ARTICLE

HOOKED AND HUSTLED: THE PREDATORY ALLURE OF GAMBLIFIED FINANCE

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This Article examines the growing phenomenon of "gamblification" in financial markets, where platforms like Robinhood, Webull, and crypto exchanges increasingly turn investing into a high-stakes game. By integrating gambling and gaming elements from video games—such as nudging, instant rewards, immersive visuals, and feedback loops—these platforms lure users into treating trading as a thrilling adventure rather than a financial decision. The result is a new breed of retail investors driven by the excitement of "leveling up" rather than informed financial judgment, blurring the line between prudent investing, online gaming, and reckless gambling. This Article introduces a systematic description of gamblification techniques that reveal how platforms exploit behavioral psychology to create engaging but somewhat predatory trading experiences. These features—designed to trigger dopamine rushes and exploit decision-making

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shortcuts—push users, particularly those with lower financial literacy, into cycles of excessive trading, impulsive decisions, and escalating risks. The gamblified environment fosters a competitive culture where users, influenced by leaderboards; peer pressure; influencers like the meme stock star Roaring Kitty, who returned on social media in June 2024; and social dynamics within communities like Reddit's WallStreetBets are more likely to take on financial risks that they do not fully comprehend. Particularly concerning is the growing trend of retail investors placing more trust in financial influencers than in their own family, friends, or even economic experts. This trend is especially alarming when considering a recent survey that found one in three respondents cited popular financial influencers as the most significant factor driving their trading decisions.

This Article moves beyond behavioral analysis to expose the darker implications of this convergence of gaming, gambling and finance. It argues that the gamblification of trading overlaps with predatory practices that disproportionately exploit vulnerable users, such as individuals with limited financial literacy and younger participants, as well as women. Findings that were publicized in Summer 2024 by the UK's Financial Conduct Authority underscore the risks of digital engagement practices like push notifications and prize draws, which have been shown to disproportionately increase risky trading behaviors among these groups. This blend of entertainment and finance raises serious concerns about exploitation, where platforms profit from heightened engagement while exposing users to significant financial risks. In assessing the regulatory landscape, this Article explores how gamblified finance challenges existing securities laws, intersects with gambling regulations, and implicates consumer protection standards. It contends that current regulations inadequately address the design choices that drive these platforms' predatory practices, permitting harmful financial inclusion under the guise of democratized access. To address these issues, this Article offers forward-looking policy recommendations that balance expanding financial access with the imperative to protect users from exploitation. Without *decisive regulatory action, the gamblification of finance risks transforming trading into a dangerous mix of entertainment and predation, undermining market integrity and exposing retail investors—especially the most vulnerable—to serious financial harm.*

INTRODUCTION

This Article explores the growing phenomenon of "gamblification," which refers to the fusion of gamification and gambling features in financial markets. Mobile-based platforms with Trading Apps like Robinhood,[1] Webull, and various crypto exchanges offer user-friendly,[2] low-cost[3] and easily accessible[4] online trading services[5]—often requiring

[1] RobinHood is a FinTech investment application that helped introduce a "generation of investors to the market, but without much in the way of additional education." Matthew J. Razzano, *An Unsafe Sandbox: Fintech Innovation at the Expense of Consumer Protection?*, 2019 U. ILL. L. REV. ONLINE 132, 136 (2019).

[2] *See, e.g.*, Nizan Geslevich Packin, *Show Me the (Data About the) Money!*, 2020 UTAH L. REV. 1277, 1281–82 (2020) ("Aside from promoting goals such as financial inclusion, internet connectivity, data portability, and enhancement of other information-related rights, FinTech companies are successful because they make things easier for consumers. They offer user-friendly products and services and enable consumers to save and spend efficiently, improving their customer experience. This is important because we live in an era where customers demand top-notch experiences.").

[3] LAUREN SAUNDERS, NAT'L CONSUMER LAW CTR., FINTECH AND CONSUMER PROTECTION: A SNAPSHOT 2 (2019), https://www.nclc.org/images/pdf/cons-protection/rpt-fintech-and-consumer-protection-a-snapshot-march2019.pdf [https://perma.cc/AL37-BQNY] ("Fintech products and services have the potential to provide important benefits to consumers. They promise to lower costs, promote financial inclusion, [and] help people avoid fees and comparison.").

[4] The American consumers already spends, on average, five hours a day on their smartphones. Eileen Brown, *Americans Spend Far More Time on Their Smartphones than They Think*, ZDNET (Apr. 28, 2019, 6:15 PM PT), https://www.zdnet.com/article/americans-spend-far-more-time-on-their-smartphones-than-they-think/ [https://perma.cc/RW98-C8XK] (reporting that "[t]he average American spends 5.4 hours a day on their phone").

[5] According to the S-1 that with the SEC on July 1,2021 in preparation for its Initial Public Offering, Robinhood had 5.1 million Net Cumulative Funded Accounts and 4.3 million Monthly Active Users as of Dec. 31, 2019; those figures rose to 12.5 million for Net Cumulative Funded Accounts and 11.7 million for Monthly Active Users by Dec. 31, 2020. *See* Robinhood Markets Inc., *Form S-1 Registration Statement Under the Securities Act of 1933* (July 1, 2021), at 25, https://www.sec.gov/Archives/edgar/data/1783879/000162828021013318/robinhoods-1.htm; Robinhood reported that for Q.4 of 2021 and for 2021 as a

little to no prior financial knowledge—which increasingly blur the line between prudent investing and addictive gambling. By integrating features traditionally associated with video games—such as instant rewards, immersive visuals, and feedback loops—these platforms lure users into treating trading as a high-stakes game rather than a financial decision. The result is a new breed of retail investors, which the media, scholars, financial players and regulators first noticed following the 2021 GameStop saga[6] when Gamestop's stock price increased from $16 to $347 in one month due to a contest between a large number of small retail investors and institutional investors such as hedge funds. This phenomenon was driven in part by the influence of social media figures like Keith Gill (aka Roaring Kitty), whose persona as a retail

whole its Net Cumulative Funded Accounts rose to 22.7 million and Monthly Active Users had increased to 17.3 million by Dec. 31, 2021. *See* Robinhood Markets, Inc., Exhibit 99.1, Annual Report (Form 10-K), U.S. Sec. & Exch. Comm'n (Feb. 24, 2022), https://www.sec.gov/Archives/edgar/data/1783879/000178387922000022/robinhoodex991_12312021.htm. A large part of this surge was from first-time traders. *See* Kate Rooney, *Fintech App Robinhood is Driving a Retail Trading Renaissance During the Stock Market's Wild Ride* CNBC (June 17, 2020), https://www.cnbc.com/2020/06/17/robinhood-drives-retail-trading-renaissance-during-markets-wild-ride.html [https://perma.cc/C3CR-FE7Q].

[6] *See, e.g.*, *Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide: Hearing Before the H. Comm. on Financial Services*, 117th Cong. 31 (2021) (statements of Keith Gill; Kenneth Griffin, Chief Executive Officer, Citadel LLC; Steve Huffman, Chief Executive Officer, Co-Founder, Reddit; Gabriel Plotkin, Chief Executive Officer, Melvin Capital Management LP; Vladimir Tenev, Chief Executive Officer, Robinhood Markets, Inc.; Jennifer Schlup, Director of Financial Regulation Studies, Cato Institute); Omar Faridi, *More than 30 Lawsuits Now Filed Against Stock Trading App Provider Robinhood Markets Inc., Suits Allege Company is Manipulating Markets*, CROWDFUNDER INSIDER (Feb. 7, 2021, 8:21 PM), https://www.crowdfundinsider.com/2021/02/171985-more-than-30-lawsuits-now-filed-against-stock-trading-app-provider-robinhood-markets-inc-suits-allege-company-is-manipulating-markets; Nathaniel Popper & Matt Phillips, *Robinhood Takes Heat In Congress*, N.Y. TIMES, Feb. 18, 2021, at B1; Zaghum Umar, Mariya Gubareva, Imran Yousaf, & Shoaib Ali, *A Tale of Company Fundamentals vs. Sentiment Driven Pricing: The Case of Gamestop,* J. BEHAV.EXPERIM.FIN., Mar. 2021, at 1.

trading champion captivated audiences and reignited interest when he returned to social media in the Summer of 2024,[7] stirring a new wave of attention from both retail investors and regulatory scrutiny.[8]

This new breed of retail investors, driven by the excitement of "leveling up" rather than informed financial judgment is the subject of this Article, which introduces a thorough description of gamblification techniques that reveal how platforms exploit behavioral psychology to create engaging but often predatory financial trading experiences.[9] These features—designed to trigger stereotyped, cue-induced behaviors, insensitive to outcome value that are associated with dopamine rushes and decision-making shortcuts—push users, particularly those with lower financial literacy,[10] into

[7] Yun Li, *GameStop Shares Rise 21% -- as 'Roaring Kitty' Posts Account with $116 Million*, CNBC (June 2, 2024), https://www.cnbc.com/2024/06/02/gamestop-jumps-as-roaring-kitty-trader-posts-giant-116-million-stock- position.html [https://perma.cc/7M8E-Z8FH].

[8] Khristopher Brooks, *Keith "Roaring Kitty" Gill Buys $245 Million Stake in Chewy*, CBS NEWS (July 1, 2024), https://www.cbsnews.com/news/roaring-kitty-chewy-stock-meme-investor/ [https://perma.cc/H8DW-AR47]; Gordon Pape, *Should Regular Investors Follow Roaring Kitty's Footsteps and Build a Portfolio of Meme Stocks?*, GLOBE & MAIL (Aug. 14, 2024), https://www.theglobeandmail.com/investing/personal-finance/household-finances/article-should-regular-investors- follow-roaring-kittys-footsteps-and-build/ [https://perma.cc/7NUE-Y5EF].

[9] Nizan Geslevich Packin & Yafit Lev-Aretz, *Crypto-Native Credit Score: Between Financial Inclusion and Predatory Lending,* 45 CARDOZO L. REV (2024) (describing how "historically, vulnerable communities have been subjected to predatory financial offerings and services," focusing on crypto markets and the populations they targeted).

[10] *See* Press Release, Financial Conduct Authority, FCA Keeps Trading Apps Under Review Over Gaming Concerns (June 20, 2024), https://www.fca.org.uk/news/press-releases/fca-keeps-trading-apps-under-review-over-gaming-concerns [https://perma.cc/UL9A-W7SN] [hereinafter "FCA Report"]; Damian Chmiel, *Trading Apps' Game-Like Elements Linked to Risky Investing, FCA Finds*, FIN. MAGNATES (June 20, 2024, 5:23 AM GMT-4), https://www.financemagnates.com/forex/trading-apps-game-like-elements-linked-to-risky-investing-fca-finds/ [https://perma.cc/3QMQ-H4GW] (explaining how the UK regulator recently discovered that such

cycles of excessive trading, impulsive decisions, and escalating risks.[11] By capitalizing on psychological triggers like instant gratification, social validation, and fear of missing out (FOMO), these platforms and trading apps lure users into compulsive trading cycles where the frequent use of reward features—such as confetti animations or leaderboard rankings—makes it very easy for those users to get carried away.[12] The gamified environment—according to studies conducted in 2024—fosters a competitive culture where users are very much influenced by leaderboards, peer pressure, influencers, and social dynamics within communities like Reddit's WallStreetBets,[13] that make them more likely take on financial risks that they do not fully comprehend.

Moving beyond behavioral analysis, this Article exposes the darker implications of this convergence of gaming, gambling, addiction and finance. It argues that the gamblification of trading overlaps with predatory practices

user engagement practices "had a more significant effect on certain subgroups, including those with low financial literacy").

[11] *See id.* (reporting the study's findings including how "features such as push notifications and prize draws can lead to more frequent trading and riskier investment decisions by 11% and 12%, respectively. Additionally, these gamification strategies increased the proportion of trades in risky investments by 8% and 6%.").

[12] Chris Newlands, *FCA Keeps Watch on Trading Apps Over Gamification Concern,* MONEYWEEK (June 21, 2024), https://moneyweek.com/trading/share-dealing/fca-trading-apps-gamification-concerns [https://perma.cc/Q7QE-KAUS] (explaining how "[i]t is extremely tempting to get carried away, especially as so many people already run their lives through apps… Many of the new trading apps have been designed based on the interactions people already have on social media, including push demand attention. Some apps have even congratulated users for making trades with celebratory animations.").

[13] Arnab Shome, *Retail Traders Trust Finfluencers More than Friends and Family, Study Finds*, FIN. MAGNATES (Apr. 30, 2024), https://www.financemagnates.com/forex/retail-traders-trust-finfluencers-more-than-friends-and-family-study-finds/ [https://perma.cc/8JGK-9CF5] (showcasing how retail investors place more trust in financial influencers than in their own family, friends, or even economic experts, and specifically that one in three respondents that were surveyed cited popular financial influencers as the most significant factor influencing their trading decisions.).

that disproportionately exploit vulnerable users, including those with limited financial literacy, women, and younger participants.[14] Indeed, the 2024 findings from the UK's Financial Conduct Authority (FCA) underscore the risks of digital engagement practices like push notifications and prize draws, which have been shown to increase risky trading behaviors among these groups.[15] The blending of entertainment and finance introduces serious concerns about exploitation, by which platforms profit from increased user engagement while exposing consumers to significant financial harm.

Analyzing these issues, this Article conceptualizes gamblified trading platforms as a form of predatory finance. Predatory finance involves exploiting behavioral vulnerabilities for profit, and gamblified trading platforms represent an emerging dimension of such exploitation through the integration of addictive digital engagement practices (DEPs). Techniques such as instant rewards, competitive leaderboards, and social pressure tap into cognitive biases—like loss aversion and the gambling fallacy—leading to excessive engagement and compulsive behavior that benefit platforms at the expense of users. By promoting potentially addictive features and manipulating users' decisional autonomy and steering them toward high-risk financial behavior, these platforms cross the threshold into predatory territory.

Analyzing these issues, this Article highlights how current securities laws, gambling regulations, and consumer protection standards fail to adequately address the design choices that drive these predatory practices. The platforms' design features, which are deceptively framed as

[14] *See* FCA Report, *supra* note 10 Momodou Musa Touray, *FCA Expresses Concerns over Gamification of Trading Apps*, MONEY MKTG. (June 21, 2024), https://www.moneymarketing.co.uk/news/fca-expresses-concerns-over-gamification-of-trading-apps/ [https://perma.cc/S3BR-8PM6] (explaining that the UK "experiment, which involved over 9,000 consumers, found . . . a larger impact on some subgroups including those with low financial literacy, women and younger participants (18-34).").

[15] *See* FCA Report, *supra* note 10.

entertainment, mask the financial risks involved and reduce users' voluntary decision-making. Regulatory gaps remain significant, particularly in balancing technological innovation with robust consumer safeguards. While jurisdictions like the UK and the EU have taken steps to regulate these practices, the U.S. faces additional and unique legal challenges in addressing gamified finance due to its patchwork of federal and state laws, as well as complexities related to the First Amendment, which leave vulnerable users exposed to ongoing harm.

Part I of this Article introduces mobile trading apps and explores the user protection concerns associated with these platforms, including real-world examples of gamblified trading, the influence of social media, and potential market manipulation. Part II delves into the concept of gamblification, detailing how game-like elements can morph into harmful practices. This section also addresses the psychological and behavioral impacts of these features, the risks of excessive trading, and the convergence of gaming and finance. Part III offers policy reflections, examining how different jurisdictions are responding to these challenges, with a focus on global perspectives, the legal complexities arising from the intersection of securities and gambling laws, and freedom of speech related issues. This Article concludes by advocating for a policy response that prioritizes ethical design, transparency, and the protection of vulnerable consumers.

I. MOBILE TRADING APPLICATIONS

Mobile-based trading application (Trading Apps) have become increasingly popular with retail investors,[16] reversing

[16] The value of assets under management (AuM) by neobrokers has experienced significant growth, reaching 410 billion U.S. dollars in 2022. In the same year, neobroker revenue was estimated at 2.85 billion U.S. dollars, with a penetration rate of 0.9 percent, amounting to approximately 66 million users globally. Projections suggest that by 2027, neobroker AuM could rise to 599.9 billion U.S. dollars. See *Value of Assets Under Management (AuM) of Neobrokers Worldwide from 2017 to 2027*, STATISTA

a long-term trend toward agency capitalism and enabling public participation in the stock market like never before.[17] Moreover, many of these Trading Apps also facilitate the buying, selling, and trading of crypto assets, allowing investors and traders to engage with highly volatile assets.[18] Unlike traditional brokerage firms, many Trading Apps typically do not charge investors for every transaction[19] and often do not require a minimum investment amount.[20] Their

https://www.statista.com/outlook/dmo/fintech/digital-investment/neobrokers/worldwide [https://perma.cc/EP5T-HA5H] (last visited Feb. 22, 2024). *See also* Maggie Fitzgerald, *Retail Investors Continue To Jump Into The Stock Market After Gamestop Mania*, CNBC (Mar 10, 2021), https://www.cnbc.com/2021/03/10/retail-investor-ranks-in-the-stock-market-continue-to-surge.html [https://perma.cc/76Z7-L7CE]; Sayan Chaudhry & Chinmay Kulkarni, *Design Patterns of Investing Apps and Their Effects on Investing Behaviors*, 2021 DESIGNING INTERACTIVE SYS. CONF. 777 (2021), https://dl.acm.org/doi/pdf/10.1145/3461778.3462008 [https://perma.cc/66RW-HFNK].

[17] *See* Mardy Chiah & Zhong Angel, *Trading from Home: The Impact of COVID-19 on Trading Volume Around the World*, FIN. RSCH. LETTERS, Sept. 28 2020, at 1, 1–2; Philippe Van der Beck & Coralie Jaunin, The Equity Market Implications of the Retail Investment Boom, Swiss Fin. Inst. Rsch. Paper No. 21-12 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3776421.

[18] "[T]he probability of purchasing risky assets increases in smartphone trades compared to non-smartphone ones . . . . [F]ollowing the launch of smartphone apps, investors are-if anything-more likely to purchase risky and lottery-type assets and to chase hot investments." *See* Ankit Kalda, Benjamin Loos, Alessandro Previtero & Andreas Hackethal*, Smart(Phone) Investing? A Within Investor-Time Analysis of New Technologies and Trading Behavior* (Nat'l Bureau of Econ. Rsch., Working Paper No. 28363, 2021), https://www.nber.org/system/files/working_papers/w28363/w28363.pdf [https://perma.cc/7NHU-BBRG].

[19] *See* Siqi Wang, *Consumers Beware: How Are Your Favorite "Free" Investment Apps Regulated*, 19 DUKE L. TECH. REV. 43, 54 (2021) .

