaries.

## WORKING PAPERS

1. **"The Loyalty Trap: Informational Advantage and Dynamic Price Discrimination."** With Wei Xiong, Xindan Li, Baolian Wang, and Xuewei Yang.

   *Status:* Presented at NBER Behavioral Finance 2025 and SFS Cavalcade 2026.

   *Abstract:* We show how firm learning can create a loyalty trap in financial services. Using account-level data from China's retail brokerage industry, we document substantial commission dispersion: existing clients pay more than new clients, sophisticated investors pay less than naive investors, and even the lower tail of fees remains well above marginal cost. We develop a dynamic model in which brokers price on private beliefs about client sophistication. Repeated interactions allow incumbents to recognize sophisticated clients and lower their fees. Yet incumbents retain pricing power because rivals cannot assess these clients as precisely. The non-portability of favorable information thus sustains markups even for sophisticated investors facing no search costs. Counterfactual analysis shows that data portability through a marketplace can lower average fees for both groups.

2. **"Dynamic Network Competition in the Index ETF Market."** With Zihao Li (Columbia).

   *Status:* Torres Prize (best third-year paper); to be presented at the AEA 2027 poster session.

   *Abstract:* Direct network effects, where a product's value grows with its user base, are a natural source of market power. We develop a dynamic oligopoly model in which firms lower current prices, sacrificing current margins to attract more users, which strengthens their network and raises future demand. We apply this framework to U.S. equity index ETFs, where secondary-market liquidity operates as a direct network effect. Estimating within-index demand and supply-side primitives, we show that dynamic competitive incentives substantially discipline equilibrium pricing relative to a static benchmark, even absent market fragmentation. We evaluate counterfactuals of common ownership, market entry, and liquidity subsidy.

3. **"Preying on Leveraged ETFs."** Solo-authored.

   *Status:* Presented at IBFC 2026; to be presented at CAFM 2026.

   *Abstract:* This paper documents predatory trading on leveraged ETFs (LETFs) in Korea, centered on SK Hynix, a leading memory supplier in the AI-driven memory cycle. Because LETFs must rebalance at every close in a predictable direction and size, speculators trade the underlying ahead of the rebalance, distort the closing price, and liquidate into the order flow they enlarged. This raised SK Hynix's annualized volatility from 91.5% to 124.9% over three months and cost its predominantly retail holders 21.9% of their initial investment, showing how a market friction amplifies the AI-memory cycle.

4. **"The Cost of Delay: Evidence from the Ethereum Transaction Fees Market."** Solo-authored.

   *Status:* Best Senior Thesis Award, Duke University. Presented at USC Marshall and ICEE 2024.

   *Abstract:* This paper develops a structural queuing model of Ethereum's first-price fee market that recovers users' willingness to pay for speed and evaluates mechanism-design counterfactuals.

## PLANNED RESEARCH

### 1. Financing of the AI Build-Out

AI development requires unprecedented investment in compute, data centers, and power (Van Nieuwerburgh 2026), but its financing is subject to various frictions such as duration mismatch and rollover risk. Even frontier labs such as Anthropic are expected to receive junk ratings on their bonds after an IPO, and so are other neocloud providers.

I will use filings, deal data, and disclosures from private equity and private credit managers to (i) document the sources of funds for AI infrastructure, (ii) measure hyperscalers' off-balance-sheet debt and commitments and how the market prices them, and (iii) estimate a structural corporate finance model of a neocloud facing rollover and default risk. The goal is a valuation framework that measures the underlying risk of AI companies by separating asset obsolescence, customer concentration, and funding structure, and compares it with the risk implied by market prices.

### 2. Agentic Finance

As investors delegate search and trading to AI agents, they may face fewer frictions in choosing financial products. Intermediaries have long competed on quality, service, and convenience, which appeal to inattentive investors and create switching costs. If agents compare prices and switch providers at low cost, competition may shift toward prices and rates themselves.

To study how this reshapes competition among financial institutions, I extend my retail brokerage model so that a fraction of investors delegate to an agent with a lower search cost. The estimated model gives the equilibrium response of commissions. The same approach applied to deposit markets gives the response of deposit rates. These measure how much agents erode the rents from inattention and switching costs.