

The University of Chicago Financial Journal



Winter 2026

Journal of Markets, Political Economy, & Economics

EDITOR IN CHIEF

Ana Barcinski

DEPUTY EDITORS

Yoav Rosenthal

Sophia Paesano

Winter 2026 • Issue 3

The UChicago Financial Journal (UFJ)

Instagram: @ufj.uchicago

The views expressed are those of the authors and do not represent the University of Chicago.

EDITOR'S NOTE

The UChicago Financial Journal, affiliated with the Undergraduate College of the University of Chicago, is a Recognized Student Organization dedicated to fostering research, learning, and writing in the fields of finance, economics, and political economy.

Each quarterly issue features articles written by our members across the categories of markets, political economy, and industry innovation. Our writers examine financial questions through an argumentative and evidence-based lens, connecting market trends to broader economic, political, and social forces. Whether analyzing Japanese government bonds, private equity in sports, GLP-1 pharmaceuticals, or the role of social media in retail investing, our goal is to make financial analysis rigorous, relevant, and accessible.

Our goal is to foster academic integrity, analytical rigor, and critical engagement among students passionate about the study of finance and its global implications. We value intellectual curiosity and open-minded dialogue with diverse perspectives—principles that guide both our research and our commitment to thoughtful discourse within the financial community.

TABLE OF CONTENTS

POLITICAL ECONOMY

The Attention Market — <i>E. Hamani</i>	4
Private Equity Is Buying Sports Teams. Is That Good or Bad for Fans and Players? — <i>E. Sensenich</i>	6

MARKETS

Widow-Maker to Wake-Up Call — <i>Ž. McDonald</i>	8
When the Bull Market Leaves the Drive-Thru — <i>A. Macedo</i>	10
The GLP-1 Gold Rush: Its Causes and Future — <i>S. Cohn</i>	12

FINANCE & INNOVATION

Calculated Risks: Monte Carlo Simulation and the Future of Medicine — <i>T. Kamat</i>	14
The Psychedelic Shift: From Counterculture to Capital Markets — <i>I. Naylor</i>	16

The Attention Market

Ely Hamani

Your FYP is now your financial advisor

Remember when investing was boring? You'd call your guy at the brokerage, he'd mutter something about diversification, you'd buy index funds, and nothing exciting would happen for forty years. Bliss. Then the internet got faster, smartphones got smarter, and somewhere along the way, a twenty-three-year-old on TikTok started explaining options trading between bites of a breakfast burrito—and that's the new normal? The stock market has always been a place where psychology and money collide, but social media has turned that collision into a full-scale pileup, and the rest of us are stuck in traffic behind it.

The Origins

If you need a single moment to understand what's changed, look no further than January 2021, when a subreddit called r/WallStreetBets collectively decided to send GameStop's stock to the moon. GameStop, the mall-based video game retailer that had all the financial vitality of a Blockbuster Video, shot up over 1,700% in a matter of weeks. Hedge funds hemorrhaged billions. Congress held hearings. Common people who had never owned a stock in their lives downloaded Robinhood during their lunch breaks and bought in because their group chat told them to. It was, depending on your perspective, either a glorious populist uprising or a masterclass the result of “hype” replacing analysis.

What happened wasn't magic, it was just too quick to notice. Reddit posts became tweets became TikToks became news segments became more Reddit posts, and the whole feedback loop took about forty-eight hours to lap itself. In the old world, a bad investment thesis might take weeks to spread through word of mouth. Now, an investing idea with zero fundamental

backing can reach ten million people before the market opens. Further, investing has become readily accessible to anyone with internet connection and a smart device. Speed and accessibility changed the playing field for good.

What makes this particularly dangerous isn't that ordinary people are investing, which actually increases market efficiency, it's that the information traveling at viral speed is often stripped of context, nuance, or anything resembling a balance sheet. A fifteen-second video can tell you what to buy. It cannot tell you why, or what happens when everyone else is trying to sell at the same time. The gap between those two things is where a lot of people's savings went to die—a common result of “rug pull” schemes that are becoming increasingly prevalent in the era of misinformation.

Modern Herd Behavior

Economists have known about herd behavior for decades: the tendency for people to mimic the financial decisions of a crowd rather than rely on their own information. It's not stupidity; it's actually a rational response to uncertainty: “People are prone to conform more because they are uncertain about the correctness of their beliefs” (Cross et al., 2017). If you don't know what a stock is worth, and a thousand other people seem confident about it, following the crowd feels like a reasonable shortcut. The problem is that social media has supercharged the crowd, amplified its voice, and hidden the fact that most of those thousand people are also just following someone else.

The platforms themselves aren't exactly innocent bystanders. Engagement algorithms reward content that provokes excitement, urgency, and emotion. Which, as it turns out, describes a lot of financial

content that probably shouldn't exist. "This stock is going to 10x" performs better than "here is a measured analysis of this company's debt-to-equity ratio." Outrage and FOMO drive clicks. Clicks drive reach. Reach drives more people into the trade. By the time the algorithm is done with you, you've watched forty videos about the same ticker and your brain has pattern-matched this into something that feels like due diligence. It is not.