[20] Trading and investing platforms have revolutionized the investment landscape by allowing individuals to start investing with minimal funds, often as little as $1. This approach democratizes finance, enabling broader participation in wealth-building opportunities. *See* Danielle Letenyei & Ashley Donohoe, *Best Micro-Investing Apps,* FinanceBuzz (Dec. 13, 2024), https://financebuzz.com/best-micro-investing-apps. *See also* Geraldine K.S. Tan, *Democratizing Finance with Robinhood: Financial Infrastructure, Interface*

accessibility and perceived cost-free service appeal, to less wealthy or financially literate investors, including emerging adults without formal training or prior experience.[21] This is part of the financial technology (FinTech) revolution that has taken place in the last decade, with many viewing the potential to increase financial inclusion as a key factor contributing to the rise of FinTech, branding it as a market-democratizing tool.[22]

Design and Platform Capitalism, 53 ENV'T PLAN. A: ECON. & SPACE 1862, *at* 1863 (2021), https://doi.org/10.1177/0308518X211042378 (stating that "[t]his is premised upon financial democratization, or the promise that all households can grow their wealth and/or manage risk by buying appropriate financial services and products. . . FinTech firms are obliged to include some notion of financial democratization in their mission statement. For instance, Robinhood's mission is to '…democratize finance for all. We believe that everyone should have access to the financial markets… The ubiquity of FinTech solutions that address various financial needs (savings, insurance, investing etc.) in new and growing market segments has ushered in a new era of financial democratization, where individuals and households enjoy easy access to new assets and credit products to fund their lifestyles.").

[21] *Id.*

[22] Some argue that FinTech could increase access to financial services. *See, e.g.*, EXEC. OFF. OF THE PRESIDENT, BIG DATA: A REPORT ON ALGORITHMIC SYSTEMS, OPPORTUNITY, AND CIVIL RIGHTS 11–12 (2016); MARIANNE CROWE, MARY KEPLER & CYNTHIA MERRITT, THE U.S. REGULATORY LANDSCAPE FOR MOBILE PAYMENTS (2012) (discussing how mobile technologies can aide financial inclusion); Ravi Menon, *Fintech for an Inclusive Society and a Sustainable Planet,* BIS (Dec. 8, 2020), https://www.bis.org/review/r201210c.htm [https://perma.cc/9ZES-7CRA] (explaining his FinTech vision of "every citizen and every enterprise digitally enabled and financially included"); Kiara Taylor, *Does Fintech Actually Contribute to Financial Inclusion?*, CRUNCHBASE (Dec. 17, 2020), https://about.crunchbase.com/blog/does-fintech-actually-contribute-to-financial-inclusion/ ("[P]rogressions in technology have allowed fintech to emerge as a way to break down these barriers and positively impact the world through financial inclusion.").

A. User Protection and Trading Apps-Related Concerns

As the much-noted GameStop saga revealed,[23] Trading Apps operate alongside social media platforms,[24] which provide investors with an anonymous and open channel to mobilize collective action via viral posts, videos and memes, and thus affect market dynamics.[25] These features raise various opportunities, but also some major concerns. One area for concern is the Trading Apps' savvy design and DEPs that

[23] GameStop shares surged in late 2020 and early 2021, largely due to a wave of retail traders placing long bets on the stock, and driven in part by a coordinated effort on platforms like WallStreetBets to trigger a short squeeze against major hedge funds. *See* Štefan Lyócsa et al., *YOLO Trading: Riding with the Herd During the Gamestop Episode*, FIN. RSCH. LETTERS, July 27, 2021, a t 1 ; Matt Phillips & Taylor Lorenz, *'Dumb Money' Is on Gamestop, and It's Beating Wall Street at Its Own Game*, N.Y. TIMES (Jan. 27, 2021), https://www.nytimes.com/2021/01/27/business/gamestop-wall-street-bets.html. As a result, a leading hedge firm, Melvin Capital, required an infusion of capital from Citadel Securities. *See* Juliet Chung, *Citadel to Redeem About $500 million from Melvin Capital*, WALL ST. J. (Aug. 21, 2021), https://www.wsj.com/articles/citadel-to-redeem-about-500-million-from-melvin-capital-11629550410 [perma.cc/TZH4-7A46]. This effect and the surging popularity of the Gamestop stock led Robinhood to prevent the buying of the Gamestop stock and other meme stocks, an event that resulted in furious condemnation by affected retail traders and congressional hearings on the matter. *See* Peter Rudegeair, et al., *Robinhood's Reckoning: Facing Life after Gamestop*, WALL ST. J. (Feb. 5, 2021), https://www.wsj.com/articles/robinhoods-reckoning-can-it-survive-the-gamestop-bubble-11612547759 [perma.cc/6EDH-YUEJ]; *Game Stopped? Who Wins and Who Loses When Short Sellers, SocialMedia, and Retail InvestorsCollide Before the H. Comm. on Fin. Servs.*, 117th Cong. (2021).

[24] Nathaniel Popper & Kellen Browning, *How a Reddit User and His Friends Helped Fuel the GameStop*, N.Y. TIMES (Jan 29, 2021), https://www.nytimes.com/2021/01/29/technology/roaring-kitty-reddit-gamestop-markets.html.

[25]Allan Malz, *The GameStop Episode: What Happened and What Does It Mean?*, CATO INST. (2021), https://www.cato.org/cato-journal/fall-2021/gamestop-episode-what-happened-what-does-it-mean

[perma.cc/FPV6-JFV9]. *See generally* KARINE NAHON & JEFF HEMSLEY, GOING VIRAL (2021).

are meant to increase users' engagement.[26] Indeed, despite their proven benefits in other contexts,[27] gamification and digital persuasion may be misapplied in the retail investment context, particularly when combined with social media, presenting a risk of information asymmetry, questionable social influence and manipulation,[28] and even free speech concerns.[29] As discussed in this Article, these factors collectively contribute to a business model that may constitute a new form of predatory finance.

While the financial technology landscape presents various regulatory challenges, including data transfer limitations affecting financial confidentiality[30] and the controversial

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[26] Scholars have shown the role of interface user design in encouraging repeat engagement with stock trading apps. *See* Kyle Langvardt & James Fallows Tierney, *On "Confetti Regulation": The Wrong Way to. Regulate Gamified Investing*, 131 YALE L.J. F. 717, 719-20 (2022); Chaudhry & Kulkarni, *supra* note 16, at 1.

[27] *See generally* KEVIN WERBACH & DAN HUNTER, FOR THE WIN: THE POWER OF GAMIFICATION AND GAME THINKING IN BUSINESS, EDUCATION, GOVERNMENT, AND SOCIAL IMPACT (2012) (discussing repeatedly throughout the entire book, the potential benefits of gamification).

[28] *See, e.g.*, *Gamification Revisited: New Experimental Findings in Retail Investing, Behavioural Insights Team* (Sept. 24, 2024), https://www.bi.team/wp-content/uploads/2024/10/Gamification-Revisited-Final-Report-V11-09.24.2024.docx.pdf. (examining the impact of digital engagement practices (DEPs) on retail investor behavior. The study highlights that features such as social interactions, social norms data, copy trading, and leaderboards can significantly influence trading decisions. These elements, when combined with social media, may lead to information asymmetry and questionable social influence, potentially resulting in manipulation within the retail investment context.)

[29] *See generally* Frederick Schauer, *The Boundaries of the First Amendment: A Preliminary Exploration of Constitutional Salience*, 117 HARV.L.REV. 1765, 1777 (2004); Antony Page, *Taking Stock of the First Amendment's Application to Securities Regulation*, 58 S.C. L. REV. 789 (2007); Susan B. Heyman, *The Quiet Period in a Noisy World: Rethinking Securities Regulation and Corporate Free Speech*, 74 OHIO ST.L.J. 189 (2013). Jerry W.Markham, *Securities & Exchange Commission vs. Elon Musk & The First Amendment*, 70 CASE W. L.REV. 339 (2019).

[30] *Cf.* Ruth Plato-Shinar, *Financial Consumer Protection in the Post Financial Crisis Era: Can the American CFPB Serve as a Model for Other Jurisdictions*, 54 TEX. INT'L L.J. 171 (2019); Mattia Guidi et al., *Modes of*

payment-for-order-flow (PFOF) model used by commission-free trading platforms,[31] this Article specifically addresses the predatory nature of gamified finance. The PFOF model, which may incentivize brokerages to promote frequent, high-risk trades,[32] remains a subject of debate. Regulators have yet to reach a consensus on whether to ban PFOF outright, given its purported benefits in reducing market entry barriers and encouraging retail participation. However, these issues, though significant, are peripheral to our central examination of how gamification techniques in financial applications

Regulatory Governance: A Political Economy Perspective, 33 WILEY GOVERNANCE 5 (2021).

[31] *See, e.g.*, Joel Seligman, *Payment for Order Flow and the Great Missed Opportunity*, 18 HASTINGS BUS. L.J. 3, 19 (2021) ("Payment for order flow allows broker-dealers to direct orders to dealers who internalize execution of stocks or options and pay a fee to the original broker-dealer for the order flow. By 2016, the SEC would report that ' internalization is believed to account for almost 100% of all marketable order flow.' Payment to large brokerage firms in 2014 ranged from $92 to $305 million."); Matt Levine, *People Are Worried About Payment for Order Flow*, BLOOMBERG (Feb. 5, 2021), https://www.bloomberg.com/opinion/articles/2021-02-05/robinhood-gamestop-saga-pressures-payment-for-order-flow; Divya Seth, Payment-For-Order-Flow Implications for Robinhood Users (Mar. 13, 2020) (unpublished manuscript), https://ssrn.com/abstract=3779648 [https://perma.cc/CPS7-MTPC] (highlighting problems associated with PFOF, assessing policies allowing it, and exploring policy alternatives); David Easley, Nicholas M. Kiefer & Maureen O'Hara, *Cream-Skimming or Profit-Sharing? The Curious Role of Purchased Order Flow*, 51 J. FIN. 811 (1996).

[32] *See* John Crabb, *Robinhood CEO and Ex-SEC Chair Address Payment for Order Flow Concerns*, INT'L FIN. L. REV. (Feb. 25, 2021). https://www.iflr.com/article/2a645vd7jnibufyk6u96o/robinhood-ceo-and-ex-sec-chair-address-payment-for-order-flow-concerns [https://perma.cc/TET4-4QLG]. Following the GameStop saga, the Securities and Exchange Commission (SEC) and the Financial Industry Regulatory Authority (FINRA) have considered the PFOF model which has become illegal in some jurisdictions. *See* Regulatory Notice 21-12, FINRA Reminds Member Firms of Their Obligations Regarding Customer Order Handling, Margin Requirements and Effective Liquidity Management Practices During Extreme Market Conditions (2021); Regulatory Notice 21-23, FINRA Reminds Member Firms of Requirements Concerning Best Execution and Payment for Order Flow (2021); SEC, Staff Report on Equity and Options Market Structure Conditions in Early 2021 (Oct. 14, 2021).

potentially exploit user psychology and behavior, which forms the core focus of this study.

i. Real-World Applications: Case Studies of Gamblified Trading Platforms

Digital investing platforms like Robinhood, eToro, Webull, Binance, and Coinbase have become synonymous with the intersection of finance and gamification. By integrating features that resemble video games more than traditional trading tools, these platforms have reshaped how retail investors engage with financial markets. This section dives into specific examples of how these platforms have employed gamification techniques to influence user behavior, often encouraging impulsive trading and fostering addictive behaviors.

Robinhood has perhaps been the most widely discussed example of gamification in finance. The platform has gained notoriety for its use of celebratory animations, such as confetti bursting across the screen after a trade has been completed.[33] This seemingly innocent design choice has been a classic example of using instant rewards to create positive reinforcement. By associating the act of trading with a dopamine-triggering celebration, Robinhood has effectively encouraged users to trade more frequently, prioritizing the excitement of the platform over sound financial decision-making. This gamified approach has not stopped at confetti. Robinhood's interface has been intentionally designed to be minimalistic and user-friendly, resembling a mobile game more than a financial tool. The app's color scheme, rounded buttons, and smooth transitions have created a sense of ease, lowering the psychological barriers to entry for inexperienced investors. The result has been a trading experience that feels low stakes, even though real money is involved. The platform has faced criticism for effectively turning investing into a

[33] Val Cipriani, *Why We've Downgraded this Stock*, INVS.' CHRON., https://www.investorschronicle.co.uk/content/62c62bbf-a955-5c22-9ad9-373c788c5660 [https://perma.cc/7NGQ-VAR2] (last visited Aug. 19, 2024).

game, blurring the lines between responsible trading and risky gambling.

In the same way, eToro has built its brand around the concept of social trading, incorporating gamification features that blend social media dynamics with investment tools. One of the platform's standout features has been the CopyTrader™ system, where users have automatically replicated the trades of more experienced investors.[34] This feature has tapped into the psychology of social proof, where users have been drawn to mimic strategies that appear successful, without necessarily fully understanding the associated risks. The ease with which users have followed "Popular Investors" has turned investing into a form of collective gaming, where users see themselves as part of a community rather than independent investors making individual decisions. Indeed, eToro has amplified the social trading experience by displaying leaderboard features, ranking traders based on performance and visibility.[35] These rankings have contributed to and helped fuel a competitive atmosphere,[36] where traders have been incentivized to engage in what might be or could include high-risk strategies to climb leaderboards.[37] The platform has further gamified investing

[34] CopyTrader, ETORO, https://www.etoro.com/en-us/copytrader/ [https://perma.cc/6AKT-VJTL].

[35] For the purpose of this Article, we broadly define displaying "leaderboards" as features that may include elements of displaying users sorted by, or in connection with, their trading achievements—often highlighting statistics such as profit rate, portfolio growth, or total profitable trades—and that potentially enable participants to compare their own performance with others, fostering competition and active community engagement. This includes selecting Popular Investors with a record of performance, the most copied Popular Investors, Popular Investors whose portfolios emphasize ETFs, etc.

[36] *See, e.g.*, *Virtual Trading Competition*, ETORO, https://www.etoro.com/en-us/options/competition/ [https://perma.cc/M2B8-Z2UV]. (the website states: "Win up to $4,000. Whether you're new to options or want to strengthen your skills, our virtual options trading competition gives you a chance to win real money — risk-free.").

[37] Note, however, that eToro's Popular Investors are required to have a risk score below 8. *See* What Does Responsible Trading Mean?, eToro, https://help.etoro.com/en-us/s/article/what-does-responsible-trading-mean-

through its use of badges, progress bars, and community recognition, rewarding users for activities such as portfolio diversification, or achieving follower milestones.

Another key gamified feature has been eToro's CopyPortfolios,[38] where users have invested in thematic portfolios curated by eToro or by community members. These portfolios have been marketed with catchy themes like "CryptoPortfolio" or "RenewableEnergy," over-simplifying and reducing complex investment choices to flat and super easy-to-understand types of narratives.[39] Thematic investing has added a gamified layer of storytelling, where users feel they are part of a larger trend or movement. This has made investing more engaging but can also lead to impulsive decisions driven by narrative appeal rather than sound financial analysis. Finally, eToro's interface has been deliberately designed to resemble a social network, with news feeds, comment sections, and user profiles.[40] This design has created a sense of belonging and constant engagement, fostering a behavior loop where users have regularly checked in to see how their copied trades or portfolios have been

US#:~:text=For%20Popular%20Investors%2C%20the%20maximum,prior%20to%20joining%20the%20program (last visited Jan. 27, 2025) . Yet, the coppiers / followers might not be ranked below 8 under that same scoring mechanism, and the Popular Investors' loss history is also not readily available for users to learn from. Therefore, while a specific transaction might be considered prudent for a Popular Investor due to factors such as portfolio volatility, diversity, leveraged ETFs, and inverse ETFs, this might not be the case for the coppiers / followers. For more on the risk scoring see How does eToro calculate and present risk?, eToro, https://help.etoro.com/en-us/s/article/risk-score-explained-US (last visited Jan. 27, 2025).

[38] The authors have been informed that eToro has changed "Copy Portfolios" to "Smart Portfolios" in 2022. Relatedly, however, the term CopyTrader is still used.

[39] For more on thematic investing *see* What Is Thematic Investing?, eToro, https://www.etoro.com/investing/portfolios/what-is-thematic-investing/ (last visited Jan. 27, 2025), which includes Renewable Energy, InTheGame, and CryptoEqual, as well as other themes.

[40] James Royal & John Schmidt, *eToro vs. Coinbase*, INVESTOPEDIA, https://www.investopedia.com/etoro-vs-coinbase-5179204 [https://perma.cc/B44W-U9AA] (last visited Aug. 19, 2024).

performing, much like they would with social media notifications.[41] By merging the thrill of social interaction with investment activities, eToro has gamified the trading experience in a way that encourages higher engagement, possibly at the expense of long-term, well-informed risk-averse strategies.

Building up on Robinhood and eToro features and design, Webull has also implemented gamification-based concepts in its platform by integrating community-driven features like leaderboards and social trading that appeal to competitive instincts and foster social validation.[42] Users see where they rank compared to other traders based on metrics like daily or weekly returns. This leaderboard system incentivizes risky behavior, as traders chase top spots by engaging in short-term, high-frequency high-risk trades. The visibility of these rankings taps into the social proof bias, where users are more likely to emulate the behaviors that they see being rewarded. Moreover, Webull's community forums have allowed users to share trading ideas, strategies, and successes.[43] This has created an environment where

[41] For a related discussion on Copy Trading *see* Matt Mclennan, *Best Traders to Copy on eToro*, FORBES (Jan. 19, 2024), https://www.forbes.com/advisor/au/investing/cryptocurrency/best-traders-to-copy-on-etoro/ [https://perma.cc/68JM-9UQ4].

[42] Benzinga, *5 Penny Stocks To Watch Before Next Week; Is It Time To Buy?*, WEBULL, https://www.webull.com/news/10747417812676608 [https://perma.cc/8KLT-ZHY8] (last visited Aug. 19, 2024) (showcasing how Webull's leaderboard feature ranks traders based on their performance, fostering a competitive environment that encourages users to take high-risk trades in pursuit of top rankings, and that by highlighting these leaderboards, Webull taps into users' desire for social recognition and status, driving engagement and influencing trading behaviors that prioritize short-term gains over more stable investment strategies.).

[43] *Community Feature*, WEBULL, https://www.webull.com/feature/community [http://perma.cc/XT8M-M8JW] (last visited Aug. 19, 2024) (showcasing Webull's community feature that creates a social trading environment where users can share strategies, discuss trends, and engage with other investors). WeBull's community feature promotes a sense of community while amplifying the spread of trading ideas, contributing to herd behavior as users are influenced by

trends can quickly gain momentum, encouraging herd behavior as users flock to the same trades.[44] The competitive and social nature of these features has exploited the FOMO, and may be pushing users to make trades not based on research or long-term strategies but on what's trending within the platform's community.

Likewise, Binance, a leading platform in the cryptocurrency space, has also embraced gamification to drive user engagement. The platform frequently hosts trading competitions, where users win prizes based on trading volume or profitability. These competitions are structured to reward those who engage in high-frequency trading, often at the expense of careful analysis and risk management. By framing trading as a competitive event, Binance encourages users to adopt behaviors that are more akin to gambling than investing. The platform's reward systems go beyond competitions. Binance offers tiered benefits and loyalty programs, where users unlock perks or bonuses by completing tasks such as trading a certain volume or inviting friends to join.[45] These progression systems mimic those found in video

popular opinions and trending discussions. The integration of social elements into the platform enhances user engagement and further gamifies the trading experience.

