RAVI JOSHI

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ACADEMIC HISTORY

Ph.D. in Finance, Louisiana State University 2020-2025

M.S. in Physics, Michigan Technological University 2012-2013

M.S. in Mechanical Engineering, Michigan Technological University 2011-2013

B.S in Mechanical Engineering, Motilal Nehru National Institute of Technology 2006-2010

PHD DISSERTATION

Essays On Stablecoins' Stability Link

WORKING PAPERS

Job Market Paper: Arbitrage Effectiveness and Stablecoin Run.

Conference Presentations 2025: University of Chicago, University of Sydney

Abstract: Arbitrage is one of the most critical mechanisms in well-functioning financial markets. Stablecoins, designed to maintain dollar parity through arbitrage, provide a natural laboratory to study this mechanism under stress. This paper uses extremely granular data to study Terra stablecoin's arbitrage failure, which occurred 48 hours before the May 9, 2022, 5 PM depeg. I develop a generalized methodology applicable to all safe assets, using stablecoin pricing data, to measure arbitrage effectiveness in stablecoins. I further show that the declining collateral value and increasing marginal trading costs in Terra's blockchain acted as frictions to arbitrage effectiveness. I use order book data to show the microstructure of the run dynamics that followed. I show that liquidity vanished first on smaller exchanges and persisted longest on Binance, the deepest market. Results are consistent with arbitrage–run tradeoff models under extreme arbitrage concentration: unlimited participation supports price correction but amplifies run risk. My results have important implications for the stability of safe assets in general.

Asymmetric-information around Stablecoin Run.

Conference Presentations 2025: University of Chicago, University of Sydney

Abstract: Information costs, borne by both liquidity providers and takers, are pivotal to studying run dynamics. When beliefs turn noisy, market makers price in much higher information risk: the spike in adverse selection signals heightened caution and willingness to quote only at wider spreads. This paper uses extremely granular trade data from major crypto exchanges to estimate hourly adverse selection of various cryptocurrencies around the May 2022 Terra run episode. I show that stablecoins can rapidly transition from information-insensitive to information-sensitive assets. In calm markets, assets like Bitcoin naturally command higher information costs than stablecoins. Terra exhibits very low adverse selection costs among major cryptocurrencies (0.34 bps), behaving as an information-insensitive

asset. However, during the run on May 7, its costs surged to 101.9 bps, surpassing those of fiat-backed stablecoins (USDT: 2.5 bps; USDC: 0.15 bps) and even Bitcoin (25.6 bps), signaling severe information asymmetry. I show that flight-to-safety dynamics occur during run episodes in the stablecoin market, similar to the dynamics observed in runs on Money Market Mutual Funds (MMMF). To trace information diffusion, I pair these microstructure estimates with high-frequency social data (5,000 tweets/hour). Average sentiment remains stable and slightly positive through the morning of May 9, then turns sharply negative; investor disagreement (SD of polarity) rises and stays elevated, indicating market stress. The mechanism operates through an information-cost channel: makers demand higher compensation to quote, and takers pay more for immediacy when liquidity is most needed.

The Internet and the Housing Market: The spillover effect of the digital divide on home buyers.

Abstract: I study the effect of broadband access on the price and availability of mortgage credit. Results of my study suggest that with the increase in broadband access, the interest rate decreases while the loan amount increases. I also analyze whether the broadband usage will increase the competition among the mortgage lenders, but I find no support for this idea. I describe several mechanisms that could be driving the results. Overall, my results shed light on the correlation between broadband access and the housing market.

WORK IN PROGRESS

Can AI Agents Identify Arbitrage Opportunities in Crypto Derivatives Market?, with Don Chance

PUBLICATIONS

Valuation when disaster risks increase at an increasing rate, with Kelly Pace and Rajesh Narayanan, *Economics Letters* Volume: 224 (2023) ISSN: 0165-1765.

Abstract: Atmospheric CO_2 been growing at an increasing rate for many years and this suggests that investments may face an increasing rate of future disaster risk. We provide a simple variation of the Gordon Growth model that accounts for potential increasing disaster risks and provides a closed-form bound to the reduction in value.

An exposition on Friedmann cosmology with negative energy densities, with Robert J. Nemiroff and Bijunath R. Patla, Published in *Journal of Cosmology and Astroparticle Physics, Volume 2015, June 2015.*

TEACHING

FIN 3715: Corporate Finance – 74 students.

FIN 3826: FUND OF ASSET MGMT – 13 students.

FIN 4910 – Introduction to FinTech and DeFi – 20 students.

AWARDS

National Math Olympiad : *Awarded INR 10000 by Kendriya Vidyalaya :: Rank 2 KVS*

Louisiana State University: *Incoming Doctoral Fellowship, Manuel Miller Fellowship*

INDUSTRY EXPERIENCE

General Motors: Michigan — Senior Machine Learning Engineer, ADAS 2021 – 2024

- Led cross-functional teams to develop safety systems for Ultra Cruise, deployed in 1M+ vehicles.
- Championed 95% accurate curb detection system using hybrid sensors, improving customer safety.
- Managed validation, integration, and diagnostics efforts across engineering and product teams.

Ford Motor Company: Michigan — Connected Vehicle Product Engineer 2018 – 2020

- Drove end-to-end data architecture between vehicle systems and cloud platforms.
- Partnered with legal and compliance teams to ensure privacy-first data governance.

Fiat Chrysler Automotive: Michigan- Product Development Engineer 2014 – 2018

- Worked as a Mechanical Engineer responsible for the product development of exhaust and power-train systems for Chrysler vehicles.
- Coordinated testing at Chrysler Proving Grounds and supplier sites.
- Collected and Analyzed RLDA data using Python and n code.

SKILLS

Python, R, SAS, Machine Learning, NLP
LLMs: Agent-to-agent communication, autonomous research pipelines, retrieval-augmented generation for finance data

REFERENCES

Referee 1. **Kelly Pace**
Professor of Finance,
Louisiana State University,
kelley@spatial.us

Referee 2. **Don Chance**
Professor of Finance,
Louisiana State University,
dchance@lsu.edu

Referee 3. **V. Carlos Slawson Jr.**
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