Attention Leaves, and So Does Your Money

Here's the cruel irony of attention-driven markets: the same mechanism that inflates the bubble is the one that pops it. A stock rises because everyone is talking about it. It falls because everyone stopped. There's no earnings miss, no scandal, no fundamental shift in the business, just the collective gaze of the internet moving on to the next thing. For retail investors who bought near the peak, that indifference is financially devastating. The hedge funds and early movers have usually exited by then, profits intact, leaving the latecomers holding assets that are now worth a fraction of what they paid.

This volatility isn't just painful for individual investors, it starts to distort the broader market in ways that matter. When prices swing wildly based on attention rather than fundamentals, it becomes harder for the market to do its actual job, which is to allocate capital efficiently toward productive companies. A business that is genuinely building something valuable shouldn't have its stock price whipsawed because it went viral on a Wednesday. And yet increasingly, that's the environment we're operating in. Volatility that used to require a geopolitical crisis can now be triggered by a single influential post.

The people who get hurt most are almost always the ones who could least afford it. Research consistently shows that retail investors tend to buy after prices have already spiked and sell after they've already crashed—the exact opposite of what you're supposed to do. Sophisticated institutional investors, meanwhile, have the tools and the speed to navigate these swings, or even profit from them. Social media promised to level the playing field between Wall Street and Main Street. In practice, it often just gave Main Street a faster way to lose money on tips it got from strangers on the internet.

Paying Attention to Attention

None of this means you should close your brokerage account and stuff cash in a mattress. It means the landscape has genuinely changed, and understanding that change is now part of being a competent investor. The fundamentals haven't stopped mattering—earnings, cash flow, competitive moats—they've just been temporarily drowned out by noise. Learning to distinguish the signal from the hype has become table stakes, which also means financial literacy and education has become more important than ever. The next time a stock starts trending on your feed, the most valuable thing you can do before touching your portfolio is a simple one: ask yourself whether you're responding to information, or just to the fact that everyone else seems excited. That awareness might be the most financially sophisticated approach social media never taught you.

Private Equity Is Buying Sports Teams. Is That Good or Bad for Fans and Players?

Emily Sensenich

Over the past several years, major leagues including the National Football League, National Basketball Association, Major League Baseball, and National Hockey League have adjusted ownership rules to allow institutional investors to purchase minority stakes in teams. The change reflects a simple reality: sports franchises have become some of the most valuable and financially stable assets in the global economy. It also marks a turning point. What were once primarily civic institutions are increasingly being redefined as financial instruments. As one investor noted in a recent Fortune report, “the NFL is the gold standard,” a statement that captures how these teams are now viewed as premier investment vehicles.

From a financial perspective, the appeal is obvious. Professional teams are scarce assets with limited supply and durable demand. Franchise valuations have risen consistently, supported by long term media rights contracts that lock in billions from television networks and streaming platforms. Sponsorship agreements and global merchandising provide additional revenue streams. For private equity firms seeking predictable cash flows and appreciation potential, sports teams resemble premium alternative investments. Even access reflects exclusivity, as investors compete for “the biggest share the league allows PE firms to hold” in a tightly controlled market.

Proponents argue that this capital will strengthen organizations. Additional funding can support upgraded facilities, enhanced stadium technology, and expanded analytics departments. Institutional investors may introduce financial discipline and operational efficiency. Yet this defense obscures a more fundamental shift. Private equity firms

emphasize that they are “non voting, passive minority shareholders” and claim “we are not here to tell anybody how to run their franchise.” In practice, influence does not require formal control. Capital shapes priorities. When that capital is governed by return targets and exit timelines, the logic of decision making inevitably changes.

That tension is the central issue. Private equity operates on defined investment horizons, typically seeking returns within five to ten years. Funds are structured around performance benchmarks, valuation growth, and eventual liquidity events. This framework prioritizes monetization. Sports teams, by contrast, have historically been owned by individuals or families whose incentives often included legacy, community standing, and long term stewardship. Even if firms insist that “our role is to serve the owners that we partner with,” they introduce a system in which financial optimization becomes the dominant lens.

Fans experience this shift first. Teams are not interchangeable consumer goods but civic institutions embedded in local identity. When ownership decisions become explicitly tied to return on investment, predictable consequences follow. Ticket prices rise, concession costs increase, and revenue extraction becomes more aggressive. Loyal fan bases provide pricing power, and private equity is trained to maximize it. The same emotional attachment that makes sports valuable also makes fans vulnerable to exploitation.

Players are affected as well. While salary caps and collective bargaining agreements impose constraints, ownership philosophy still shapes competitive strategy. Investment in player development, contract

structures, and roster construction can all be influenced by broader financial priorities. Winning remains valuable, but it is no longer an end in itself. It becomes one variable in a broader calculation of cost, risk, and return.