[44] *See* Arash Aloosh, Hyung-Eun Choi & Samuel Ouzan, Meme Stocks and Herd Behavior (Aug. 23, 2021) (unpublished manuscript), https://ssrn.com/abstract=3909945; Kevin Voigt, *Webull Review 2025: Pros, Cons and How It Compares*, NERDWALLET (Dec. 20, 2024), https://www.nerdwallet.com/reviews/investing/brokers/webull [https://perma.cc/V9R5-43XE] (discussing how the platform is less ideal for those seeking comprehensive financial guidance or educational resources, and how features such as its community forum are more suited for more experienced traders.).

[45] Matt Shaw, *Cryptocurrency Loyalty Programs: An Overview*, Blockonomi (Feb. 10, 2022), https://blockonomi.com/cryptocurrency-loyalty-programs/ [https://perma.cc/CKP5-WR2U] (offering an overview of how cryptocurrency exchanges, including Binance, have implemented loyalty programs to drive user engagement. These programs often include tiered benefits based on trading activity, offering rewards like reduced fees, exclusive access to features, and higher staking rewards. The loyalty programs are designed to encourage continuous trading and platform use,

games, where players level up and unlock new abilities. In Binance's case, users have been incentivized to keep trading to achieve higher status levels, reinforcing a cycle of engagement that prioritizes volume over value.

Similarly, Coinbase, while less overtly gamified than platforms like Robinhood and Webull, employs subtle techniques to shape user behavior. The platform's learning rewards program offers users small amounts of cryptocurrency for completing educational modules. While the primary goal has appeared to be education, the reward system has gamified the learning process, drawing users into the ecosystem and encouraging them to take further actions, such as buying or trading the cryptocurrency they have just earned.[46] Furthermore, Coinbase uses milestone tracking to motivate users, and users are rewarded with badges or recognition.[47] Such small achievements create a sense of progression, nudging users to stay engaged.[48] The

fostering a sense of progression similar to those seen in traditional rewards programs, but with the added complexity of crypto-based incentives.).

[46] *Id.* (Coinbase's offerings include rewards for learning about specific cryptocurrencies, as well as benefits for holding certain assets. These programs incentivize users to explore different tokens and remain active on the platform, integrating educational components with gamified rewards to increase user retention. The focus is on fostering user familiarity with crypto while promoting recurring use of the platform's services.).

[47] *Coinbase Marketing Strategy: The Secrets Behind Its Success*, THE BIG MARKETING (Feb. 23, 2023), https://thebigmarketing.com/coinbase-marketing-strategy/ [https://perma.cc/JLQ7-6DUY] (discussing how Coinbase's marketing strategy centers around user engagement features that create a seamless and interactive experience). Key features include educational rewards programs, easy-to-navigate interfaces, and personalized notifications that encourage continued platform use. By integrating learning incentives, gamified elements, and user-friendly design, Coinbase effectively drives engagement and boosts customer retention, ensuring that users remain active and loyal to the platform.

[48] *See, e.g.*, Sakshi Gupta, *Fintech Gamification: Mastering Gamification in FinTech with Interactive Experiences,* NudgeNow Blog (Mar. 8, 2024), https://www.nudgenow.com/blogs/gamification-in-fintech. (stating that "[g]amification introduces an element of excitement, encouraging users to explore features, complete challenges, and stay active within the app. The habitual nature of gamified elements contributes significantly to increased

gamification here has been more subdued but still relies on psychological triggers to drive activity, often without users realizing how their behavior has been shaped.

Lastly, and relatedly to platforms such as Binance and Coinbase, the rise of digital currencies and NFTs highlights the growing concern over gamification in finance. Crypto exchanges have focused on user-friendly interfaces, often at the expense of robust consumer protections.[49] This shift has contributed to a "buy-now-learn-later" mindset, where many investors lack a clear understanding of the assets they hold.[50] Likewise, the risks associated with gamification have been exacerbated by a widening "financial advice gap." As access to traditional financial guidance has decreased, gamified platforms have pushed consumers toward high-risk assets like cryptocurrencies and NFTs—for instance, such investment options can be presented in a more visually striking, lively, colorful, and cool manner in the app interface—leading to behaviors more aligned with gambling than investing. This trend has resulted in significant losses, particularly for those pursuing unrealistic portfolio goals without sufficient expertise.[51]

ii. TikTok Made Me Do It: Social Influencers

user retention rates. It also incentivizes users to interact more frequently with the app.")

[49] This trade-off has left many users vulnerable to security breaches, fraud, and market manipulation, highlighting the urgent need for stricter regulatory oversight and the implementation of enhanced safeguards.

[50] A 2021 Cardify survey found that one-third of digital currency holders admitted to knowing little or nothing about their investments. Despite some improvement in crypto literacy in the U.S., over 90% of crypto owners still lack fundamental knowledge. Taylor Locke, *Survey Finds One-Third of Crypto Buyers Don't Know What They're Doing*, CNBC (Mar. 4, 2021), https://www.cnbc.com/2021/03/04/survey-finds-one-third-of-crypto-buyers-dont-know-what-theyre-doing.html.

[51] Alex Clere, *Has the Gamification of Investing Apps Gone Too Far*?, FINTECH MAGAZINE, https://fintechmagazine.com/articles/has-the-gamification-of-investing-apps-gone-too-far (last visited Aug. 19, 2024).

One of the main lessons from the GameStop saga is that social influencers matter. But in many ways, this is not news. Social influence has always played a role in marketing, decision-making and even financial behavior. However, the explosion of the online social influence industry in recent years has surprised many.[52] Moreover, the increasing involvement of influencers in the stock market, ranging from TikTok videos, which have become known as FinTok[53] to Roaring Kitty's call on Reddit to hold or buy stocks[54], and Kim

[52] The rapid expansion of digital currency, accelerated by the retail investor surge during the COVID-19 pandemic, has led to a proliferation of cryptocurrencies, reaching 10,000 by 2021. This growth has enabled social media influencers to exploit their followers by promoting cryptocurrencies they own, driving up prices for personal gain. In some cases, influencers are compensated with large amounts of cryptocurrency during a "pre-sale" for their endorsements. Despite the SEC and CFTC's efforts to regulate the market, no specific regulations govern influencers' activities. To address this, it is proposed that the FTC should require influencers to disclose any payments received for cryptocurrency endorsements, increasing transparency and protecting consumers from potential harm. *See* T.M. Barry, *#NotFinancialAdvice: Empowering the Federal Trade Commission to Regulate Cryptocurrency Social Media Influencers,* 16 OHIO ST. BUS. L.J. 279 (2021). *See also* Kelly Callahan, *CGI Social Media Influencers: Are They Above the FTC's Influence*?, 16 J. BUS. & TECH. L. 361 (2021); Hannah Murphy, *Have We Reached 'Peak Influencer'?* FIN. TIMES (Dec. 31, 2019) https://www.ft.com/content/9e8d8da6-0c2f-11ea-bb52-34c8d9dc6d84 [https://perma.cc/KPW5-3ADC].

[53] *See* Bryan Teoh Phern Chern, *Evaluating the Evolution of the Personal Financial Planning Industry: Mutualism, Commensalism, or, Parasitism*, 6(2) GATR J. FIN. BANKING REV. 72–81 (2021); Cheryl Winokur Munk *TikTok is the Place to go for Financial Advice If You're a Young Adult*, WALL ST. J. (May 2, 2021), https://www.wsj.com/articles/tiktok-financial-advice-11619822409; Kelly Ann Smith, *How to Spot Bad Money Advice on TikTok-And Where to Look Instead*, FORBES ADVISOR (May 29, 2021) https://www.forbes.com/advisor/personal-finance/bad-money-advice-on-tiktok/ [https://perma.cc/Y6X9-XA8D].

[54] The combination of social media and Trading Apps may be causing more harm than good, particularly for young users, as they often lack sufficient educational resources and may not foster an inclusive environment. *See* Sophie Kiderlin, *A 'Finfluencer' with Millions of Followers on Social Media Says Robinhood and Other Trading Apps Might Do More Harm than Good to Young Investors,* BUS. INSIDERR ((July13, 2021, 3:48 AM), https://markets.businessinsider.com/news/stocks/robinhood-retail-

Kardshian's viral post soliciting her 280 million followers to buy a cryptocurrency[55], have served as proof that social influencing has advanced to a new level. In the context of Trading Apps, social influencers raise concerns about unlicensed persons[56] and entities offering advice to naive consumers.[57] And there is a real reason for that concern. Recent surveys reveal that retail traders are more likely to trust financial influencers, or "finfluencers," over friends and family when making investment decisions.[58] Moreover, the survey highlights the growing influence of such finfluencers

trading-tori-dunlap-young-investors-harmful-risk-2021-7. The rise of "finfluencers" providing online investment advice has prompted calls for regulation to address the potential risks and ensure consumer protection. *See* Mia Stefanou, Note, *Finfluencers in the Wild: Call for Regulation Addressing the Growth of Online Investment Advice*, 88 BROOK. L. REV. 959 (2023). *See also* John P. Anderson, Jeremy Kidd & George A. Moscary , *Social Media, Securities Markets, and the Phenomenon of Expressive Trading*, 25 LEWIS & CLARK L. REV. 1223 (2022); Juliet-Ambra Verlaine & Gunjan Banerji, *Keith Gill Drove the Gamestop Reddit Mania. He Talked to the Journal*, WALL ST. J. (Jan. 29, 2021), https://www.wsj.com/articles/keith-gill-drove-the-gamestop-reddit-mania-he-talked-to-the-journal-11611931696.

[55] *See, e.g.*, Taylor Locke, *Kim Kardashian West and Other Influencers are Being Paid to Advertise Cryptocurrency on Social Media*, CNBC (Jan. 22, 2021) https://www.cnbc.com/2021/06/15/kim-kardashian-west-charli-damelio-jake-paul-posting-paid-crypto-ads.html.

[56] *See, e.g.,* Arnab Shome, ASIC Gets Bankruptcy Order Against Finfluencer 'ASX Wolf', FIN. MAGNATES (Feb. 29, 2024, 04:36 GMT-4), https://www.financemagnates.com/forex/asic-gets-bankruptcy-order-against-finfluencer-asx-wolf/ (the Australian Securities and Investments Commission (ASIC) obtaining a bankruptcy order against a prominent financial influencer known as "ASX Wolf." The influencer, whose real name is Tyson Scholz, was targeted by ASIC due to his unlicensed financial services activities, which included offering stock trading courses and providing investment recommendations. Despite portraying himself as a successful trader, Scholz faced legal action for misleading consumers and operating without the necessary financial licenses).

[57] *See* Tony Klein, *A Note on Gamestop, Short Squeezes, and Autodidactic Herding: An Evolution in Financial Literacy* FIN. RSCH. LETTERS, May 2022, at 1; Creed et al., *The Delegation of Investor Decision Making: What Drives Participants in Social Trading Networks to Engage in Copy Trading,* 10 DRAKE MGMT. REV. 4 (2021).

[58] *See* Shome, *supra* note 13.

in guiding retail trading behavior, especially among younger and less experienced investors, and points out the potential associated risks as finfluencers may prioritize entertainment and engagement over sound financial advice.[59] The findings underscore how the rise of finfluencers has led to the significant growth in retail trading, driven by engaging content on social media platforms.[60] These studies underline the need for stronger regulatory oversight to ensure that retail investors are not misled by potentially biased or unqualified influencers.

Tasked with consumer protection and the advertisement of products and services in the U.S., the Federal Trade Commission (FTC), serves as the watchdog for protecting consumers and promoting fair market competition, issuing guidelines regarding the application of and compliance with laws governing deceptive and unfair practices.[61] As part of its mission and work, the FTC details what practices qualify as deceptive or unfair and standards for ensuring compliance.[62] However, the FTC has been very slow to update

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[59] *Id.*

[60] Arnab Shome, Finfluencers Had a Good Run, but the Party May Fizzle Out, Finance Magnates (May 18, 2023, 06:05 GMT-4), https://www.financemagnates.com/forex/finfluencers-had-a-good-run-but-the-party-may-fizzle-out/.

[61] *See What We Do*, FTC, https://www.ftc.gov/about-ftc/what-we-do [https://perma.cc/J686-WC8X] (last visited Oct. 18, 2021) ("The FTC is a bipartisan federal agency with a unique dual mission to protect consumers and promote competition. For one hundred years, our collegial and consensus-driven agency has championed the interests of American consumers. As we begin our second century, the FTC is dedicated to advancing consumer interests while encouraging innovation and competition in our dynamic economy."); *see also* Leah W. Feinman, *Celebrity Endorsements in Non-traditional Advertising: How the FTC Regulations Fail to Keep Up With the Kardashians*, 22 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 97, 107 (2011) (describing the history of the FTC's regulation of product endorsements originated with the tobacco industry).

[62] *See, e.g.*, Guides Concerning Use of Endorsements and Testimonials in Advertising, 16 C.F.R. § 255.0(a) (2009) ("The Guides in this part represent administrative interpretations of laws enforced by the Federal Trade Commission for the guidance of the public in conducting its affairs in conformity with legal requirements. Specifically, the Guides address the application of Section 5 of the FTC Act (15 U.S.C. 45) to the use of endorsements and testimonials in advertising. The Guides provide the basis

advertising guidelines to address new digital platforms used for advertising, such as social media. In 2013 the FTC clarified that the same consumer protection laws applying to commercial activities also apply online, and that the prohibition on unfair or deceptive practices relating to advertising, marketing and sales applies to digital platforms as well, adding new regulations applicable to social media advertising.[63] The FTC clarified that since many consumers rely on influencers' recommendations in making purchasing decisions, influencers failure to disclose that they had been paid for promoting a product was deceptive. Therefore, influencers are required by the FTC to clearly disclose on social media that they are being compensated for product promotion, resulting in the proliferation of disclaimers such as #ad or paid sponsorship tags.[64] However, failure to follow these guidelines is unlikely to be deemed a direct violation of advertising law.[65] Nonetheless, those who do not comply with the recommended practices may instead still face consequences for violating federal advertising laws, which

for voluntary compliance with the law by advertisers and endorsers. Practices inconsistent with these Guides may result in corrective action by the Commission under Section 5 if, after investigation, the Commission has reason to believe that the practices fall within the scope of conduct declared unlawful by the statute. The Guides set forth the general principles that the Commission will use in evaluating endorsements and testimonials, together with examples illustrating the application of those principles. The Guides do not purport to cover every possible use of endorsements in advertising. Whether a particular endorsement or testimonial is deceptive will depend on the specific factual circumstances of the advertisement at issue.").

[63] *See* FTC, COM DISCLOSURES: HOW TO MAKE EFFECTIVE DISCLOSURES IN DIGITAL ADVERTISING2 n.5 (2013) (explaining that "[g]uides are "administrative interpretations of laws administered by the Commission") (citing 16 C.F.R. § 1.5). Although guides do not have the force and effect of law, if a person or company fails to comply with a guide, the Commission might bring an enforcement action alleging an unfair or deceptive practice in violation of the FTC Act.

[64] Paolo Zialcita, *FTC Issues Rules for Disclosure of Ads by Social Media Influencers*, NPR (Nov. 05, 2019, 4:57 PM), https://www.npr.org/2019/11/05/776488326/ftc-issues-rules-for-disclosure-of-ads-by-social-media-influencers [**https://perma.cc/8PLW-JQQD]** (quoting Michael Atleson, an FTC staff attorney for the Bureau of Consumer Protection) (emphasis added).

[65] *See* Callahan, *supra* note 52, at 373.

prohibit deceptive and unfair advertising.[66] Similarly, the Electronic Code of Federal Regulations[67] specifies that a product endorser holding themselves out as having used the product must be a bona fide user at time of endorsement. It defines an "endorsement" as:

[A]ny advertising message ... that *consumers are likely to believe reflects the opinions, beliefs, findings, or experiences of a party other than the sponsoring advertiser*, even if the views expressed by that party are identical to those of the sponsoring advertiser.[68]

Additionally, federal product endorsement regulations mandate that an endorser of a product who holds themselves out as having used the product must have been a "bona fide user" of that product:

Endorsements must reflect the honest opinions, findings, beliefs, or experience of the endorser. . . . When the advertisement represents that the endorser uses the endorsed product, *the endorser must have been a bona fide user of it at the time the endorsement was given*. Additionally, the advertiser may continue to run the advertisement only so long as it has good reason to believe that the endorser remains a bona fide user of the product.[69]

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[66] *Id.*

[67] *See* 16 C.F.R. §255.0(a) (2009) ("The Guides in this part represent administrative interpretations of laws enforced by the Federal Trade Commission for the guidance of the public in conducting its affairs in conformity with legal requirements. Specifically, the Guides address the application of Section 5 of the FTC Act (15 U.S.C. 45) to the use of endorsements and testimonials in advertising. The Guides provide the basis for voluntary compliance with the law by advertisers and endorsers. Practices inconsistent with these Guides may result in corrective action by the Commission under Section 5 if, after investigation, the Commission has reason to believe that the practices fall within the scope of conduct declared unlawful by the statute. The Guides set forth the general principles that the Commission will use in evaluating endorsements and testimonials, together with examples illustrating the application of those principles. The Guides do not purport to cover every possible use of endorsements in advertising. Whether a particular endorsement or testimonial is deceptive will depend on the specific factual circumstances of the advertisement at issue.").

[68] 16 C.F.R. § 255.0 (2009) (emphasis added).

[69] 16 C.F.R. § 255.1(a), (c) (2009) (emphasis added).

Therefore, endorsers that are paid to promote a service of a product, must have actually used it and the point of view, recommendation or opinion they are giving should be an honest reflection of their own personal experience using the product or service. Yet, it seems that the FTC has not been enforcing these rules in connection with the financial products and services that some social influencers have been promoting, including the recent Kim Kardashian promotion of the cryptocurrency that allegedly was a potential a rug pull.[70]

iii. Manipulation and the Financial Markets

In the past, online investors that artificially inflated stock prices by making groundless price predictions and posting false information on Internet message boards under different screen names have been found guilty of stock manipulation and securities fraud.[71] In *SEC v. Mandaci*, the investor's specific price predictions had no adequate basis and violated the antifraud provisions of the Securities Exchange Act of 1934, irrespective of whether these predictions actually had the effect of manipulating stock prices.[72] Therefore, it may follow that viral exchanges within online communities could

[70] Dan Patterson, *New Tech, Old Scams: Don't Fall for These Crypto and NFT Ripoffs*, CBSNEWS, (Mar. 23, 2022), https://www.cbsnews.com/news/cryptocurrency-nft-scams/ [**https://perma.cc/YBT6-FR22]** ("With this scam the people who issue the token get influential people to really talk it up without disclosing they were paid or are part of the project . . . . The price of the token skyrockets because, you know, 'Kim Kardashian is part of the project and it's gonna be big!' Then they sell off the tokens and people lose interest, and the whole thing plummets back down.") (quoting Molly White, editor of the satirical website Web3IsGoingGreat.com). Further, "[s]ome allege that scenario appears to be playing out . . . with EthereumMax, a cryptocurrency promoted by Kardashian that shot up in valuation after her endorsement, then quickly tumbled. A group of investors [in 2022] filed a class action lawsuit naming Kardashian, boxer Floyd Mayweather, basketball player Paul Pierce and others, alleging the celebrities received payments to promote the token by claiming early investors could 'make significant returns' from purchasing the currency." *Id.*

[71] *See, e.g.*, SEC v. Mandaci, No. 00 Civ. 6635 (S.D.N.Y. Sep. 27, 2004).