Ultimately, the entry of private equity forces a redefinition of what a sports franchise is. Are teams community institutions that happen to generate revenue, or financial assets that happen to play games? Increasingly, the latter is taking precedence. Investors openly frame leagues like the NFL as “the highest and most important mountain for us to climb,” revealing the mindset driving this shift. The risk is not that private equity will immediately undermine sports. The risk is that it will gradually reshape them, turning teams into portfolio holdings first and civic symbols second. That transformation is difficult to reverse and even harder to measure in purely financial terms.

Sources:

"Private Equity Is Buying Sports Teams. Is That Good or Bad for Fans and Players?" Fortune, January 22, 2025. <https://fortune.com/2025/01/22/private-equity-investing-nfl-buffalo-bulls-miami-dolphins/>.

Widow-Maker to Wake-Up Call

Zoe McDonald

For years, shorting Japanese Government Bonds (JGBs) was considered such a risky trade that it was named the “Widow-maker”. The world’s second-largest government bond market could go days without a single benchmark bond being traded. Today, however, Japan’s bond market is at a historic inflection point. Last month, after decades of stability under the Bank of Japan’s extensive yield curve controls and aggressive handling of surging inflation, Japanese Government Bonds’ 40-year yields pushed above 4% for the first time, rattling global markets.

The implications for the global fixed-income market might be serious. Japan’s bond market is deeply intertwined with global fixed income, in particular U.S. Treasuries. Analysts noted that the sell-off in Japanese bonds fed into higher U.S. Treasury yields the day after the original spike in JGB yields. In addition, the yen fell sharply against the USD. The strength of this impact is reinforced by the country’s outsized influence on global capital flows. Both domestic and foreign investors have used low yields to lever up positions in higher-yielding assets like U.S. Treasuries and stocks. The question is how durable these market moves will be.

The End of an Era

To understand the gravity of this shift, the fiscal landscape of Japan must be examined. After decades of near-zero inflation, Japan is now experiencing substantial price pressures, making long-term bonds with low fixed payments less attractive and pushing investors to sell at a discount. This increases bond yields. The boost in yields also came as PM Sanae Takaichi announced a snap election that could give her a fiscal spending mandate. The PM unveiled a \$135bn stimulus package in November and reiterated that she intends to implement a two-year holiday for Japan’s 8% tax on food.

Recently, PM Takaichi’s party won in a landslide election. Investors have priced this in as a mandate for high fiscal spending, with yields jumping sharply again. The country’s debt currently comes in at \$9 trillion, an immense figure even before accounting for interest payments. If nominal growth fails to outpace borrowing costs, Japan risks entering an environment where debt compounds faster than the economy expands.

Demographic factors further complicate the outlook. Japan’s aging population depletes domestic savings. This likely leads to an increase in already high foreign reliance. The long end of the JGB market is becoming increasingly reliant on foreign investors. Furthermore, Japanese investors and institutions are among the biggest foreign holders of sovereign debt in the world. At the end of 2024, they were the top overseas holders of U.S. Treasuries. Beyond the US, European sovereign bonds are the most exposed. With rising yields on JGBs, Japanese investors could bring more capital home to take advantage of this, imperiling the global bond market.

For years, the Bank of Japan used yield curve controls and massive bond-buying programs to keep yields near zero, bond prices high, and to fight deflation. At its height, the BOJ owned close to 50% of all the outstanding government bonds in the market. JGBs once stabilized the bond market. The recent panic is a sharp pivot from the perceived stability. Warning signs appeared as early as 2024 when the Bank of Japan slowed the pace of its bond purchases and hiked short-term interest rates faster than expected. This resulted in a chaotic unwind of the “carry trade” in which investors borrow JPY at low rates and lend in other currencies with higher rates.

Why This Matters Beyond Japan

What was a sleepy, reliable corner of the global fixed-income markets has had its first major shake-up in two decades. U.S. Treasuries face the most risk from the growing volatility associated with JGBs. Beyond market mechanics, the shift also raises broader questions about trust in the strength of global financial institutions and their ability to manage domestic fiscal conditions. For some, the turmoil in the JGB market might be an opportunity, but for most, it signals a concerning waning of Japanese fiscal strength.

A New Global Rate Regime?

The knock-on effect for the global bond market is impending, especially as Japanese investors are no longer set to invest as much overseas. This could cause a sustained rise in long-term bond risk premiums, a steeper yield curve across major markets, and meaningfully tighter financial conditions worldwide, according to CNBC. Japanese bonds once anchored the lower bound of yield expectations. A shift in this dynamic could mean that global market rates could structurally move higher. If so, the global fixed-income landscape may be entering a new regime.

Sources:

<https://www.cnbc.com/2026/02/20/japan-bond-yield-us10y-us-treasury-gilts-bunds-takaichi-trade.html>

<https://www.nytimes.com/2026/02/18/business/jgb-trade-excitement.html>

<https://am.jpmorgan.com/us/en/asset-management/institutional/insights/portfolio-insights/fixed-income/weekly-bond-bulletin/>

When the Bull Market Leaves the Drive-Thru: Fast food's quiet dependence on Big Tech gains

Antonio Macedo

There seems to be a contradiction in the U.S. economy: restaurant operators complain about falling foot traffic and cautious customers, yet aggregate consumer spending and the stock market remain strong. The answer to that puzzle sits in two places: the drive-thru and the trading screen. Lower-income Americans are quietly pulling back on fast food, while higher income, stock owning households keep spending thanks to a prolonged, big tech-driven bull market. The question for the QSR sector isn't just if traffic will rebound—it's what happens if the market tailwind disappears.

The "Recession" That Doesn't Show Up in GDP

Recent earnings calls from big QSR names paint a consistent picture of weak traffic, especially among budget-conscious customers. In the first quarter of 2025, McDonald's reported a nearly double digit drop in traffic from low and middle income consumers. It also experienced its largest U.S. same-store sales drop since 2020 and singled out low and middle-income customers as the main source of the decline.

Industry data back this up. The National Restaurant Association has recorded net declines in customer traffic for eight consecutive months, even as many operators still report positive same-store sales because of higher prices. This consistent traffic decline is one of the most concrete signs that a full blown recession should be occurring within the sector, but it isn't.

This weakness is easy to miss, consumer spending remains quite strong, and GDP isn't signaling recession. But at the level of a \$10 combo meal, the downturn is obvious. For many low-income households, fast food has crossed from "cheap treat"

into "luxury.." This kind of thinking gives an idea as to why consumer sentiment is at an all time low, but the market is seemingly not reacting accordingly.

A Bull Market Props Up the Top Half

On the other side of the split, higher-income households are looking amazing. Studies from the Boston Fed and McKinsey show that spending growth has been much more resilient among consumers earning over six figures, who are less likely to cut back and more likely to maintain or upgrade their purchases.

The stock market is playing a big role here. Big tech and related giants now represent roughly a third of the S&P 500 on their own, and nearly half if you include adjacent mega-caps.

That concentration means that strong performance in a narrow slice of tech can keep the entire index hitting new highs, boosting the wealth of the households most likely to own equities.

The result: a gigantic yet risky wealth effect. Wealthier consumers, buoyed by portfolio gains and relatively strong wage growth, continue to eat out, travel, and spend. Recent reporting even suggests that for some chains, traffic from higher-income guests is growing nearly as fast as it's falling among low-income diners. This produces a misleadingly stable average.

What If the Music Stops?

If QSR is in a recession at the bottom while being propped up by a tech-driven wealth effect at the top, a sharp correction in tech stocks is not just a stock problem, it's also a fast-food problem.

If the energy crisis is not resolved and big tech momentum stalls, the households currently offsetting low-income weakness could start cutting back as well. The same tech wobble that drags the S&P down could also drag QSR traffic down from the “comfortable” tier of consumers that have been dining out freely.

That doesn’t guarantee a collapse in fast-food demand as people still need convenient meals, but it does remove a hidden stabilizer. QSR chains might be forced to lean harder into value menus, promotional pricing, and cost cutting, pressuring margins and profitability.

Two Futures for Fast Food

If the current environment holds, QSR chains can wait out the uncertainty driving down consumer sentiment and causing low income consumers to stay at home. Same-store sales may inch higher as companies lean on pricing, loyalty apps, and menu tweaks, quietly shifting toward higher-margin items and more targeted promotions. Growth will slow, but the model more or less works as management teams refine strategies and ride the market tailwind.

If that tailwind fades and the tech rally stops, the adjustment becomes more painful. With less support from wealth and confidence effects, QSR brands would have to buy back their customers with real value: sharper discounts, simpler menus, and tighter cost controls. Franchisees might delay remodels, scale back expansion plans, or close weaker stores altogether. In both cases, the sector adapts, either gradually through strategic tweaks, or abruptly through margin compression. But these outcomes remain closely tied to how long the current political and economic uncertainty, and the tech trade beneath it, can last.

Sources:

Diodato, Chris. “S&P 500 Index Concentration Reaches New Highs – Strategically Navigating a Mega-Cap Dominated Market.” *Advisor Perspectives*, 21 Jan. 2025, www.advisorperspectives.com/articles/2025/01/21/s-p-500-reaches-highs-navigating-mega-cap-dominated-market. Accessed 15 Nov. 2025.

Hagler, Rees, and Dhiren Patki. “Why Has Consumer Spending Remained So Resilient? Evidence from Credit Card Data.” *Federal Reserve Bank of Boston, Current Policy Perspectives*, 13 Aug. 2025, www.bostonfed.org/publications/current-policy-perspectives/2025/why-has-consumer-spending-remained-resilient.aspx. Accessed 15 Nov. 2025.

Krauskopf, Lewis. “AI Stock Wobble Points to US Market Reliance on Tech.” *Reuters*, 6 Nov. 2025, www.reuters.com/business/finance/ai-stock-wobble-points-us-market-reliance-tech-2025-11-06/. Accessed 15 Nov. 2025.

Littman, Julie. “McDonald’s US Traffic Slides Due to Economic Uncertainty.” *Restaurant Dive*, 1 May 2025, www.restaurantdive.com/news/Mcdonalds-us-traffic-slides-q1-2025-same-store-sales-down/746845/. Accessed 15 Nov. 2025.