[72] *Id.*

raise suspicions of stock prices manipulations, especially if these exchanges are not based on substantive, real grounds.

Stock price manipulation can cause several types of harms. First, it distorts the market price of the relevant stock(s). Second, it can have distributional effects on secondary markets, as it can transfer wealth to shareholders that expect to sell their shares before the mispricing is revealed.[73] Third, it can result in a misallocation of resources.[74] Indeed, with a stock price that is artificially increased, the corporation's cost of capital is lower, which enables it to get more funds via a subsequent issue of shares than it would have otherwise.[75] Finally, manipulative signals distort and exploit authentic indicators of undervaluation, lowering the reliability and efficiency of market signaling. As the potential for manipulation increases, the trustworthiness of the signal correspondingly decreases.[76]

II. WHO DOESN'T LIKE GAMES? A DETAILED BACKGROUND OF GAMBLIFICATION

In recent decades, gamification has gained significant popularity as scholars and practitioners have recognized the various benefits it offers. These advantages have been effectively leveraged in apps that deliver added value across diverse fields. For example, gamification is widely used in healthcare to encourage medication adherence, in education

[73] F. H. Buckley, *When the Medium Is the Message: Corporate Buybacks As Signals*, 65 IND. L.J. 493, 508–09 (1990). For example, in *Crane Co. v. Westinghouse Air Brake Co.*, 419 F.2d 787 (2d Cir. 1969), *cert. denied*, 400 U.S. 822 (1970), an ally of the target had been found to have manipulated the stock price by purchasing a large number of its shares at premium prices, while also arranging to resell many of these stocks at a lower price. The ally's purpose was to cause the target's stock price to rise, in order to defeat the plaintiff's tender offer, therefore facilitating a merger between the ally and the target.

[74] *See* Buckley, *supra* note 73.

[75] *Id.*

[76] *Id.* ("parasitic upon honest signals of undervaluation, and weaken signaling efficiencies. The more probable it is that a signal is manipulative, the less credible it becomes.")

apps like Duolingo that teach new languages through engaging challenges, in meditation programs that use streaks as motivational tools, in stroke rehabilitation to improve patient outcomes, and in fitness apps that promote physical activity by incorporating goals and rewards.[77] Gamification harnesses desires for competition, social connectivity and rewards, so as to engage and motivate individuals.[78] Digital gamification features that create entertaining game-like experiences increasingly serve as nudges to harness commitment to preferred activities and modify behavior.[79] The literature offers multiple frameworks and variables for understanding gamification.[80] Gamification is a most common mechanism in digital persuasion and behavior change interventions and is crucial in habit making and breaking.[81]

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[77] *See* WERBACH & HUNTER, *supra* note 27.

[78] Benny Bornfeld & Sheizaf Rafaeli, *Gamifying with Badges: A Big Data Natural Experiment on Stack Exchange*, FIRST MONDAY (2017), https://firstmonday.org/ojs/index.php/fm/article/view/7299 [**https://perma.cc/DKX8-4DTZ]**; Dominic King, Felix Greaves, Christoher Exeter & Ara Darzi, *"Gamification": Influencing Health Behaviours with Games*, 106 J. R. SOC. MED. 76 (2013).

[79] Allison H. Lee, Speech, *Leveraging Regulatory Cooperation to Protect America's Investors*, Remarks at the 2021 Section 19(d) Conference (May 21, 2021); Yoella Bereby-Meyer & Alvin E. Roth, *The Speed of Learning in Noisy Games: Partial Reinforcement and the Sustainability of Cooperation*, 96 AM. ECON. REV. 1029,1030 (2006); Richard J.E. James, Claire O'Malley & Richard J. Tunney, *Why Are Some Games More Addictive Than Others: The Effects of Timing and Payoff on Perseverance in a Slot Machine Game*, 7 FRONT. PSYCHOL. , Feb. 2, 2016, at 8.

[80] Mirium A. Cherry, *The Gamification of Work*, 40 HOFSTRA L. REV. 851, 853, 855–56 (2012); Yifat Nahmias, Dalit Ken-Dror Feldman, Ganit Richter & Daphne R. Raban, *Games of Terms*, 45 VERMONT L. REV. 387, 389 (2021); Juho Hamari, *Do Badges Increase User Activity? A Field Experiment on the Effects of Gamification*, 71 COMPUT. HUM. BEHAV. 469, 469 (2017); Kai Huotari & Juho Hamari, *Defining Gamification: A Service Marketing Perspective*, *in* PROCEEDINGS OF THE 16TH INTERNATIONAL ACADEMIC MINDTREK CONFERENCE 17 (2012); Sergio A.G. Ricci & Christina M. Sautter, *Corporate Governance Gaming: The Collective Power of Retail Investor*, 22 NEV. L. J. 51, 63 (2021).

[81] Charlie Pinder, Jo Vermeulen, Benjamin R. Cowan & Russell Beale, *Digital Behaviour Change Interventions to Break and Form Habits*, 25 ACM TRANS. COMP. HUM. INTER. (TOCHI) 1, 34 (2018).

But gamification and design can also be abused to motivate people in ways that are against their self-interest.[82] Moreover, reconstructing investment as entertainment raises ethical and legal concerns related to contextual integrity and decisional autonomy. Thus, gamification features can be highly effective tools for digital persuasion, but they may also be misapplied in the retail investment context, where they can exploit cognitive and other biases and lead to harmful financial decisions.

A. When Games Go Wrong

When gamification in finance prioritizes engagement and profit over user education and protection, it can inadvertently encourage reckless financial behavior, disproportionately harming economically vulnerable individuals and exacerbating wealth inequality.

i. The Impact of New Media and Digital Platforms on the Financial Markets

Despite considerable literature examining retail investment and in-depth research on the impact of new media and digital platforms on the financial markets,[83] and

[82] *See* WERBACH & HUNTER, *supra* note 27, at 39.

[83] *See, e.g.*, Eric C. Chaffee, *Securities Regulation in Virtual Spaces*, 74 WASH. & LEE L. REV. 1387, 1390 (2017); Joshua Mitts, *A Legal Perspective on Technology and the Capital Markets: Social Media, Short Activism and the Algorithmic Revolution* (Columbia L. and Econ., Working Paper No. 615) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3447235 [https://perma.cc/8E26-TRKK];; Frank Pasquale, *Law's Acceleration of Finance: Redefining the Problem of High-Frequency Trading*, 36 CARDOZO L.REV. 2085, 2086 (Aug. 2015); Benjamin P. Edwards, *The Rise of Automated Investment Advice: Can Robo-Advisers Rescue the Retail Market?*, 93 CHI.-KENT L. REV. 97 (2018); Rory Van Loo, *Making Innovation More Competitive: The Case of Fintech*, 65 UCLA L. REV. 232 (2018); Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L. REV., 235 (2019); Nizan Geslevich Packin, *Consumer Finance and AI: The Death of Second Opinions?*, 22 N.Y.U. J. LEGIS. & PUB. POL'Y 101 (2020); Kristin Johnson, Frank Pasquale & Jennifer Smith

notwithstanding the relatively rich scholarship on the psychology of gambling, as discussed below,[84] academics have rarely discussed Trading Apps that direct retail traders' attention and influence their investment choices.[85] Gaming, gambling, and active investments have only recently started been discussed- and rarely empirically studied-together, leaving a critical gap in the literature. Indeed, the SEC's request for public comment on digital engagement practices, including gamification and gambling-related features, denotes the lack of an accepted model to distinguish between these industries, which have become closely intertwined.[86] Interdisciplinary literature, in technology, psychology and law,[87] has just begun to focus in recent years on the concerns that gamification raises in Trading Apps,[88] in an attempt to offer some insights.[89]

Chapman*, Artificial Intelligence, Machine Learning and Bias in Finance: Toward Responsible Innovation*, 88 FORDHAM L. REV. 499, 499–500 (2019).

[84] *See infra* Section III.

[85] Chaudhry & Kulkarni, *supra* note 16.

[86] *See* Request for Information or Comment on Broker-Dealer and Investment Adviser Digital Engagement Practices, Related Tools and Methods, and Regulatory Considerations and Potential Approaches; Information and Comments on Investment Advisor Use of Technology to Develop and Provide Investment Advice, Exchange Act Release No. 34-92766, File No. S7-10-21 RIN 3235-AN00 (Aug. 27 2021), https://www.sec.gov/rules/other/2021/34-92766.pdf [https://perma.cc/3TM7-H6JS]; SEC, STAFF REPORT ON EQUITY AND OPTIONS MARKET STRUCTURE CONDITIONS IN EARLY 2021 (Oct. 14, 2021), https://www.sec.gov/files/staff-report-equity-options-market-struction-conditions-early-2021.pdf [https://perma.cc/XBC6-52LH].

[87] Langvardt & Tierney, *supra* note 26.

[88] James Fallows Tierney*, Investment Games*, 72 Duke L. J. 353 (2022).

[89] *Id. See infra* Section II for a discussion about gamification features that act both as a substitute for gambling which can cause excessive risky trading that result in pecuniary losses as well as habit forming features that encourage greater overall trading and distort market prices through more "market noise" trading. Such features statistically increase the chances for retail traders to lose money and encourage agency problems by giving brokerages incentives and means to encourage greater retail trading as a way to increase commissions and Payment for Order Flows, allocating surplus capital from retail traders to brokers. *See also* Chaudhry &

Thus far, scholars and commentators focused their concerns on the following six issues:

First, trading and investing, which are traditionally regulated under securities law, have been transformed by Trading Apps to resemble a game-like experience.[90] Gamifying investing has certainly democratized market access, making it easier and more enjoyable for retail investors. However, this approach can also encourage excessive trading with little thought, leading investors to confuse "trading" with "patient investing" as a strategy for building wealth.[91] This is particularly concerning because retail investors generally perform worse the more frequently they trade. This trend has caught the attention of the SEC, FINRA, and other financial regulators, who are actively monitoring the rise of gamification in financial platforms.[92] While any investment carries risk, some trades or investments are so speculative that chance outweighs, if not completely replaces, skill. When Trading Apps blur the line between investing and gambling, the product or activity may cross into territory that includes a gambling component.[93] Attempting to reduce some of the risk of loss to individuals, suggestions have been made regarding reforms to stock market design, which would undercut brokers' incentives to promote and nudge excessive trading in the first place.[94]

Second, the low entry barriers enabled by Trading Apps have led to higher participation rates among retail investors. Unlike traditional brokerages, which often require human interaction, endorsed documents, deposit minimums, and other formalities, automated Trading Apps minimize these hurdles. They are also more cost-effective and accessible

Kulkarni, *supra* note 16; SEC v. Mandaci, No. 00 Civ. 6635 (S.D.N.Y. Sep. 27, 2004).

[90] *See* Tierney, *supra* note 88.

[91] *Id.*

[92] *Id.* at 371.

[93] *Id.*

[94] *Id.*

online 24/7.[95] As a result, Trading Apps tend to attract younger, and less financially literate or stable individuals. Given that data shows retail investors generally underperform compared to financial institutions and experienced investors,[96] the gamification of investing through these apps can lead to a misallocation of capital, diverting it from productive uses in the real economy.[97]

Third, designed for smartphones, some of the Trading Apps provide highly skeletal information and by flattening technical, skill-based information, they make investing seem more "intuitive" and thus more luck-based than skill-based.[98] Indeed, empirical evidence suggests that ease of use is the primary determinant in Trading App selection.[99] Research

[95] *See* Nicole G. Iannarone, *Computer As Confidant: Digital Investment Advice and the Fiduciary Standard*, 93 CHI.-KENT L. REV. 141, 148 (2018) ("Online brokerage firms and robo-advisers "charge much less, including fees starting as low as 15 basis points of assets under management. [They have an] ability to provide broader access to financial advice at a lower cost."). Indeed, without the costs associated with providing human services, automated online trading platforms can charge significantly lower fees than their human counterparts. *See Does Not Compute*, ECONOMIST (Oct. 29, 2015), http://www.economist.com/news/finance-and-economics/21677245-growth-firms-selling-computer-generated-financial-advice-slowing-does-not [https://perma.cc/N7Z6-BM2C] (explaining that roboadvisors typically charge about 0.25% of a client's portfolio, instead of the 1% to 3% human advisers charge).

[96] *See* Urbi Garay & Fredy Pulga, *The Performance of Retail Investors, Trading Intensity and Time in the Market: Evidence from an Emerging Dtock Marke*t, 7 HELIYON 1 (2021); Brad M. Barber, Yi-Tsung Lee, Yu-Jane Liu & Terrance Odean, *Just How Much Do Individual Investors Lose by Trading?*, 22 REV. FIN. STUD. 609 (2009); Y. Campbell, Tarun Ramadorai & Benjamin Ranish, *Getting Better or Feeling Better? How Equity Investors Respond to Investment Experience* (Nat'l Bureau Econ. Rsch., Working Paper No. 20000, 2014), https://www.nber.org/system/files/working_papers/w20000/w20000.pdf [https://perma.cc/P4SC-ZLAL].

[97] *See* Tierney, *supra* note 88, at 391–92, 412–13, 416–17.

[98] *See* Mclennan *supra* note 41.

[99] Suzanne Malhotra, *Study of Features of Mobile Trading Apps: A Silver Lining of Pandemic*, 12 J-GIBS 75 (2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3868120 [https://perma.cc/J4DW-79WS].

examining key micro-interactions on the Robinhood Trading App—specifically, fund management, stock browsing, and trading—reveals that the user-friendly interface promotes a self-perception of informed investing among users without providing commensurate knowledge or tools for successful investment strategies.[100] The ambiguity in disclosing the true costs associated with Trading Apps has been compared to the methods employed by gambling operators to obscure mandated cost-of-play information on their products, undermining user awareness of the actual expenses incurred through platform engagement.[101]

Fourth, the constant stream of opportunities and information and the 24/7 accessibility may lead to over-engagement. High-risk-high-reward scenarios, coupled with frequent fluctuations and constant access, can create a thrill-seeking response akin to gambling, and to a mindset influenced by the magnitude of the potential win rather than its probability. Furthermore, the immediate repayment of risky bets may encourage repeated bets and re-gambling of wins without regard to rational financial considerations.[102]

Fifth, users may be further enticed to engage in unfounded investment beyond their means if exposed to calls on social media that induce peer and group pressure.[103]

[100] Andrew Ridgeway & Noah Wason, *From the Poor to the Rich: Predatory Inclusion and the Robinhood App*, 70 TECH. COMM. 60 (2023) (examining the concept of predatory inclusion in the context of the Robinhood app). Predatory inclusion refers to the practice of offering financial products and services to underserved communities, particularly those with lower incomes, in a way that appears to promote financial inclusion but ultimately exploits these populations. *Id.*

[101] Philip W.S. Newall & Leonardo Weiss-Cohen, *The Gamblification of Investing: How a New Generation of Investors Is Being Born to Lose*, 19 *INT'L J. ENVTL. RES. & PUB. HEALTH* 5391 (2022).

[102] *See* Chaudhry & Kulkarni, *supra* note 16, at 781–82. The platform's design cultivates an artificial sense of urgency, potentially leading to excessive portfolio trading. This behavior may contribute to increased market volatility and, over time, result in diminished returns for users. *See* Ridgeway & Wason, *supra* note 100.

[103] *See* Anthony Cookson, Joseph Engelberg & William Mullins, *Echo Chambers*,

Lastly, Trading Apps that emphasize the potential returns of penny stocks, cryptocurrencies, or option contracts and depict potential outcomes as jackpots, could lead investors to take greater risks.[104]

ii. Gamblification, Gambling, Addictions and the Financial Market

High-intensity commercial gambling has evolved relatively recently in comparison to other legalized, hazardous consumptive behaviors, such as tobacco and alcohol use.[105] Often portrayed as a harmless leisure activity or discussed in the medical literature in the context of small numbers of behaviorally addicted pathological gamblers (between 0.1 and 5.8% of the population worldwide[106] with online gambling having the highest odds of problem gambling—15.8%)[107] gambling is increasingly recognized as a public health concern.[108] This approach looks beyond the individual to the

Rev. Fin. Stud., Feb. 15, 2022, at 451–54, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3603107 [https://perma.cc/FE22-WGXA]; Valentina Semenova & Julian Winkler, *Reddit's Self-Organised Bull Runs: Social Contation And Asset Prices* (Univ. Oxford Inst. New Econ. Thinking, Working Paper No. 2021-04, 2021), https://www.inet.ox.ac.uk/files/Reddit_draft_v2.pdf [https://perma.cc/AK42-NT52].

[104] *See* Chaudhry & Kulkarni, *supra* note 16.

[105] *See* P.J. Adams et al., *A Question of Balance: Prioritizing Public Health Responses to Harm from Gambling*, 104 Addiction, 104, ADDICT. 688, 688 (2008).

[106] *See* F. Calado & M.D. Griffiths, *Problem Gambling Worldwide: An Update and Systematic Review of Empirical Research (2000-2015)*, 5 J. BEHAV. ADD., 592, 605 (2016); Z. Zou et al., *Definition of Substance and Non-Substance* Addiction, 1010 ADVANCES EXP. MED. & BIOL. 21, 26 (2017).

[107] Youssef Allami et al., *A Meta-Analysis of Problem Gambling Risk Factors in the General Adult Population*, 116 ADDICT. 2968 (2021); Lucy T. Tran et al., *The Prevalence of Gambling and Problematic Gambling: A Systematic Review and Meta-Analysis*, 9 Lancet Pub. Health e594, e594 (2024).

[108] *See* E. Goyder et al., *Tackling Gambling Related Harms as a Public Health Issue,* 5 LANCET PUB. HEALTH, e14 (2020).

role of gambling products and gambling's wider determinants, placing the risks of health and social harms on a continuum rather than a dichotomy between the harmless and the pathological.[109]

Zinberg's famous work of 'Drug, Set, Setting' model,[110] which offers critical insights into addiction by highlighting that the development of addiction is influenced by more than just the pharmacological effects of a substance—the model provides a holistic approach by considering the interplay of three factors: the drug itself, the individual's mindset, and the environmental context.[111] The model helps us understand that addictions are often a result of a complex interaction among the product, the behavior, or service, the individual's psychological predispositions, and the broader environment. For example, social isolation and lack of supportive relationships may push someone further into addiction, while protective factors like strong social networks and positive environments may help others avoid or recover from addiction. This perspective has influenced harm reduction strategies that aim to change the "set" and "setting" rather than focusing exclusively on eliminating drug use.

The Zinberg model has been used by others that have worked on gambling-related interactions. Among those were Korn and Shaffer, who have situated gambling as an interaction between the product (or the agent, i.e., the gambling activity and its structural characteristics), the user (or the host, i.e., the consumer/gambler), and the environment (e.g., micro-environmental factors such as venue, or macro-environmental factors such as culture, availability and accessibility).[112] Further research demonstrates that harms

[109] *See* M.C. van Schalkwyk et al., *A Public Health Approach to Gambling Regulation: Countering Powerful Influences*, 6 LANCET PUB. HEALTH, e614 (2021).

[110] *See generally* NORMAN EARL ZINBERG, DRUG, SET, AND SETTING: THE BASIS FOR CONTROLLED INTOXICANT USE (1984).

[111] *Id.*

[112] *See* H.J. Shaffer & D.A. Korn, *Gambling and Related Mental Disorders: A Public Health Analysis*, ANN. REV. PUB. HEALTH 171, 171

are developed or maintained via the interaction between product characteristics, environmental factors, and individual vulnerabilities.[113] Approximately 30 years after Zinberg's model, we recognize that mobile Trading Apps reveal a similar hazardous triangle consisting of the product (i.e., the apps), the user (i.e., the consumer), and the environment (e.g., online communities like Reddit/wallstreetbets).[114] Therefore, insights from the gambling literature are relevant to study gamified finance and the gamblification phenomenon.

Addressing the *environmental context*, Reddit/WallStreetBets' discursive culture characterizes high-risk trading as gambling, eschewing rational decision-making while celebrating and normalizing financial gambling, risk-taking and losses.[115] Some contend that r/WallStreetBets surpasses most investment banks in identifying top-performing stocks[116], while others suggest low returns,[117] emphasize low informational value, preoccupation with

(2002); D.A. Korn & H.J. Shaffer, *Gambling and the Health of the Public: Adopting a Public Health Perspective*, 15 J. GAMBL. STUD. 289, 317 (1999).

[113] Paul Delfabbro & Jonathan Parke, *Challenges in the Measurement of Gambling Product Risk: A Critical Review of the ASTERIG Assessment Tool*, 7 J. GAMBL. ISSUES 378, 378 (2021); Mark D. Griffiths & Filip Nuyens, *An Overview of Structural Characteristics in Problematic Video Game Playing*, 4 Curr. Addict. Rep. 272, 272 (2017); Adrian Parke & Jonathan Parke, *Transformation of Sports Betting into a Rapid and Continuous Gambling Activity: A Grounded Theoretical Investigation of Problem Sports Betting in Online Settings*, 17 INT'L J. MENT. HEALTH ADDICT. 1340, 1353 (2019).

[114] *See* D. Bradley et al., *Place Your Bets? The Market Consequences of Investment Advice on Reddit's Wallstreetbets*, SSRN (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3806065 [https://perma.cc/7WR2-XTVW]; V. Semenova & J. Winkler, *Reddit's Self-organised Bull Runs: Social Contagion and Asset Prices*, ARXIV (2021), https://arxiv.org/pdf/2104.01847 [https://perma.cc/FT7M-ETX3].

[115] Yubo Kou et al., *Trading as Gambling: Social Investing and Financial Risks on the r/WallStreetBets Subreddit*, *in* PROCEEDINGS OF THE CHI CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS 1,11 (2024).

[116] T. Buz & G. de Melo, *Democratisation of Retail Trading: A Data-Driven Comparison of Reddit's WallStreetBets to Investment Bank Analysts,* 1 J. Bus. Analytics 1–17 (2024).

[117] *See generally* D. Bradley, J. Hanousek Jr., R. Jame, et al., *Place Your Bets? The Value of Investment Research on Reddit's Wallstreetbets*, 37 Rev. Fin. Stud. 1409 (2024).

attention-grabbing stocks, and reliance on price-pressure strategies, which may adversely impact smaller retail traders.[118] This social environment fosters affective relationships that encourage uninformed, outsized risk-taking and large portfolio allocations to speculative positions ,[119] particularly among marginalized groups and those from lower socio-economic backgrounds.[120] Trading Apps investors' decisions are more influenced by emotionally charged r/WallStreetBets posts, particularly those expressing anger or disgust, than by professional investment analysis, amplifying impulsive and emotionally driven trading behaviors.[121] The prevalence of millennial investors on r/WallStreetBets,[122] correlates with their generation's experience of lagging wealth creation, potentially contributing to their gambling-like, risk-taking behavior and nihilistic approach to financial decisions.[123] Young investors are especially vulnerable due to sensation-seeking tendencies, insufficient diversification, and

[118] *Id.*

[119] S. Warkulat & M. Pelster, *Social Media Attention and Retail Investor Behavior: Evidence from r/wallstreetbets,* 96 Int. Rev. Fin. Anal. 103721 (2024).

[120] Alok Kumar, *Who Gambles in the Stock Market?*, 64 J. FIN. 1889, 1894 (2009), https://www-jstor-org.ezproxy.cul.columbia.edu/stable/pdf/27735154.pdf?refreqid=fastly-default%3Ae5dfc7f027cd3b854fed77dead44cf4f&ab_segments=&initiator=&acceptTC=1 [https://perma.cc/8Q42-GJ49]. *See also* Kou et al., *supra* note 115.

[121] *See* Warkulat & Pelster, *supra* note 119.

[122] *See generally* Sonja Warkulat & Matthias Pelster, *Social Media Attention and Retail Investor Behavior: Evidence from r/WallStreetBets,* 96 Int'l Rev. Fin. Analysis 103721 (Nov. 2024), https://doi.org/10.1016/j.irfa.2024.103721. (also discussing which generations are on r/WallStreetBets, including millennials).

[123] *See generally* C. J. Kurz, G. Li & D. J. Vine, Chapter 8: *Are Millennials Different?,* in A. Haughwout & B. Mandel eds., Handbook of U.S. Consumer Economics 193-232 (Academic Press 2019), https://www.sciencedirect.com/science/article/pii/B9780128135242000081, DOI: 10.1016/B978-0-12-813524-2.00008-1.

excessive trading.[124] Individuals with gambling disorders are particularly attracted to wagers offering continuous, immersive, lottery-like windfalls (riskier trading behaviors e.g., day trading, trading on margins, and riskier financial assets, e.g., options, cryptocurrencies). Notably, a consistent finding is the positive correlation between trading frequency and gambling problem severity, such that the distinction between investing and gambling has become increasingly blurred.[125] Indeed, the literature has highlighted the existence of an overlap between excessive trading and problem gambling.[126] Trading in high-risk derivatives and cryptocurrencies can, like gambling, lead the individual to develop problematic behaviors such as loss of control,[127] a chase behavior, sensation seeking, can cause symptoms of anxiety or depression, and the development of cognitive distortions.[128] Among a third of individuals with gambling problems, half also present a trading problem.[129] Moreover, the rate of problem gambling is two to six times higher for high-risk traders than for low-risk traders, and is higher for

[124] Łukasz Markiewicz & Elke U. Weber, *DOSPERT's Gambling Risk-Taking Propensity Scale Predicts Excessive Stock Trading*, 14 J. BEHAV. FIN. 65, 76 (2013).

[125] Uibin Lee et al., *Association Between Gambling and Financial Trading: A Systemic Review*, 12 F1000 RSCH. 111, 121–22 (2023); Maira Andrade & Philip W. S. Newall, *Cryptocurrencies as Gamblified Financial Assets and Cryptocasinos: Novel Risks for a Public Health Approach to Gambling*, 11 RISKS 49, 53–54 (2023).

[126] Marie Grall-Bronnec et al., *Excessive Trading, a Gambling Disorder in Its Own Right? A Case Study on a French Disordered Gamblers Cohort*, 64 ADDICT. BEHAV. 340, 345 (2017).

[127] *See* Hrvoje Marković et al., *Connection Between Addictive Behavior and Investing on the Stock Market in Croatia*, ALCOHOLISM 69, 70 (2012).

[128] Roser Granero et al., *Gambling on the Stock Market: An Unexplored Issue*, 53 COMPREHENSIVE PSYCHIATRY 666, 670–71 (2012); Nigel E. Turner, *The Addictiveness of Online Brokerage Services: A First Person Account*, 25 J. GAMBLING ISSUES 113, 135 (2011).

[129] N. Piperopoulou, *Stock Market Trading: A Compulsive Gambling Behaviour with Potential Psychological and Health Problems?*, 15 PSYCHIATRIKI 253 (2004).

day-traders.[130] High-risk traders tend to engage in a wider range of gambling activities and are more likely to be problem gamblers, suggesting the existence of a continuum of risk between investment and gambling.[131] Moreover, evidence reveals a notable substitution effect between lottery participation and retail trading. Recent U.S. data from Trading Apps and national lottery systems demonstrate a negative correlation between lottery jackpot size and retail trading activity. Specifically, larger lottery jackpots correlate with a measurable decline in retail trading, suggesting that heightened lottery participation diverts investors' attention from financial market engagement.[132]

Recent findings reveal that Trading Apps users are more likely than general investors to purchase derivatives, to invest in more financial products than originally planned, and display greater risk-tolerance. Paradoxically, their risk tolerance increases over time, despite improvements in their financial literacy,[133] mirroring cognitive distortions observed in gambling disorder, where individuals persist in risky behaviors while fully aware of the odds.

Considering *the product*, there is broad consensus that the structural characteristics of gambling products significantly contribute to risky behaviors and individual and societal harms.[134] For instance, research has documented how the type

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[130] Jennifer N. Arthur & Paul Delfabbro, *Day Traders in South Australia: Similarities and Differences with Traditional Gamblers*, 33 J. GAMBL. STUD. 855, 856–63 (2017).

[131] Jennifer N. Arthur, Robert J. Williams & Paul H. Delfabbro, *The Conceptual and Empirical Relationship Between Gambling, Investing, and Speculation*, 5 J. BEHAV. ADDICT. 580, 585 (2016).

[132] *See generally* Q. Liang & L. Sun, *A Closer Look at the Substitution Effects Between Retail Trading and National Lotteries,* 66 Fin. Res. Lett. 105597 (2024), https://doi.org/10.1016/j.frl.2023.105597.

[133] J. Freibauer, S. Grawert & M. O. Rieger, *The Effects of Trading Apps on Investment Behavior Over Time*, 1 Eur. J. Finance 1-25 (2024).

[134] Paul Delfabbro & Jonathan Parke, *Empirical Evidence Relating to the Relative Riskiness of Scratch-Card Gambling,* 37 J. GAMBL. STUD. 1007, 1008–09 (2021); Mark D. Griffiths & Filip Nuyens, *An Overview of Structural Characteristics in Problematic Video Game Playing*, 4 CURR. ADDICT. REP. 272 , 272 (2017).

of gambling (e.g., continuous versus non-continuous, rapid play versus slower, non-repetitive reinforcement activities)[135] coupled with specific product features (e.g., immersive near-wins, losses disguised as wins, jackpot features, ease of financial transactions, bonus games) are related to varying player responses and may drive problematic behavior.[136] Given the considerable game-to-game variation of the exact features, examining the impact of any one parameter on gambling-related harms is a challenging task. Currently, there is no accepted protocol for such risk assessment.[137] Nonetheless, many socially responsible gambling operators now offer a variety of responsible gambling tools to help players manage their time and money spending online.[138] These tools aim to balance revenue generation with public health by incorporating design features that promote informed choice and positive play.[139] Such responsible

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[135] *See* Charles Livingstone & Richard Woolley, *Risky Business: A Few Provocations on the Regulation of Electronic Gaming Machines*, 7 INT'L GAMBL. STUD. 361, 367 (2007).

[136] *See* K.R. Barton et al., *The Effect of Losses Disguised As Wins and Near Misses in Electronic Gaming Machines: A Systematic Review*, 33 J. GAMBL. STUD. 1241, 1243 (2017); Jordan Belisle & Mark R. Dixon, *Near Misses in Slot Machine Gambling Developed Through Generalizations of Total Wins*, 32 J. GAMBL. STUD. 689, 690 (2016); Gordon M. Becker et al., *Measuring Utility by a Single-Response Sequential Method*, 9 BEHAV. SCI. 226, 226 (2015); Jeffery M. Pislak et al., *The Near Miss Effect in Slot Machines: A Review and Experimental Analysis Over Half a Century Later*, 36 J. GAMB. STUD. 611, 614 (2019).

[137] *See* Paul Delfabbro, Jonathan Parke, Simo Dragecvic & Christian Percy, *Safer by Design: Building a Collaborative, Integrated and Evidence-Based Framework to Inform the Regulation and Mitigation of Gambling Product Risk*, 48 J. GAMBL. ISSUES 158 (2021).

[138] Maris Bonello & Mark D. Griffiths, A*nalyzing Consumer Protection for Gamblers Across Different Online Gambling Operators: A Descriptive Study*, 21 GAMING L. REV. & ECON. 278, 281 (2017).

[139] *See* Martijn van der Maas & Lia Nower, *Contradictions of Responsible Gambling Policies and Gambling Provision in the Context of Rapid Market Expansion*, 24 GAMING L. REV. 456, 456 (2020); Richard T. Wood, Michael J. Wohl, Nadira Tabri & Keith Philander, *Responsible Gambling as an Evolving Concept and the Benefits of a Positive Play Approach: A Reply to Shaffer et al.*, 40 J. GAMBL. STUD. 1779 (2023); Howard

gambling strategies include limit-setting (allowing gamblers to predetermine the amount of time and money they want to spend in a given time period);[140] self-exclusions (allowing gamblers to exclude themselves from gambling on the website for predetermined amounts of time); pop-up messaging (within session breaks in play, providing messages to correct irrational or distorted beliefs about gambling, presenting factually descriptive or normative information;[141] and personalized messaging (providing information to gamblers about various aspects of their gambling behavior or recommendations about what they can do to stay in control).[142] We have not found similar studies in the context of Trading Apps.

Extensive research has been dedicated to categorizing game elements, mechanics, and design principles in gamification.[143] These exhaustive taxonomies encompass a

J. Shaffer, Robert Ladouceur & Alex Blaszczynski, *A Comment: Positive Play Is a Subset of Responsible Gambling*, 39 J. GAMBL. STUD. 1019 (2023).

[140] Markus Auer, Nicola Hopfgartner & Mark D. Griffiths, *The Effects of Voluntary Deposit Limit-Setting on Long-Term Online Gambling Expenditure*, , 23 CYBERPSYCHOLOGY, BEHAVIOR, & SOC. NETWORKING 113, 113 (2020).

[141] Benjamin Bjørseth et al., *The Effects of Responsible Gambling Pop-Up Messages on Gambling Behaviors and Cognitions: A Systematic Review and Meta-Analysis*, 11 FRONTIERS PSYCHIATRY, Jan. 25, 2021, at 3.

[142] Andrew Harris & Mark D. Griffiths, *The Impact of Speed of Play in Gambling on Psychological and Behavioural Factors: A Critical Review*, 34 *J. Gambl. Stud.* 393, 393 (2018).

[143] *See* V.W.S. Cheng et al., *Gamification in Apps and Technologies for Improving Mental Health and Well-being: Systematic Review*, 6 *JMIR MENTAL HEALTH* e13717 (2019); Manuel Schmidt-Kraepelin et al., *What's in the Game? Developing a Taxonomy of Gamification Concepts for Health Apps*, *in* Proceedings of the 51st Hawaii International Conference on System Sciences (2018); Saleem, N.M. Noori & F. Ozdamli, *Gamification Applications in E-learning: A Literature Review*, 27 Tech., Knowledge & Learning 139 (2022); Gustavo Villalobos-Zúñiga & Mauro Cherubini, *Apps That Motivate: A Taxonomy of App Features Based on Self-Determination Theory*, 140 Int'l J. Hum.- Comput. Stud. 102449 (2020); Sofia Marlena Schöbel, Andreas Janson & Matthias Söllner, *Capturing the Complexity of Gamification Elements: A Holistic Approach for Analysing Existing and Deriving Novel Gamification Designs*, 29 Eur. J. Info. Sys. 641 (2020); M. Flayelle et al., *A Taxonomy of Technology Design Features That Promote*

wide array of gamified "nudges" designed to enhance engagement, motivation and skills. These include quantifiable elements such as points, stars and badges, which serve as visual representations of achievement. Virtual goods and symbolic rewards provide tangible incentives, while time pressure and progress bars create a sense of urgency. Additionally, more complex elements like avatars allow for personalization and identity formation within the gamified environment. Meaningful stories add context and emotional depth, enhancing user investment. Social interactions that promote both sense of autonomy via competition (e.g. leaderboards) and relatedness via cooperation serve to create a dynamic and interactive user experience.

Unlike gamification, gamblification involves the strategic incorporation of gaming and gambling techniques into non-traditional contexts to influence behavior, evoke emotional responses, and normalize gambling-like activities. This practice integrates chance-based reward systems and excessive consumption strategies into products and services, often bypassing intrinsic motivation and legal gambling classifications, to boost engagement and monetization.[144] By

Potentially Addictive Online Behaviours, 2 Nat. Rev. Psychol. 136 (2023); WERBACH & HUNTER, *supra* note 27.

[144] *See* Joseph Macey et al., *Examining the Commonalities and Differences Between Gamblification and Gamification: A Theoretical Perspective*, INT'L J. HUM.-COMPUT. INTERACTION, May 5, 2024, at 1; Joseph Macey, Juho Hamari & Mitchell Adam, *A Conceptual Framework for Understanding and Identifying Gamblified Experiences*, 152 COMPUTERS HUM. BEHAV. 108087 (2024); Dennis Benner, Sofia Schöbel, Andreas Janson & Jan M. Leimeister, *How to Achieve Ethical Persuasive Design: A Review and Theoretical Propositions for Information Systems*, 14 AIS TRANSACTIONS HUM.-COMPUT. INTERACTION 548 (2022); Philip W.S. Newall & Liat Weiss-Cohen, *The Gamblification of Investing: How a New Generation of Investors Is Being Born to Lose*, 19 INT'L J. ENVTL. RES. PUB. HEALTH 5391 (2022); Martin Adam, Annika Reinelt & Konstantin Roethke, *Gamified Monetary Reward Designs: Offering Certain Versus Chance-Based Rewards*, 33 INFO. SYS. J. 1426 (2023); Daniel L. King & Paul H. Delfabbro, *The Convergence of Gambling and Monetised Gaming Activities*, 31 CURRENT OP. BEHAV. SCI. 32 (2020); Daniel L. King et al., *Unfair Play? Video Games as Exploitative Monetized Services: An Examination of Game Patents from a Consumer Protection Perspective*, 101 COMPUTS. HUM. BEHAV. 131 (2019).

promoting gamified experiences beyond conventional settings, gamblification may foster decision-making biases and normalize gambling-like behaviors, particularly among vulnerable populations. This can lead to a preference for excessive risk-based transactions and potential negative outcomes.[145] Critics argue that gamblification practices employ techniques that encourage disordered consumption, limit consumer choice, and lack transparency and adequate safeguards.[146]

Thus, whereas early research on the intersection of gambling and gaming in digital media primarily focused on delineating the boundaries between these two practices,[147] contemporary studies have evolved to conceptualize gamblification as a distinct phenomenon rather than merely an extension of gamification.[148] This shift in perspective acknowledges the unique impact of the combination of features, elements, and strategies of gamblification in digital environments rather than examining the impact of any one parameter. Yet, despite the increase in Trading App users, research addressing systematically the gamblification strategies of these apps remains scarce and comprehensive taxonomy of the behavioral prompts, design features, and practices that increase digital engagement and impact investors' decision-making processes is much needed.[149] Building upon our initial findings, we have identified clusters

[145] Daniel L. King et al., *Distinguishing Between Gaming and Gambling Activities in Addiction Research*, 4 J. BEHAV. ADDICT. 215, 215 (2015).

[146] *See* King et al., *supra* note 145; King & Delfabbro, *supra* note 144.