“Same-Store Sales and Customer Traffic.” *National Restaurant Association*, 31 Oct. 2025, restaurant.org/research-and-media/research/restaurant-economic-insights/economic-indicators/same-store-sales-and-customer-traffic/. Accessed 15 Nov. 2025.

Tinsley, David, et al. “Consumer Checkpoint: The Tale of Two Wallets.” *Bank of America Institute, Bank of America*, Oct. 2025, institute.bankofamerica.com/economic-insights/consumer-checkpoint-october-2025.html. Accessed 15 Nov. 2025.

The GLP-1 Gold Rush: Its Causes and Future

Sam Cohn

The GLP-1 boom, potentially the most significant healthcare development of the 21st century, is best explained by a collision between independent realms. Obesity rates in the US reached 41% in 2020, responsible for a major cardiometabolic disease burden.

Simultaneously, incretin therapies – later known as GLP-1 therapies – were outperforming their counterparts massively in the diabetes world, while coverage rules and pricing were reshaping the healthcare landscape. These three factors would coalesce into a “gold rush” in the GLP-1 obesity space. However, this was not some utopian breakthrough that caused endless demand and boundless supplier profits. Rather, supplies for these therapies were particularly constrained, creating a field where scalable manufacturing and patent defense were paramount to success.

The GLP-1 gold rush starts with epidemiology. Adult obesity pervasiveness meant that even modest treatment implied massive volume. So massive that in late 2025, polling suggested that approximately 1 in 8 adults used GLP-1 therapy for diabetes, weight loss, and other cardiometabolic issues, giving these treatments a noticeable share of the total prescriptions that year. Government oversight illuminates this volume’s budget effect, with reporting showing GLP-1 spending surged within a federal employee plan subset. In turn, pharmacy budgets were re-allocated towards incretin drugs.

However, a surge of demand this large produced a shortage loop. In late 2022, demand for Wegovy, a semaglutide treatment prescribed for moderate weight loss created by Novo Nordisk, outran peptide manufacturing, producing shortages and rationing. Because of this shortage, the FDA allowed licensed pharmacies to make custom versions, which were

often cheaper. Once the patent-protected peptides were restocked, the reason for mass-producing these custom versions was eliminated.

However, this created an issue, since consumers were still buying pharmacy versions because they were cheaper, violating the patent law associated with pharmaceutical drugs. This fueled the FDA’s crackdown on unapproved GLP-1 drugs, where they restricted access to key APIs and took down companies marketing these compounded GLP-1s.

This manufacturing aspect has played a major role in determining the current winners of the GLP-1 space. The companies producing the best molecular quality drugs have not necessarily seen correlative success, but rather the ones with manufacturing throughput, a payer access strategy, and IP defense under the threat of compounding have. The two companies dominating the scene are Novo Nordisk and Eli Lilly.

Novo Nordisk, the semaglutide franchise, has an enormous obesity and diabetes sales base. As an early dominator of the scene, their gross margins remain high, but they experience serious capex and depreciation pressures as capacity expands. Their strategy is oriented around manufacturing, as they have recently acquired three fill-finish factories, the facilities that make a drug product ready for patients. Novo has also expanded their label into Cardiovascular outcomes and liver disease MASH, strengthening payer narratives beyond weight loss.

Eli Lilly, the Tirzepatide franchise, has experienced a major 2025 revenue signal from Mounjaro and Zepbound. They are currently the incumbent in the GLP-1 field, and have a large scale, creating a solid cash-funded pipeline flywheel. They are investing significant capital and formulating various pre-launch strategies for oral formulations of tirzepatide in order to break injection-only constraints.

But how durable are the leads of these companies? Financial forecasts see the obesity industry as highly durable, with investment banks such as J.P Morgan, Goldman Sachs, and Morgan Stanley projecting that obesity drugs could generate enormous global sales. However, the realized market depends largely on consumer WTP and manufacturing scale. At the base level, net price will compress due to competition-driven access-broadening. Though Novo Nordisk's expansion of GLP-1s into the cardiovascular and liver-related spheres could reframe GLP-1s as downstream cost-reducers, leading to broader coverage and institutional momentum.

Ultimately, though, the winners in ten years will be decided on a more scientific basis. Multi-agonists, compounds that target multiple GLP receptors, reflect the push in the obesity market by pharmaceutical companies to raise the efficacy ceiling and maintain/attain a portion of the market share as competition intensifies. Retratutide, a triple-agonist targeting three GLP receptors, was shown recently in Phase 2 evidence to induce visceral fat loss at a rate 7% higher than Tirzepatide, supporting the competitive significance of triple-agonist drugs.

Oral formulations also seem to hold value in the future, and have been split into two categories: oral peptides, which have received approval for obesity, and oral antagonists, both of which can scale the market differently but face unique tolerability and safety risks. Pfizer is a prime example of the importance of these risks, as they were forced to discontinue two different oral GLP-1s due to intense nausea and GI tract side effects.