[147] *Id.*

[148] Macey et al., *Examining the Commonalities and Differences Between Gamblification and Gamification, supra* note 144; Benner et al., *supra* note 145.

[149] *See* Phillip Chapkovski, Mariana Khapko & Marius Zoican, *Trading Gamification and Investor Behavior*, MGMT. SCI., Jam. 18, 2025, at 2; Tan, *supra* note 20; Shuja Chaudhry & Chinmay Kulkarni, *Design Patterns of Investing Apps and Their Effects on Investing Behaviors*, *in* DESIGNING INTERACTIVE SYSTEMS CONFERENCE 2021, at 777 (2021); Christoph Hüller, Martin Reimann & Caleb Warren, *When Financial Platforms Become Gamified, Consumers' Risk Preferences Change*, 8 J. ASS'N FOR CONSUMER RES. 429 (2023).

of potential gamblification features that may manipulate behavior in financial contexts. These features could potentially induce individuals to behave as if they are partaking in a competitive game, potentially encouraging continuous engagement, more volatile investments, increased financial risk-taking, and consequently, greater losses.[150]

iii. The Convergence of Blockchain, GameFi, and NFTs in Digital Gaming

In the evolving landscape of digital interaction, gaming has emerged as a central platform for social engagement, technological innovation, and economic activity. As decentralized finance (DeFi) and blockchain technologies gain prominence,[151] including entities known as decentralized autonomous organizations (DAOs),[152] DeFi's integration with gaming has introduced a new paradigm: GameFi—a fusion of gaming, finance, and decentralized assets.[153] GameFi

[150] *See infra* Appendix 1.

[151] *See, e.g.*, Statement of Commissioner Christy Goldsmith Romero on CFTC's Digital Assets and Blockchain Technology Subcommittee Release of Decentralized Finance Report, Commodity Futures Trading Commission (Jan. 8, 2024), https://www.cftc.gov/PressRoom/SpeechesTestimony/romerostatement010824b; Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1958 (2021) (discussing DeFi platforms and how they are not regulated).

[152] DAOs are distributed, peer-to-peer computer software that incorporate governance and decision-making procedures and rules. Carla Reyes, *If Rockefeller Were a Coder*, 87 GEO. WASH. L. REV. 373, 387 (2019) ("Essentially, DAOs are elaborate smart contracts or systems of smart contracts. At a very general level, the smart contracts that comprise a DAO allow a certain set of DAO members to spend the digital assets held by those smart contracts or to modify the DAO's code."). For a deeper explanation on decentralized governance see Carla L. Reyes, Nizan Geslevich Packin & Benjamin P. Edwards, *Distributed Governance*, WM. & MARY L. REV. ONLINE Sept. 22, 2017, at 5.

[153] *See generally* Nizan Geslevich Packin, *The Nexus of Gaming and NFTs: A Deep Dive Into the Future of Digital Interaction*, *in* THE CAMBRIDGE HANDBOOK ON LAW AND POLICY FOR NFTS 196 (Nizan Geslevich Packin ed., 2024).

emphasizes models such as "play-to-earn" (P2E) and "play-to-own" (P2O), where digital assets like non-fungible tokens (NFTs)[154] redefine ownership, interaction, and monetization in gaming ecosystems.[155]

GameFi represents a significant shift, merging traditional gaming with blockchain technology to allow players to own, trade, and employ virtual assets across platforms.[156] Unlike conventional games, where in-game purchases are limited to a single platform, blockchain-based games enable cross-platform utility, where assets like NFTs can be traded or monetized in broader markets.[157] This transformation not only blurs the lines between entertainment and finance but

[154] NFTs are digital assets that represent real-world objects such as art, music, in-game items and videos. For a deeper explanation on NFTs and their legal status see Juliet M. Moringiello & Christopher K. Odinet, *The Property Law of Tokens*, 74 FLA. L. REV. 607, 607 (2022); Brian L. Frye, *After Copyright: Pwning NFTs in a Clout Economy*, 45 COLUM. J.L. & ARTS 341 (2022). *See also* Mike Isaac & Kellen Browning, *Crypto Enthusiasts Meet Their Match: Angry Gamers*, N.Y. TIMES (Jan. 19, 2022), https://www.nytimes.com/2022/01/15/technology/cryptocurrency-nft-gamers.html ("For more than a year, crypto mania has been at a fever pitch. Cryptocurrencies such as Bitcoin and Ethereum have soared in value. Crypto-based assets like NFTs have taken off. Jack Dorsey, a Twitter founder, recently renamed one of his companies Block in honor of the blockchain, the distributed ledger system that powers digital currencies.").

[155] *See* Packin, *supra* note 153.

[156] *See, e.g.*, *Paul Tassi, Reddit Cofounder Says 90% Of Games In 5 Years Will Be Blockchain 'Play-To-Earn' Titles Forbes, Forbes (Jan. 17, 2022), https://www.forbes.com/sites/paultassi/2022/01/17/reddit-cofounder-says-90-of-games-in-5-years-will-be-blockchain-play-to-earn-titles/ [https://perma.cc/XRH5-D2B4] (describing how Reddit's cofounder believes that "in five years, 90% of gamers will be playing games on the blockchain that allow them to 'earn' value by their loot/currency having some sort of token equivalent that has actual value.").*

[157] *See* Isaac & Browning, *supra* note 154 (describing how GSC Game World, the Ukrainian company behind the S.T.A.L.K.E.R. computer game, which has been for many years now popular with children, announced in December 2021 that "the new S.T.A.L.K.E.R. would incorporate the crypto-based assets known as nonfungible tokens, or NFTs. In the new game, GSC said, players could buy and sell NFTs of items like clothing for their in-game characters. The company heralded the move as a 'transformative step' toward the virtual world known as the metaverse.").

also raises new legal and ethical concerns regarding financial regulation, consumer protection, and the broader implications of "financializing" everyday digital experiences.[158]

The integration of blockchain into gaming has led to innovative business models centered on NFTs, allowing players to truly own digital assets. In P2E games, players earn rewards, often in the form of cryptocurrency or NFTs, for their time and skill.[159] These rewards can be transferred, sold, or utilized in different gaming ecosystems, introducing a level of financialization previously unseen in the gaming world. For example, in traditional games, purchasing a virtual sword enhances gameplay but offers no value outside the game. In a blockchain-enabled game, that sword could be an NFT, allowing players to trade it across multiple games or sell it on decentralized marketplaces.[160]

The newer P2O model takes this concept further, emphasizing genuine ownership of assets that can be verified

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[158] *See generally* Gordon Kuo Siong Tan, *Assetizing the Video Game: Play-to-Earn (P2E) Games and Blockchain Rentiership, Progress in Economic Geography*, No. 100036 (2025) (explaining that P2E gaming represents a new type of techno-economic rentiership, which blurs the boundaries between work and play.). *See also* Liam Keenan, Timothy Monteath & Dariusz Wójcik, *Financial Discipline Through Inter-Sectoral Mergers and Acquisitions: Exploring the Convergence of Global Production Networks and the Global Financial Network,* 54 Env't & Plan. A: Econ. & Space 8 (2022), https://journals.sagepub.com/doi/10.1177/0308518X221115739 (exploring how economic activities are intertwined with social and material contexts, highlighting that financial markets are not just abstract systems but are deeply embedded in societal and material frameworks. This perspective aligns with concerns about the gamification of finance, where the integration of gaming elements into financial platforms blurs the lines between entertainment and finance.).

[159] *See* Isaac & Browning, *supra* note 154 ("One such game was CryptoKitties, a 2017 hit where players collected digital cats, some of which sold for more than $100,000. In the pandemic, blockchain-based games like Axie Infinity, where players make money by earning and selling NFTs, also became popular.").

[160] *Id.* (detailing the story of 18-year-old high schooler Christian Lantz, who was upset by the "transformative step" toward crypto assets after playing S.T.A.L.K.E.R for years, prompting him to join thousands of other young fans on Twitter and Reddit to rage against this trend).

and transferred via blockchain. Unlike P2E models, where earnings are tied to in-game economies controlled by developers, P2O focuses on decentralized ownership, allowing players to retain full control over their assets. This shift underscores a broader societal trend: the growing overlap between gaming, finance, and decentralized technologies.

While the rise of GameFi and NFT-based gaming unlocks new economic opportunities, it also introduces legal complexities, which could be relevant also for in-game NFTs. For instance, the SEC is beginning to scrutinize whether certain in-game assets and tokens qualify as securities. Recent legal battles, such as a case involving Dapper Labs' NBA Top Shot "Moments" NFTs,[161] illustrate how courts can question whether digital assets in general, and NFTs in particular, function as investment contracts, triggering securities law.[162]

Further, the expansion of financialized gaming raises ethical concerns, particularly when it comes to vulnerable users like minors. The potential for exploitation in P2E models, where players —especially those from low-income regions—might rely on gaming for income, presents challenges related to child labor, taxation, and equitable wealth distribution. Moreover, the incorporation of loot boxes,[163] which have long been criticized for resembling

[161] *See* Friel v. Dapper Labs, Inc., 21-civ-5837 (S.D.N.Y. Feb. 22, 2023) (order denying the motion to dismiss the amended complaint).

[162] Gargi Chaudhury & James Masella, *Are NFTs Securities? Analysis of the NBA Top Shot Litigation and Other NFT- Related Actions,* JDSUPRA (Mar. 30, 2022), https://www.jdsupra.com/legalnews/are-nfts-securities-analysis-of-the- nba-2972108/ [https://perma.cc/8PLM-ZUN7]; Tanner Sandor, *To Be or Not to Be a Security: What Friel v. Dapper Labs Means for NFTs*, BLR BUZZ BLOG (Mar. 2023), https://aublr.org/2023/03/to-be-or-not-to-be-a-security-what-friel-v-dapper-labs-means-for-nfts/#_ftn1 [https://perma.cc/7AW9-YVL6].

[163] For more on loot boxes, *see, e.g.*, Rebecca E. McDonough, *Loot Boxes: "It's A Trap!"*, 46 N. Ky. L. Rev. 62, 64–65 (2019) ("Loot boxes, or sometimes referred to as loot crates, are digital packages embedded within a video game.18 Players either encounter these boxes through game play or acquire them from an in-game shop.19 While there are loot boxes that can be purchased with game credits or currency earned as a player advances through the game, theses loot boxes are not at issue here. The loot boxes at

gambling, into NFT-driven ecosystems adds another layer of controversy, as the potential for real world financial gain hinges on randomness and speculation inherent in loot boxes.[164]

The integration of NFTs and blockchain into gaming has sparked significant debate within the gaming community. While some players embrace the ability to monetize their gaming efforts, others see it as a dilution of the pure gaming experience.[165] In Western markets, where gaming is primarily viewed as a form of entertainment, there has been considerable backlash against what many perceive as an encroachment of finance into play. On the other hand, in regions like Southeast Asia, where economic conditions make P2E models a viable income source,[166] there is widespread acceptance of this financialization of gaming. This cultural divergence highlights the broader implications of integrating blockchain into the digital ecosystems. As gaming continues to move further into the realm of decentralized ownership and finance, the challenge lies in balancing innovation with the need for regulation, consumer protection, and ethical

issue here are those which a player purchases by entering his payment information or confirming a purchase with the payment information linked to his account. These microtransactions occur when the player encounters a loot box through game play or purchases the loot box from the in-game shop. A player has no information regarding the loot box's contents when he purchases it.")

[164] *See generally* Cailem M. Boyle & Rebecca Jenkinson, *Harms Associated with Loot Boxes, Simulated Gambling, and Other In-Game Purchases in Video Games: A Review of the Evidence*, Australian Gambling Research Centre & Australian Institute of Family Studies (2022), https://www.classification.gov.au/sites/default/files/documents/agrc_literature_review_final_20220906_accessible.pdf; Stuart Gordon Spicer et al., *Loot Boxes, Problem Gambling and Problem Video Gaming: A Systematic Review and Meta-Synthesis,* 24 New Media & Soc'y 1001 (2022), https://journals.sagepub.com/doi/10.1177/14614448211027175.

[165] *See generally,* Nizan Geslevich Packin*, Financial Inclusion Gone Wrong: Securities And Cryptoassets Trading For Children*, 74 HASTINGS L.J. 349 (2023).

[166] *See, e.g.*, Joe Cortez, *How to Pick the Right Play-to-Earn Game for You*, COINDESK (Jan 28, 2022), https://www.coindesk.com/learn/how-to-pick-the-right-play-to-earn- game-for-you/.

practices. Policymakers, developers, and stakeholders must, therefore, navigate these complexities to ensure that these innovations enhance—rather than undermine—the gaming experience while safeguarding user rights and promoting ethical engagement.

B. Toying with Users' Privacy, Data, and Choices

While the previous discussion explored how gaming has become increasingly financialized through blockchain and GameFi, the inverse phenomenon is also unfolding—financial platforms are adopting gamification techniques, integrating behavioral design elements that blur the lines between investing and entertainment, often with significant negative implications. First, there are issues of privacy and informed consent that are associated with retail traders' activities via the Trading Apps. Second, there are decisional autonomy-related issues that should be addressed, particularly as traders may be adversely affected if they are nudged to take action too frequently.[167] This is especially true in the context of trading, where too much action can lead to underperformance relative to the market and excessive risk-taking.[168] This concern is amplified when traders are manipulated through design features that encourage impulsive behavior or create the illusion that trading is merely a game rather than involving real money and potential financial losses.[169]

i. Users' Privacy & Contextual Integrity

[167] *See generally* Jacob Hale Russell, *Mis-behavioral Law and Economics*, 51 U. MICH. J.L. REFORM 549 (2018).

[168] *See* Brad M. Barber & Terrance Odean, *Online Investors: Do the Slow Die First?*, 15 REV. FIN. STUD. 455, 455 (2002).

[169] *See* Chaudhry & Kulkarni, *supra* note 16. Note, however, that although reports have alleged that trading platforms nudge users toward riskier strategies, empirical studies have yet to focus on the exact impact of this effect.

Gamified manipulations raise ethical concerns regarding the extent of contextual integrity in users' interactions, since their integration may subtly change users' mindset without explicit notification or informed consent.

The EU's General Data Protection Regulation (GDPR) attempts to address some of these concerns by forming a basic right to privacy that entails individuals' right to have their data deleted and transmitted, among other requirements.[170] But even with laws such as the GDPR in place, issues like consumer disclosure, informed consent, and termination of contractual agreements seems challenging to effectively manage.[171] Trading Apps' user-authorization should be the legal basis that enables them to manage users' data—financial or otherwise.[172] But users will not be able to actually make informed choices in the absence of a visible, understandable, and available disclosure about the Trading App's features. Without one, it is impossible to understand the risks, costs, and benefits of using those features.[173] Some Trading Apps offer hard-to-follow disclosures regarding which type of data will be collected and how such data will be used and stored. In other situations, the disclosures, terms, and conditions are challenging to find or may be written in such a complicated way that only sophisticated players are able to make sense of them, and most users, who are young and inexperienced in such legalese, will find themselves lost in

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[170] *See, e.g.*, Wilbur Ross, *E.U. Data Privacy Laws Are Likely to Create Barriers to Trade*, FIN. TIMES (May 30, 2018), https://www.ft.com/content/9d261f44-6255-11e8-bdd1-cc0534df682c [https://perma.cc/LU
79-5QVN].

[171] *See, e.g.*, Jean-Michel Franco, *How Australian Companies Are Failing to Meet Data Privacy Compliance*, FINTECH BUS. (Feb. 3, 2020),
https://www.fintechbusiness.com/blogs/1654-how-australian-companies-are-failing-to-meet-data-privacy-compliance [https://perma.cc/3XNS-95LD].

[172] U.S. DEP'T OF THE TREASURY, A FINANCIAL SYSTEM THAT CREATES ECONOMIC OPPORTUNITIES: NONBANK FINANCIALS, FINTECH, AND INNOVATION 32 (2018) [hereinafter 2018 Treasury Report].

[173] *Id.* at 32–33.

translation, scrolling down to the "accept" button.[174] Moreover, as most users rely on their smart devices for Trading Apps, the chances that they will actually bother to read and comprehend lengthy, comprehensive disclosures are not high.[175] Additionally, even if "[d]isclosures written in plain language might increase consumer awareness . . . that only works if consumers actually read the 'Terms and Conditions' before downloading the latest financial app."[176] Yet, users normally do not read disclosures,[177] and many scholars have argued that not reading such terms is actually rational,[178] as whether one reads or not does not really change anything. Some prefer convenience over security and continue to rely on their banks to safeguard their data.[179]

Moreover, disclosures may not be beneficial if users are unaware of the fundamental relationships that characterize the services and products they are using.[180] For example, Trading Apps rely on other service providers, including data

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[174] *Id.* at 32.

[175] *See id.*

[176] Amber Goodrich, *5 Challenges of Sharing Consumer Data*, COMPUT. SERV., INC. (Nov. 8, 2017), https://www.csiweb.com/resources/blog/post/2017/11/08/5-challenges-of-sharing-consumer-data. **[https://perma.cc/6LM3-BZR4].**

[177] Jeff Sovern, Elayne E. Greenberg, Paul F. Kirgis & Yuxiang Liu, *"Whimsy Little Contracts" with Unexpected Consequences: An Empirical Analysis of Consumer Understanding of Arbitration Agreements*, 75 MD. L. REV. 1, 15–18 (2015).

[178] *Id.* at 18, n.81 (quoting OMRI BEN-SHAHAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE 10 (2014)).

[179] According to one survey, 91% of U.S. consumers "willingly accept the terms and conditions of apps without reading them," and for consumers aged 18–34, the acceptance rate, without reading them, is 97%. DELOITTE, 2017 GLOBAL MOBILE CONSUMER SURVEY 12 (U.S. ed. 2017). *See also Key Findings from the Consumer Digital Behavior Study*, A.T. KEARNEY (Apr. 2018), https://www.atkearney.com/financial-services/the-consumer-data-privacy-marketplace/the-consumer-digital-behavior-study [https://perma.cc/6J5E-3LAS] ("Consumers view banks as their best agent in protecting consumer data privacy and security[.]").

[180] Nizan Geslevich Packin, *Show Me the (Data About the) Money*!, 2020 UTAH L. REV. 1277, 1288 (2021).

aggregators, to access or process users' general and financial information. When consumers use FinTech apps (like Robinhood or Venmo) they usually do so by providing account information to data aggregators. In the U.S., massive numbers of consumers are anticipated to or have already signed up in recent years for FinTech apps that rely on data aggregators[181] This data aggregation system is believed to reach about 95% of U.S. deposit accounts.[182] But the involvement and existence of these other service providers, such as data aggregators, may be entirely unclear or unknown to users. This problem relates to third-parties collecting and using user data without providing adequate notice. A leading privacy theory that deals with this legitimacy issue is Helen Nissenbaum's contextual integrity theory,[183] which offers a conceptual framework of protected private information,[184] in association with the norms of information flow for particular contexts.[185] Her theory focuses on the norms governing information flow within specific contexts rather than the traditional distinction between public and private data. Accordingly, privacy violations occur when these norms are breached—either by sharing information that is contextually inappropriate or by allowing information to flow in unexpected ways.[186]

In a Trading Apps context, norms of appropriateness are ignored when third parties deal with the apps, as often is

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[181] *Id.* at 1286–87.