Additionally, combination regimens are becoming increasingly popular, notably a pairing of amylin and incretin, due to their ability to improve tolerance, durability, and long-term outcomes. At some point, language concerning the quality of GLP-1 product may switch from "best drug" to "best regimen." Considering all of the nuances involved, the key to success in the GLP-1 goldrush long-term is balance: the company that best raises the ceiling and scope of GLP-1 drugs while simultaneously keeping tolerability manageable and avoiding insurer

pushback will ultimately prevail. Today's molecule may be indicative of the future, but it most definitely will not be the cause of it.

Calculated Risks: Monte Carlo Simulation and the Future of Medicine

Taran Kamat

Two patients walk into a hospital with the same diagnosis. Same drug and same dose, but one recovers and one doesn't. The difference isn't the doctor, but it's the biology. Monte Carlo simulation is helping medicine finally account for that. Not only are they changing medicine but changing the financials. Monte Carlos simulations are transforming the healthcare field by maximizing profit while minimizing cost, changing the way drugs are produced, and transforming the way numbers are used.

The financial world has employed Monte Carlo simulations to manage uncertainty. Monte Carlo simulations were developed in the Manhattan Project to predict one of the incredibly risky aspects of the bomb. Monte Carlo simulations have rapidly changed since then, from both their expansion into different industries and through technological advancements. Currently, investment banks use the method to model thousands of possible market scenarios to estimate the probability of gains, losses, and extreme events. Rather than predicting a single outcome, Monte Carlo analysis produces a distribution of outcomes, allowing firms to measure risk exposure and prepare for volatility. By incorporating randomness, analysts gain a clearer picture of a portfolio. What began as a statistical technique rooted in physics and probability theory has become foundational to modern finance. Now, this same probabilistic framework is being applied in a very different environment: healthcare.

Healthcare, like financial markets, operates in an uncertain environment. Imagine two patients have the same affliction; however, one patient is allergic to a common ingredient in the drug while the other patient isn't. A traditional approach would provide the next-best drug, simply because it makes sense. Monte Carlo simulations are offering an alternative.

By repeatedly sampling from probability distributions and simulating thousands of possible outcomes, the method captures variability directly. If a patient has a certain affliction, it would already have been modeled in the simulation, so the doctor would have a better understanding of what to prescribe. Tailoring prescriptions to the minute differences of an individual is a game-changer.

Monte Carlo's impact can be seen in the post-anesthesia care unit (PACU) length of stay. Dr. Jones and Dr. Fleming, both specialists in anesthesiology, applied a Monte Carlo simulation to determine which postoperative complication most significantly contributed to delays. Rather than simply comparing average stay times, they simulated thousands of scenarios to estimate how much overall efficiency would improve if each complication were reduced or eliminated. Although postoperative nausea and vomiting were associated with the longest individual stays, the simulation revealed that reducing moderate opioid use would generate the greatest overall percentage reduction in PACU length of stay. While the findings of this study are being implemented and are helpful, the true value comes from its usage in the future. At the end of their conclusion, they state, "This simulation methodology could similarly be applied to other QI opportunities providing guidance to the most efficacious projects to pursue." (Jones&Fleming, 5). This methodology won't just be used for PACU; it will be used in other quality improvement (QI) opportunities to improve the stay for the patients and reduce the workload for the nurses and doctors.

Beyond hospital workflow, Monte Carlo methods are transforming drug development and precision medicine. Drug responses vary widely across patients due to differences in metabolism, genetics, age, and

other factors. These differences are termed ‘interindividual variability’. Population pharmacokinetic modeling, a method that analyzes how drugs move through the body, when combined with Monte Carlo simulation, allows researchers to create thousands of virtual patients and test dosing regimens before large-scale clinical trials. Tsvetelina Velikova, a researcher at the Medical Faculty of Sofia University St. Kliment Ohridski, notes that interindividual variability in pharmacokinetic values cannot be excluded or ignored in real clinical settings. Essentially, a dose that would be perfectly fine for a 20-year-old male would have completely different, and potentially harmful effects on an 80-year-old woman. Utilizing Monte Carlo allows us to see the potential effects of drugs on individuals while minimizing patient risk. Rather than rely solely on trial-and-error in live populations, researchers can simulate outcomes in advance, which would save time and reduce cost. From a financial perspective, simulations reduce the number of studies required and potentially shorten development time, while maximizing the chances of success in clinical trials, all of which reduce the overall cost of drug development.

Despite its advantages, the method is not without challenges. Monte Carlo simulations require high-quality input data and substantial processing power, which is quite expensive. Results are highly sensitive to assumptions about probability distributions, which are the parameters required for the simulation to run. If the underlying data is inaccurate or incomplete, the simulation will produce misleading conclusions. For this reason, simulations must be interpreted cautiously and validated against empirical outcomes from trials. Yet, these limitations are continuing to be addressed; both advances in AI and computing power are reducing the cost and complexity to run these simulations, making them more accessible to more hospitals.