[182] Zack Meredith & Zeya Yang, *The All-New Plaid Link*, PLAID (Oct.2,2020), https://plaid.com/blog/the-all-new-plaid-link/ [https://perma.cc/2SW4-GHGP]; Michael Deleon, *A Buyer's Guide to Data Aggregation*, TEARSHEET (Feb. 19, 2019) https://tearsheet.co/data/a-buyers-guide-for-data-aggregation/.

[183] *See generally* HELEN NISSENBAUM, PRIVACY IN CONTEXT (2010) (describing the importance of social contexts and context-relative informational norms when considering the right to privacy); Helen Nissenbaum, *Privacy as Contextual Integrity*, 79 WASH. L. REV. 119 (2004).

[184] *See* Nizan Geslevich Packin & Yafit Lev-Aretz, *On Social Credit and the Right to be Unnetworked*, 2016 COLUM. BUS. L. REV. 339, 387–88 (2016).

[185] Helen Nissenbaum, *Privacy as Contextual Integrity*, 79 WASH. L. REV. 119, 136–38 (2004).

[186] *Id.*

the case with FinTech. There, parties collect and use financial information that the users shared as part of the interaction with the Trading Apps. Norms of information flow are also breached as users are generally unaware of third parties, such as data aggregators that work with most FinTech and intermediate their services to users. Indeed, users typically do not anticipate such use of their financial information when they first create their accounts or begin their relationship with Trading Apps. Further, users often do not have an easy way to revoke their consent of these third parties' access to and use of their data.[187] Therefore, third parties may continue to save, use, and even collect information without the users having any control over the scope and duration of information being attained, used, or accessed.

The contextual integrity theory is directly dependent on individual and societal privacy expectations that are extremely prone to changes over time. For instance, if a social network like Facebook—which recently restructured and rebranded as Meta—becomes a dominant player in the financial ecosystem, it could offer not only social services but also financial products and Web3.0 capabilities. The Metaverse would then function as a virtual world where our digital avatars interact with those of our communities and people globally to work, shop, attend classes, pursue hobbies, enjoy social gatherings, and more.[188] It is clear that the types of information users would share on and with such platforms would evolve. Previously, as a purely social network, users shared personal information with only the social media

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[187] *See* 2018 Treasury Report, *supra* note 172, at 33.

[188] Sarah Needleman & Kathryn Dill, *Why the Metaverse Will Change the Way You Work*, WALL ST. J. (Feb. 7 2022), https://www.wsj.com/articles/why-the-metaverse-will-change-the-way-you-work-11644229800?mod=Searchresults_pos20&page=1and; Sarah Needleman, *The Amazing Things You'll Do in the 'Metaverse' and What it Will Take to Get There*, WALL ST. J. (Oct. 16, 2021), https://www.wsj.com/articles/the-amazing-things-youll-do-in-the-metaverse-and-what-it-will-take-to-get-there-11634396401?mod=article_inline; Andrew Hill, *How Business Can Make The Most of the Metaverse*, FIN. TIMES (Nov. 7, 2021), https://www.ft.com/content/61ce8588-5233-44d0-aa12-ce9ed60fb314 [https://perma.cc/9GX5-8FFE].

context in mind. Now, they must recognize that their information serves additional purposes, such as feeding into alternative credit scoring algorithms.[189] If the Metaverse materializes and Web3.0 marketing becomes the new norm,[190] users' information shared with Meta would inevitably be repurposed for these new contexts. This mirrors how user information was previously leveraged when the social network expanded into financial services—offering payment options, cryptocurrency, loans, and even developing patented credit scoring mechanisms.[191] Therefore, anyone sharing personal information on social media digital platforms at a specific point in time, must understand that in the future the context could be different and many of the arguments detailed above would lose much of their strength because the use of financial and personal information for other purposes would no longer be utterly outside the purview of a user's initial expectations.

ii. Users' Decisional Autonomy and Choices

To the extent that gamification features subvert users' choices, decisional autonomy may be undermined, akin to privacy-related harms.[192] Gamblification tactics, such as reward systems, push notifications, and streaks, are designed to exploit cognitive biases, subtly nudging users toward behaviors that benefit the platform or service provider rather than the individual. By embedding game-like elements into

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[189] *See generally* Nizan Geslevich-Packin & Yafit Lev-Aretz, *On Social Credit and the Right to be Unnetworked*, 2015 COLUM. BUS. L. REV. 339 (2016); Nizan Geslevich Packin & Yafit Lev-Aretz, *Decentralized Credit Scoring: Black Box 3.0*, 61 AM. BUS. L.J. 91 (2024).

[190] *See generally* Leon Anidjar, Nizan Geslevich Packin & Arguri Panezi, *The Matrix of Privacy: Data Infrastructure in the AI-Powered Metaverse*, 18 HARV. L. & POL'Y REV. 60 (2024) (explaining Web3.0 and its potential).

[191] Robinson Meyer, *Could a Bank Deny Your Loan Based on Your Facebook Friends?*, ATLANTIC (Sep. 25, 2015), https://www.theatlantic.com/technology/archive/2015/09/facebooks-new-patent-and-digital-redlining/407287/ [https://perma.cc/4DEQ-ZJG7].

[192] *See* Julie Cohen, *Examined Lives: Informational Privacy and the Subject as Object*, 52 STAN. L. REV. 1373 (2000).

financial services, social media, or even retail apps, these platforms often steer users into decisions that they might not otherwise make.[193]

This erosion of decisional autonomy can be analogized to privacy-related harms because both involve subtle forms of manipulation that infringe upon an individual's ability to make independent, rational choices.[194] In privacy contexts, the exploitation of user data without clear consent or through opaque practices diminishes an individual's control over their personal information. Similarly, in environments where gamification prevails, users are gradually led away from their original preferences or intentions, as behavioral triggers, like instant gratification or FOMO, drive them toward pre-designed outcomes.

The problem deepens when such mechanisms are integrated into areas where decision-making is critical, such as financial investments or health choices. For example, trading apps that gamify the investment process, using features like celebratory animations, leaderboards, or instant feedback loops, can push users toward risky, short-term trading behaviors. These behaviors may be contrary to users' long-term financial goals but are incentivized through

[193] Benner et al., *supra* note 144; Mathieu Thibault & Juho Hamari, *Seven Points to Reappropriate Gamification*, *in* TRANSFORMING SOCIETY AND ORGANIZATIONS THROUGH GAMIFICATION 11 (A. Spanellis & J.T. Harviainen eds., 2021); Samuel D. Hirshman & Abigail B. Sussman, *Minimum Payments Alter Debt Repayment Strategies Across Multiple Cards*, 86 J. MKTG. 48 (2022) (explaining that while prior research has not studied the effects of specific game elements on consumers' risk preferences, it has shown that other features of the financial decision-making context can shape consumers' willingness to take risk; for example, requiring minimum (vs. high) payments causes consumers to spread debt repayments across multiple credit card accounts, thereby risking larger interest costs); Claudia Townsend & Suzanne B. Shu, *When and How Aesthetics Influences Financial Decisions*, 20 J. CONSUMER PSYCHOL. 452 (2010).

[194] For more on bounded rationality, see Bryan D. Jones, *Bounded Rationality*, 2 ANN. REV. POL. SCI., 297 (1999) (explaining that according to bounded rationality, decision-makers are rational, meaning they are goal-oriented and adaptive, but noting that they sometimes fail, even in important decisions, because of human cognitive and emotional architecture).

gamified elements that prioritize engagement and activity over prudent decision-making. The constant feedback loop created by these features not only keeps users engaged but can also subtly distort their understanding of risk and reward, ultimately compromising their autonomy in making financial decisions.

In this way, gamification mirrors privacy violations by imposing external influences that shape decisions in ways that are misaligned with the user's best interests. Just as privacy invasions involve collecting and using personal data in ways that individuals might not fully understand or agree to, gamified systems direct user behavior through psychological manipulation, leading to choices that users might later regret. Over time, as users become habituated to these gamified systems, their decision-making patterns can be fundamentally altered, reinforcing behaviors that favor platform engagement over genuine personal autonomy.

Moreover, this undermining of autonomy raises broader ethical and regulatory concerns. If gamified interfaces subtly coerce users into actions they might not choose under neutral conditions, the issue extends beyond individual user harms to societal implications. There is a risk that entire populations could be guided into decision-making patterns that prioritize consumption, speculation, or other behaviors that benefit corporate interests but harm individual well-being. Such dynamics call into question the fairness of using gamification in contexts where autonomous decision-making should be preserved, suggesting a need for regulatory scrutiny similar to that applied in data privacy contexts. In both cases, safeguarding users' ability to make informed and independent choices becomes a paramount concern.

Finally, this issue is particularly prevalent among younger adults, who are more susceptible to the addictive elements of gamified environments. Compared to older generations, younger users tend to be more deeply immersed in digital ecosystems where these features are more pervasive, making them more vulnerable to manipulation that undermines their decision-making autonomy.

III. GAMBLIFIED FINANCE – POLICY REFLECTIONS

The legal complexities deepen when considering how securities laws intersect with gambling regulations in the context of gamified investing. As gamified features increasingly blur the lines between investing and gaming, regulators face challenges in determining which legal frameworks apply. While the SEC primarily regulates investment products and platforms, certain gamified elements might fall under state gambling laws, particularly when they more closely resemble games of chance than traditional investment activities.[195] For example, features like prize draws, random rewards, and leaderboards that incentivize risky trading behavior might be scrutinized under gambling statutes. If these features are determined to involve chance or wagering rather than skill or informed decision-making, they could be regulated as gambling activities, thus imposing stricter requirements. This intersection creates legal uncertainty, as platforms might be subject to both securities regulations and gambling laws, depending on how courts interpret the nature of these gamified features. Moreover, the ambiguity around what constitutes gambling in financial contexts creates regulatory gaps affecting multiple legal domains and potentially encourages platforms to seek jurisdictions with more lenient interpretations. Such issues underscore the need for clear guidance on how to classify and regulate gamified trading practices, particularly as digital interfaces continue to evolve.

A. The Predatory Gamblified Finance

The increasing prevalence of addictive DEPs in financial markets, particularly on Trading Apps, raises profound legal concerns regarding the boundary between

[195] *See* James Fallows Tierney, Prepared Remarks Before the Meeting of the SEC Investor Advisory Committee: "Ensuring Digital Engagement Practices Responsibly Expand Investment Opportunities" 9 (June 22, 2023), https://www.sec.gov/files/spotlight/iac/tierney-remarks-iac062223pdf.pdf.

legitimate financial services and what can be termed *predatory finance*. The key issue is whether the gamification techniques employed by these platforms—designed to exploit cognitive biases and behavioral vulnerabilities—constitute financial predation akin to deceptive lending or manipulative marketing practices, which often target vulnerable populations and lead to severe consequences like bankruptcy, poverty, and foreclosure.[196] Abusive financial practices typically involve loans that cause significant harm, rely on deceit, obscure crucial information, or require the waiver of legal rights. At the heart of this inquiry is the notion of "predatory finance," historically linked to financial practices that exploit consumer weaknesses for profit, often at the expense of those least capable of managing financial risk. Examples include subprime lending, payday loans, and hidden fees in credit products, where providers disproportionately benefit by steering consumers into harmful financial decisions.[197] The gamification of trading arguably introduces a modern form of this predation, using digital engagement features to nudge users—especially impacting vulnerable populations such as younger users, less financially literate users, and women [198]—toward excessive trading and risky investment behavior.

As mentioned above, the DEPs used by Trading Apps employ techniques drawn directly from the gaming industry, such as instant rewards, variable reinforcement schedules, leaderboards, and competitive social dynamics.[199] These features are carefully engineered to exploit behavioral tendencies—like loss aversion, overconfidence, and the gambler's fallacy—that drive users toward compulsive

[196] *See, e.g.*, Kathleen C. Engel & Patricia A. McCoy, *A Tale of Three Markets: The Law and Economics of Predatory Lending*, 80 TEX. L. REV. 1255, 1260 (2002).

[197] For more on predatory lending, see ELIZABETH WARREN & AMELIA WARREN TYAGI, THE TWO- INCOME TRAP: WHY MIDDLE-CLASS MOTHERS AND FATHERS ARE GOING BROKE 22–33, 84–85 (2003).

[198] *See* FCA Report, *supra* note 10.

[199] *See* Tan, *supra* note 20.

decision-making.[200] Indeed, in our digital era, platforms use these elements not merely to enhance user experience, but often to also manipulate decision-making in a way that prioritizes platform profit over user welfare.[201] For instance, platforms often rely on micro-interactions, such as swipe-to-trade gestures, visual animations, and streak rewards that subtly reinforce users' trading behaviors.[202] These mechanisms are designed to create a dopamine-driven loop, encouraging users to trade more frequently and impulsively, often with little regard for the financial risks involved. The resulting pattern of behavior closely mirrors addictive conduct seen in gambling, where intermittent rewards and small but frequent victories lead vulnerable individuals to compulsive behavior, ultimately causing significant financial harm.[203] In this sense, the platforms are not just facilitating financial transactions but actively shaping and directing user behavior in ways that are detrimental to their financial well-being.

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[200] *See* Thibault & Hamari, *supra* note 193; Benner et al., *supra* note 144.

[201] Indeed, experts analyzing Meta's algorithms and business strategy noticed how optimizing for engagement often led to increased exposure to harmful content. Despite evidence that such practices were detrimental to users, particularly young ones, the drive to outcompete other platforms and increase engagement often took precedence over user safety. Explaining this, some industry experts explained that such moves enable tech giant's such as Meta "to continue to get high engagement—and ultimately profit—off . . . They were trying to find ways to not reduce engagement but at the same time make it look like they were trying to make some moves toward cleaning up the problems that they caused." David Klepper & Amanda Seitz, *Facebook Froze as Anti-Vaccine Comments Swarmed Users,*APNEWS(Oct. 26,2021,5:21PMEDT), https://apnews.com/article/the-facebook-papers-covid-vaccine-misinformation-c8bbc569be7cc2ca583dadb4236a0613?utm_source=substack&utm_medium=email..

[202] Xi Wanyu et al., *How Hand Gestures Influence the Enjoyment in Gamified Mobile Marketing*, 127 INT'L J. HUM.-COMPUT. STUD. 169, 169 (2019).

[203] Simona Raimo et al., *The Neural Basis of Gambling Disorder: An Activation Likelihood Estimation Meta-Analysis*, 120 NEUROSCIENCE & BIOBEHAV. REVS. 279, 280 (2021).

In a legal context, the question that then arises is whether these practices do indeed cross the line into predatory finance by undermining users' decisional autonomy. Decisional autonomy—the ability of individuals to make informed and voluntary choices—is a cornerstone of consumer protection law,[204] and is particularly vital in financial transactions, where decisions can have long-term consequences. The argument here is that when platforms deploy engagement techniques designed to exploit cognitive biases, they effectively coerce users into making decisions that they would not have made under conditions of full autonomy. The use of nudges,[205] as well as gamified elements to steer users toward excessive trading, represents a form of manipulation that is at odds with the principles of informed consent and fair dealing that underpin financial regulation.

From a regulatory standpoint, these practices present a novel challenge. Traditional financial regulation is largely designed to address clear-cut instances of fraud, deception, or conflict of interest, such as misleading disclosures, hidden fees, or unsuitable investment advice. The DEPs at issue, however, operate in a subtler and diffuse manner, leveraging behavioral science to achieve their goals without necessarily violating existing legal norms. This creates a regulatory gap where practices that are technically compliant with current rules can nonetheless cause significant consumer harm.[206]

[204] *See, e.g.*, DERYCK BEYLEVELD & ROGER BROWNSWORD, CONSENT IN THE LAW 237 (2007)

("In such societies, where the culture of consumerism prevails, we find that 'informed consent requirements are often seen not only as necessary but also as sufficient for ethical justification." (quoting ONORA O'NEILL, AUTONOMY AND TRUST IN BIOETHICS 47 (2002)).

[205] *See* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS 4–6 (2008) (making a case for "libertarian paternalism," the practice of making strategic determination of default options to "nudge" individuals into making better choices in the face of their cognitive defects).

[206] For discussion of the challenge in regulating these issues, see generally Russell B. Korobkin, *The Problems with Heuristics for Law* (UCLA Sch. L., Law & Econ. Rsch. Paper Series, Working Paper No. 04-1, 2004), http://ssrn.com/abstract=496462 [https://perma.cc/9LN5-HMRA]

The potential for predation is amplified, however, by the asymmetry of information and power between platforms and users. Platforms have access to vast amounts of behavioral data, allowing them to fine-tune their engagement strategies to maximize user interaction and profit.[207] This information advantage, combined with algorithmic precision, enables platforms to push users into trading behaviors that serve the platform's financial interests while exposing users—particularly those with lower financial literacy—to disproportionate financial risks.[208]

A critical aspect of predatory finance is the disproportionate harm inflicted on vulnerable populations. The FCA Report suggests that women, younger users, and individuals with lower financial literacy are particularly susceptible to the manipulative techniques embedded in these platforms. These groups are often targeted through personalized engagement strategies that exploit their specific

(discussing how heuristic-based reasoning poses policy challenges for legal scholars). *See also* William N. Eskridge, Jr. & John Ferejohn, *Structuring Lawmaking to Reduce Cognitive Bias: A Critical View*, 87 CORNELL L. REV. 616, 627–29 (2002) (analyzing "The Context Problem" in applying cognitive psychology research to public institutions); Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 GEO. L.J. 67 (2002) (arguing that people are not equally irrational and so a singular regulatory response to address their behavior might be imprudent); Robert E. Scott, *The Limits of Behavioral Theories of Law and Social Norms*, 86 VA. L. REV. 1603, 1643–44 (2000) (expressing concern about behavioral law and economics' neglect of the contextual determinants of behavior); Daniel A. Farber, *Toward a New Legal Realism*, 68 U CHI. L. REV. 279, 299 (2001) (reviewing BEHAVIORAL LAW AND ECONOMICS (Cass Sunstein ed., 2000)) ("The tendency to focus on one or two cognitive processes at the expense of institutional context seems to be widespread among the behavioralists.").

[207] Arvind Narayanan, *Understanding Social Media Recommendation Algorithms*, KNIGHT FIRST AMEND. INST. (Mar. 9, 2023), https://knightcolumbia.org/content/understanding-social-media-recommendation-algorithms [https://perma.cc/346W-YHRU].

[208] *Id.* (discussing how social media platforms possess a significant information advantage by leveraging vast amounts of user data to fine-tune their recommendation algorithms, and highlighting concerns that this fine-tuning may prioritize profit-driven metrics over societal well-being, as it often amplifies sensational, polarizing, or misleading content).

behavioral tendencies,[209] and can be considered vulnerable populations, which historically have been among the groups that were subjected more to predatory financial offerings and services.[210] The outcome is a form of digital redlining, where certain users are systematically funneled into higher-risk financial behaviors based on their vulnerabilities. This raises serious equity and fairness concerns, as these practices perpetuate existing disparities in financial outcomes and exacerbate the risks faced by those least equipped to bear them.