Looking ahead, this trajectory suggests that simulations will become routine components of clinical and administrative decision-making. Its migration from Wall Street to the hospital ward reflects a migration towards quantification in the healthcare industry. In finance, probabilistic modeling provides profits and prevents recessions. In

healthcare, it has the potential to save lives and provide healthcare providers with the means to do it. While not yet universal in clinical practice, the method’s growing influence suggests that probabilistic thinking will become central to evidence-based healthcare.

Sources:

Corporate Finance Institute, “Quantitative Finance,” published February 16, 2020, accessed May 5, 2026, <https://corporatefinanceinstitute.com/resources/data-science/quantitative-finance/>

James Harvey Jones and Neal Fleming, “Simulation with Monte Carlo Methods to Focus Quality Improvement Efforts on Interventions with the Greatest Potential for Reducing PACU Length of Stay: A Cross-Sectional Observational Study,” *BMJ Open Quality* 13, no. 4 (2024): e002947, <https://doi.org/10.1136/bmj-2024-002947>

Tsvetelina Velikova, Nevena Mileva, and Emilia Naseva, “Method ‘Monte Carlo’ in Healthcare,” *World Journal of Methodology* 14, no. 3 (2024): 93930, <https://doi.org/10.5662/wjm.v14.i3.93930>

The Psychedelic Shift: From Counterculture to Capital Markets

Indira Naylor

The business of psychedelic medicine meets regulatory reality



Psychedelics have undergone a remarkable transformation in less than a decade, shifting from symbols of counterculture to the focus of major financial investment. Substances such as psilocybin, LSD, and MDMA were once classified alongside heroin and widely considered outside the boundaries of legitimate medicine.

This shift is captured well by New York Times writer Andrew Jacobs, who describes how, after decades of “demonization and criminalization,” psychedelic drugs are now “on the cusp of entering mainstream psychiatry,” with “profound implications” for a field that has seen limited pharmacological innovation in recent years. This renewed interest is reflected in ongoing clinical trials exploring their use in treating conditions such as major depressive disorder (MDD) and post-traumatic stress disorder (PTSD).

At the same time, they are attracting venture capital funding, publicly traded biotechnology firms, and a rapidly expanding network of specialized clinics. The speed of this shift has been striking. It is so rapid that the financial ecosystem surrounding psychedelic therapy now resembles the emerging pharmaceutical industry. Yet many of the clinical standards,

regulatory systems, and professional training structures that typically support new medical treatments are still in the process of being built. This rapid shift has caused the psychedelic therapy industry to develop under a venture-capital and consumer-demand model that is advancing faster than clinical validation and regulatory infrastructure, creating a mismatch between financial incentives and medical readiness.

A Background into Psychedelic Medicine

Psychedelic medicine is not simply a recreational drug rebranded as healthcare. It is instead a specific treatment in which psychoactive compounds are administered in controlled clinical sessions in a regulated manner. The most common compounds are psilocybin (the active ingredient in “mushrooms”), MDMA, and ketamine. A typical treatment session begins with screening for psychiatric risk, followed by preparatory meetings with clinicians, supervised dosing, and follow-up therapy sessions to help patients process the experience. Therapy is therefore an essential component of the treatment process, as psychedelics are not simply medications that can be prescribed and taken at home. Instead, their effectiveness depends on structured clinical support before, during, and after the dosing session.

Clinical research has played a central role in the recent resurgence of interest in psychedelic therapies, particularly in their potential to treat difficult psychiatric conditions. For instance, the FDA granted “Breakthrough Therapy Designation” to MDMA for the treatment of posttraumatic stress disorder (PTSD). The study’s treatment combined

psychotherapeutic techniques with three administrations of MDMA, and found it effective in patients with severe PTSD. Further, psilocybin studies focusing on treatment-resistance depression (TRD) and anxiety have been conducted at institutions such as Johns Hopkins University and Imperial College London. These experiments found a correlation between the administration of psilocybin treatment and improvements to depression symptom severity, with some variation in drug action across individuals.

Economically, these treatments differ from traditional pharmaceuticals. A conventional drug scales by manufacturing more pills once approved. Psychedelic therapies scale by providing supervised treatment sessions, which require trained clinicians and dedicated clinical time. Each session can last six to eight hours and often involves two providers monitoring a single patient. The main limiting factor is not production of these compounds, but professional clinician and infrastructure. Therefore, the industry is a combination of innovative biotechnology and healthcare service, the value coming from both the molecule and the therapeutic experience surrounding it. This characteristic has major implications for pricing, insurance coverage, and investment expectations. Drug development is already expensive, with the added therapy and regulation costs skyrocket even further.

A Patient Driven Market

Unlike most medical treatments, psychedelic therapy is not spreading only through doctors, hospitals, or pharmaceutical companies. Public interest has developed alongside the research. Podcasts, documentaries, and online communities frequently discuss “microdosing” psychedelics for mood, creativity, and mental health. For instance, the popular Netflix documentary *Have a Good Trip: Adventures in Psychedelics* follows the various stories of celebrities and their experiences with psychedelics. Further, podcasts such as *Psychedelics Today* and *Adventures Through The Mind* are dedicated to teaching the general population about the science, culture, and therapeutic applications of psychedelics. As a result, many potential patients learn about these treatments from media and social

networks, rather than doctors and clinicians. Without medical guidance, individuals may misunderstand appropriate dosing, overlook psychiatric risk factors, or attempt unsupervised use outside of controlled therapeutic settings – all of which carry significant safety risks.

This creates an atypical healthcare market since demand is driven more so from the patients rather than medical innovation. Traditionally, new treatments spread after physicians gain confidence in clinical evidence and begin recommending them. However, in this case interest has grown among patients first, particularly among individuals with disorders who have yet to find relief from existing treatments. The expansion of ketamine clinics in the United States illustrates this shift. Ketamine is legally prescribable, and specialized clinics offer supervised treatment sessions even though insurers and regulators have yet to determine long-term guidelines: consumer demand is outpacing regulatory and institutional standards. This is especially concerning as psychedelic-based treatment is still a relatively new field, and there is much that doctors and scientists still do not understand about these medications. Even leading researchers acknowledge that “we don’t really know” how these drugs alleviate mental disorders and that their effects “remain a mystery,” as AMCC writer Patrick Boyle notes.

This matters financially because markets respond to expected future demand. Investors and companies are not reacting to successful clinical trials, but also to visible public interest in alternative mental health treatment. When potential patients already believe a therapy will help them, firms anticipate a ready customer base once regulations allow broader access. However, when consumer demand is intense, it can create pressure to commercialize treatments before standardized training and safety protocols are fully established. The same demand that makes psychedelic medicine an attractive investment also may push its new treatments out faster than healthcare systems typically manage.

The Appeal of Investing in Psychedelics

Over the past several years, many companies focused on psychedelic-assisted treatments have gone public, including Compass Pathways, MindMed, and Atai

Life Sciences. Venture capital firms such as Noetic Fund and Christian Angermayer—a major early backer of Atai Life Sciences have funded drug development and clinic networks designed to deliver supervised treatments. Much of this investment reflects a broader shift in healthcare markets toward mental health services, where traditional antidepressants often show limited effectiveness for patients with TRD. For investors, psychedelics appear to offer both a large unmet medical need and the possibility of patentable treatment protocols.

However, the industry does not resemble a typical pharmaceutical market because psychedelic therapies scale through treatment capacity and delivery rather than drug production. Each treatment involves significant professional labor, and therefore revenue depends less on chemical production and more on availability of trained therapists and clinical facilities. As a result the rapid influx of investment and commercial interest has outpaced the development of the clinical workforce, regulatory frameworks, and infrastructure needed to support these therapies at scale. In this sense, the psychedelic medicine market is expanding more like a specialized healthcare provider than a traditional mass-manufactured drug company.

This matters for investor valuation. Financial markets often value early pharmaceutical companies based on the expectation of approval and its potential for rapid expansion and large prescription volumes. However, psychedelic therapies do not follow this pattern because they require insurance reimbursement, training programs, and regulated supervision. This means that investment capital is entering the industry on a pharmaceutical timeline, while delivery of care and revenue is more so on a healthcare services timeline. This gap is an economic risk surrounding the sector.

Innovation Without Infrastructure

Modern medicine typically expands through a structured process of establishing safety and effectiveness through clinical trials, the development of treatment guidelines, guided training for physicians, reimbursement from insurers, and finally widespread adoption. Psychedelic therapy is developing in a different order. Investment, clinic

expansion, and consumer demand are growing while infrastructure and regulatory guidelines are yet to be established.



This mismatch matters economically because healthcare is highly regulated for a reason. Psychedelic-assisted treatments involve patients with serious psychiatric conditions and require supervised clinical sessions that include preparation, dosing, and follow-up therapy. Determining who qualifies for treatment, how providers should be trained, and how risks are mitigated requires time. Financial markets, however, run on faster timelines that are based on expectations.

The result is a familiar pattern in innovation-driven industries: capital moves faster than infrastructure. Venture capital funding and public markets may price psychedelic companies based on expectations of rapid expansion in treatment demand. However, if regulations become stricter, insurance reimbursement provides limited, or training requirements constrain the number of qualified providers, revenue growth may fall short of these expectations. In this scenario, companies could face valuation corrections as the financial market adjusts to the slower realities of healthcare implementation.

There are also border risks for how the industry develops. Rapid commercialization may create pressure to expand treatment access before clinical standards are fully established, potentially affecting treatment reliability and patient safety. At the same time, widespread discussion of psychedelics in media and online communities may push these therapies toward a consumer wellness model rather than a tightly regulated medical framework. While this attention can accelerate innovation and investment, it

can also blur the line between an experimental medical treatment and a lifestyle product.

Psychedelic therapies may become an important tool in mental health care, and early research shows incredible potential and real improvements to mental health in patients. The downside is timing: investment and public demand are growing faster than the systems needed to deliver treatment safely. Regulation, training, and insurance coverage are still developing. If commercialization moves ahead of infrastructure, both financial expectations and patient safety could suffer. The central risk facing the physical therapy industry is therefore not simply whether treatments work, but whether the healthcare system can safely scale them at the pace financial markets are currently assuming.