Finally, the parallels between DEPs and traditional forms of predatory finance are instructive. In the context of consumer lending, regulatory frameworks have evolved to curb practices that exploit borrower vulnerabilities, such as excessive fees, complex terms designed to obscure true costs, and aggressive marketing.[211] Zooming in on gamified finance

[209] Indeed, the lack of financial literacy combined with human bounded rationality, may have further contributed to the marginalization of financially disadvantaged populations and minorities. *See* Susan Block-Lieb & Edward J. Janger, *The Myth of the Rational Borrower: Rationality, Behavioralism, and the Misguided "Reform" of Bankruptcy Law*, 84 TEX. L. REV. 1481, 1530 (2006).

[210] *See, e.g.*, how in 2001, the Justice Department, in commenting on predatory lending, argued, "[o]ne of our principal concerns is that lenders have targeted vulnerable populations." *Fair Lending Enforcement Program*, U.S. Dept. Just. (Jan. 2001), https://www.justice.gov/node/113596.

[211]

Much like other predatory financial products and services, aggressive marketing efforts of such products and services have focused on financially less literate or excluded populations. *See* Leda Alvim & Lulit Tadesse, *Cryptocurrency Attracting Black, Latino Investors and Fans*, ABC NEWS, (Feb. 10, 2022), https://abcnews.go.com/Business/cryptocurrency-attracting-black-latino-investors-fans/story?id=82684748 [https://perma.cc/9UPG-H9TC] (focusing on crypto offerings and explaining that it may be attracting more investors who have historically had barriers to traditional financial investment options). Similarly, finfluencers have further contributed to the success of predatory financial schemes, given the importance consumers assigned to their recommendations they play in modern consumer finance, and regulators have recently started to catch up. Being among the first to address this issue, the UK's CMA issued clear guidance for social media influencers and included links for online reviews and endorsements. *See* Competition and Markets Authority, *Hidden Ads: Being Clear with Your* and gamification, it seems fair to argue that the same principles can be applied. Just as payday lenders are required to ensure that their loans do not trap borrowers in cycles of debt, Trading Apps could be held to a standard that requires them to avoid DEPs that induce users into cycles of compulsive trading and financial loss.

Therefore, to effectively address this emerging form of predatory finance, drawing from Zinberg's model, which highlights the influence of environmental factors on addictive behaviors, the regulatory approach to predatory gamblified finance must account for how digital products and environments can amplify financial addiction. A key recommendation is implementing a duty of care that mirrors the product considerations in Zinberg's model, requiring platforms to design "responsible engagement" features that mitigate, rather than exacerbate, compulsive financial behaviors. Regulations should target specific elements—such as streaks, leaderboards, instant rewards, pop-ups and underscoring of highly volatile investments—that are known to manipulate user psychology, much like the scrutiny applied to product and environmental triggers in traditional addiction contexts. Additionally, enhanced disclosure requirements should be mandated, ensuring transparency about the risks tied to these Apps, especially for vulnerable users. Finally, echoing Zinberg's focus on product and environmental assessments, platforms should be required to conduct behavioral impact evaluations before deploying new features, assessing the potential to foster addictive behavior. This

Audience, GOV.UK (updated Nov. 3, 2022), https://www.gov.uk/government/publications/social-media-endorsements-guide-for-influencers/social-media-endorsements-being-transparent-with-your-followers [https://perma.cc/H2D3-KWWK]. Similarly, on May 5, 2023, New York Attorney General Letitia James released a bill for consideration by the New York State Legislature that would implement comprehensive regulation of digital asset activities in the state. If enacted as currently drafted, the Crypto Regulation, Protection, Transparency, and Oversight Act (the CRPTO Act) would amend the New York General Business Law to, *inter alia,* target conflicts of interest, including in the context of digital asset "influencers." *See* Proposed NYGBL §§ 359-n(12), 359-q(2).

approach ensures that regulatory frameworks address the environmental conditions that contribute to financial harm while encouraging responsible platform design.

B. Global Perspectives: How Different Jurisdictions Approach Gamified Finance

As regulators grapple with these challenges, different jurisdictions have already started to chart their own paths. The rise of gamification in financial services has prompted varied regulatory responses across different jurisdictions that focused, *inter alia¸* on consumer protection laws and financial regulations. The U.S., EU member states, and the UK have each taken distinct approaches to addressing the intersection of finance, technology, and consumer protection. This section examines how these jurisdictions are responding to the challenges posed by gamified investment platforms, analyzing the effectiveness of current regulations and identifying gaps or inconsistencies that may expose consumers to financial harm.

In the U.S., the regulatory response to gamification primarily falls under securities and consumer protection laws. Agencies such as the SEC, the FTC, and the Consumer Financial Protection Bureau (CFPB) have raised concerns about the impact of gamified elements on retail investors. For example, the SEC has scrutinized trading platforms like Robinhood for practices that may promote excessive trading or create conflicts of interest under the guise of user-friendly interfaces.[212] Additionally, U.S. regulators have considered whether certain gamified features might cross the line into behaviors more akin to gambling, leading to discussions on whether specific features should be regulated under gambling statutes. Likewise, the SEC has intensified its scrutiny of

[212] *See generally* Rayaan Hossain, *Regulating Best Interest: SEC Confronts the Brace New Markets*, 31 U. MIAMI BUS. L. REV. 92 (2022); Keyvon J. Paul, *Playing the Game: Hedge Funds, Brokerage Firms, and Social Media Influencers in the Context of SEC Rule 10B-5 Market Manipulation,* 16 OHIO ST. BUS. L.J. 37 (2021).

finfluencers, particularly in the crypto space, and updated marketing rule, while the FTC revised endorsement guidelines as part of broader efforts to regulate social media financial promotions.[213] However, despite these initiatives, major regulatory gaps remain.

Differently from the U.S. the European Union has adopted a more harmonized approach to regulating gamification, primarily through its consumer protection framework. The Markets in Financial Instruments Directive II (MiFID II) and other EU-wide regulations emphasize transparency, investor protection, and fair marketing practices.[214] Gamified features that potentially mislead investors or create undue risks could be deemed to violate these directives. The EU has also explored how gamification might fit within its broader digital strategy, particularly in aligning financial technology with data protection under the GDPR. Nevertheless, gaps exist in the application of these rules, especially in balancing innovation with consumer safeguards. While MiFID II provides a solid foundation, the rapidly evolving nature of gamification means that current regulations might lag behind the market. Additionally, the EU's focus on harmonization across member states can lead to varying interpretations and enforcement levels, depending on the local regulatory environment.[215]

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[213] Shelkey et al., *Global Financial Regulators Turn Their Attention to Social Media 'Finfluencers'*, TECH & SOURCING @ MORGAN LEWIS (Aug. 17, 2023),https://www.morganlewis.com/blogs/sourcingatmorganlewis/2023/08/global-financial-regulators-turn-their- attention-to-social-media-finfluencers [https://perma.cc/SE49-36S8].

[214] David Geale, Dir. Of Pol., Fin. Conduct Auth., Investor Protection under MiFID II at the FCA MiFID II Conference (Oct. 20, 2015), https://www.fca.org.uk/news/speeches/investor-protection-under-mifid-ii [https://perma.cc/836S-S833] (addressing key elements of the MiFID II aimed at enhancing investor protection); *Markets in Financial Instruments Directive II (MiFID II)*, HSBC GLOBAL BANKING & MARKETS (last visited Aug. 22, 2024), https://www.gbm.hsbc.com/en-gb/financial-regulations/mifid [https://perma.cc/T3CD-PHVV] ("MiFID II seeks to make financial markets in Europe more resilient, transparent and investor-friendly and is part of a number of measures.").

[215] In the EU, the European Securities and Markets Authority (ESMA) has launched a supervisory action to ensure adherence to MiFID II

In the UK, the FCA has been at the forefront of addressing the risks associated with gamified trading apps, evolving its regulatory approach over the last few years in response to emerging threats. In 2021, the FCA first expressed concerns about gamification in trading apps, particularly features like rewards, streaks, and leaderboards that encourage excessive risk-taking by transforming investing into a game. The regulator warned that these elements, designed to enhance user engagement, could blur the line between responsible investing and speculative gambling. In 2022, building on these concerns, the FCA issued a formal warning about game-like design features in trading apps, ahead of the implementation of its Consumer Duty framework.[216] The Consumer Duty requires firms to design and test their services to ensure they meet consumers' needs and enable informed investment decisions, particularly for vulnerable groups like those with low financial literacy. This warning coincided with a significant growth in trading activity—between early 2021 and 2024, over 2.47 million accounts were created across four major trading app firms in the UK, demonstrating the widespread impact of gamification on retail investors.[217] In addition, it also has been expanding its guidance to address non-compliant social media promotions, focusing on platforms that often lack sufficient space to properly communicate investment risks.[218]

In June 2024, the FCA published the results of an online experiment involving over 9,000 consumers, marking a

requirements, particularly concerning younger, less experienced investors who rely on social media for financial advice. The Digital Services Act (DSA) also plays a role in enhancing transparency in online advertising within the EU.

[216] *FCA Concerned About Problem Behaviours Linked to Trading App Design*, FIN. CONDUCT AUTH. (Nov. 21, 2022), https://www.fca.org.uk/news/press-releases/fca-concerned-about-problem-behaviours-linked-trading-app-design.

[217] *FCA Keeps Trading Apps Under Review Over Gaming Concerns*, FIN. CONDUCT AUTH. (June 20, 2024), https://www.fca.org.uk/news/press-releases/fca-keeps-trading-apps-under-review-over-gaming-concerns [https://perma.cc/L6FK-9HUE].

[218] Shelkey et al., *supra* note 212.

significant advancement in its research. For the first time, the regulator developed an experimental trading platform to assess the impact of various DEPs on user behavior.[219] The findings were striking: features like push notifications and prize draws increased trading frequency by up to 12% and led to a rise in risky investments, especially among vulnerable groups, including those with low financial literacy, women, and younger participants aged 18-34.[220] Notably, these subgroups were more likely to increase their portfolio risk due to gamified prompts, further underscoring the FCA's concerns.[221]

As part of its ongoing efforts, the FCA's 2024 findings were integrated into the Consumer Duty framework, reinforcing the need for firms to ensure that trading apps do not exploit behavioral biases. The FCA's warnings emphasize the potential for certain gamified features to cross into gambling territory, prompting discussions on whether gambling regulations might be applied to financial products that prioritize engagement over informed decision-making.

In addition to its regulatory efforts, the FCA has expanded its consumer education initiatives, such as the InvestSmart campaign, which aims to help consumers make better financial decisions and understand the risks of gamified investing.[222] The regulator has also begun taking enforcement actions, including bringing charges in May 2024

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[219] *Research Note: Digital Engagement Practices in Trading Apps – An Experiment*, FIN. CONDUCT AUTH. (June 20, 2024), https://www.fca.org.uk/publication/research-notes/research-note-digital-engagement-practices-trading-apps-experiment.pdf [https://perma.cc/64MW-LZSM] (detailing an experiment conducted to assess the impact of DEPs used by trading apps, focusing on features such as push notifications, prize draws, and leaderboards. The findings showed that these gamified elements significantly increased trading frequency and the proportion of trades in risky assets, particularly among groups with low financial literacy, women, and younger investors. The study also underscored the heightened risks for vulnerable users).

[220] *Id.*

[221] *Id.*

[222] *InvestSmart*, FIN. CONDUCT AUTH. (last visited Aug. 22, 2024), https://www.fca.org.uk/investsmart [https://perma.cc/2273-MN85].

against nine individuals promoting an unauthorized foreign exchange trading scheme on social media, reflecting its broader focus on tackling harmful financial promotions.[223]

The FCA's centralized regulatory structure allows for consistent enforcement across the financial sector, offering a more unified approach compared to jurisdictions like the U.S. However, the rapid innovation in FinTech, particularly in gamified platforms, continues to challenge traditional regulatory frameworks. The FCA acknowledges that as these platforms evolve, regulations must adapt to effectively manage new risks, particularly as gamified investing becomes more ingrained in the retail market. The regulator's ongoing reviews and dialogue with industry stakeholders underscore the need for agile, forward-looking regulations capable of addressing both current and emerging challenges in the financial landscape. Moreover, the inconsistent regulation of gamified finance and gamblification in Trading Apps creates exploitable gaps that platforms leverage by strategically selecting jurisdictions with minimal oversight. These regulatory disparities, coupled with variations in enforcement rigor and adaptive speed, perpetuate dangerous loopholes that enable high-risk trading behaviors to flourish unchecked. Finally, differences in enforcement rigor and the speed of regulatory adaptation have created loopholes, allowing high-risk behaviors to persist.

C. Unique Legal Complexities Associated with Gamified Finance in the U.S.

i. <u>The Federal and State Interaction Between Gambling Laws and Financial Regulation</u>

Focusing mainly on the U.S. and the way gamblification can be addressed in that jurisdiction, it is important to note

[223] *'Finfluencers' Charged for Promoting Unauthorised Trading Scheme*, FIN. CONDUCT AUTH. (May 16, 2024), https://www.fca.org.uk/news/press-releases/finfluencers-charged-promoting-unauthorised-trading-scheme [https://perma.cc/7HQW-LSTP].

that gambling is legal according to U.S. federal law. Nevertheless, there are significant restrictions pertaining to interstate and online gambling,[224] which the federal government has relied on, and each state is free to regulate or prohibit, and indeed many do so, the practice of gambling within its borders.[225] This legal reality led to a patchwork of state-specific rules, and state gaming boards, which oversee the regulation and enforcement of gambling laws, play a

[224] The Wire Act of 1961 outlawed the use of wire communication to make interstate bets or wagers for sports betting and was primarily motivated to help states suppress organized criminal gambling. The Act was initially intended to cover the use of telegraph wires; however, the government has extended it to cover Internet communications too. Following a Fifth Circuit holding that the law only applies specifically to sports betting and contests, *In re* Master-Card Intl., Inc. Internet Gambling Litig., 313 F.3d 257 (5th Cir. 2002), the Department of Justice (DOJ)confirmed this approach in a 2011 memorandum, but in 2018 retracted this view announcing that the law applied to all online gambling. *See* Elizabeth A. Walsh, *In Re Mastercard International, Inc.: The Inapplicability of the Wire Act to Traditional Casino-Style Games*, 20 J. MARSHALL J. COMPUT. & INFO. L. 445, 446 (2002); Natasha Bach, *Justice Department Says All Online Gambling Is Illegal*, FORTUNE [https://perma.cc/BKX6-ENMK] (Jan. 15, 2019, 4:02 AM), https://fortune.com/2019/01/15/online-gambling-illegal-doj/. This opinion was challenged by the New Hampshire Lottery Commission in the U.S. District Court for New Hampshire, and summary judgment was issued in favor of the Lottery Commission with the court setting aside the DOJ's opinion, holding that the law is limited to sports gambling. Michael Cousineau, *NH Lottery Commission Wins Its Case Over Online Lottery Sales*, N.H. UNION LEADER (June 3, 2019), https://www.unionleader.com/news/courts/nh-lottery-commission-wins-its-case-over-online-lottery-sales/article_76d049db-43d3-591e-81d7-9c19a9167662.html. The federal government appealed this decision and the law's interpretation is still in dispute. *See* David Brooks, *Feds Continue Fight Against Online Betting, Threatening Lottery Sales*, CONCORD MONITOR (Aug. 19, 2019, 3:58 PM), https://www.concordmonitor.com/wire-lottery-nh-online-27828752 [https://perma.cc/E4MV-UDSL].

[225] *See generally* Jordan Hollander, *The House Always Wins: The World Trade Organization, Online Gambling, and State Sovereignty*, 12 RUTGERS J. L. & PUB. POL'Y 179, 182 (2015) (describing how almost all other states permit some type of gambling, except for Utah and Hawaii that prohibit all forms of gambling in the state, with Utah even amending its criminal code to include Internet gambling in that prohibition).

critical role in shaping how gambling is defined and managed. This regulatory framework has profound implications for understanding how similar addictive practices, such as those seen in gamified trading apps, might be addressed in the context of financial markets.

The convergence of trading and gaming, particularly within platforms like Robinhood, eToro, and Webull, has introduced elements traditionally associated with gambling into the financial ecosystem. As mentioned above, features like leaderboards, prize draws, instant rewards, and social comparison mechanisms mirror those seen in gambling apps, triggering the same cognitive biases and addiction pathways that gambling regulation seeks to curb. These dynamics raise important legal questions: Should trading platforms that utilize these features be regulated similarly to online casinos or sports betting platforms? And if so, how should regulatory bodies like state gaming boards, the FTC, which is tasked with consumer protection, or the SEC respond?

In the context of gambling regulation, states often impose strict controls to prevent addiction and protect vulnerable populations, mandating transparency, setting limits on betting amounts, and implementing self-exclusion programs for individuals at risk of problem gambling.[226] These measures aim to limit the harm associated with problematic gambling behavior. Yet, despite these protections, gambling remains a multibillion-dollar industry with substantial social costs.[227] The addictive nature of gambling is widely recognized,[228] leading to robust research on the design features that fuel excessive gambling engagement and

[226] Daniel L. King et al., *Policy and Prevention Approaches for Disordered and Hazardous Gaming and Internet Use: An International Perspective*, 19 PREVENTION SCI. 233 (2018).

[227] Le T. Tran et al., *The Prevalence of Gambling and Problematic Gambling: A Systematic Review and Meta-Analysis*, 9 *LANCET PUB. HEALTH* e594 (2024).

[228] *See generally* Miriam Fauth-Bühler, Karl Mann & Marc N. Potenza, *Pathological Gambling: A Review of the Neurobiological Evidence Relevant for Its Classification as an Addictive Disorder*, 22 *ADDICTION BIOLOGY* 885 (2017); Luke Clark, *Disordered Gambling: The Evolving Concept of Behavioral Addiction*, 1327 *ANNALS N.Y. ACAD. SCI.* 46 (2014).

problem gaming among vulnerable individuals, such as varying reward schedule and immersive near-wins, losses disguised as wins, and jackpot features—techniques now being repurposed in the design of Trading Apps.

Regulating trading platforms that incorporate similar addictive elements presents unique challenges. Trading apps and meme stock communities tap into the same psychological triggers that make gambling so engaging. For instance, streaks, badges, and celebratory animations when making trades can all be likened to slot machine mechanics that reward users intermittently, reinforcing continuous engagement.[229] These addictive DEPs not only blur the line between gambling and investing but also create environments where users, particularly those with lower financial literacy, may engage in behavior that is more about the thrill of the game than sound financial decision-making.

State gaming boards have historically focused on traditional forms of gambling,[230] but as the financial industry increasingly gamifies investment, these boards may find themselves at the forefront of new regulatory efforts. The legal doctrine that allows states to regulate gambling within their borders could extend to trading platforms, especially as more states consider online financial activities that resemble gambling. For example, the line between "games of chance" and "games of skill" has been a longstanding regulatory issue in gambling, and similar debates could emerge regarding whether gamified trading constitutes investing or gambling. This doctrinal question opens the door for states to assert jurisdiction over certain trading app features under existing gambling laws.

Several states have already taken steps to investigate the overlap between gambling and investing, and to examine whether features like prize draws, virtual rewards, and "spin the wheel" options in trading apps violate state gambling

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[229] *See* Tan, *supra* note 20; Chaudhry & Kulkarni, *supra* note 16.

[230] *See generally* John T. Holden & Marc Edelman, *A Short Treatise on Sports Gambling and the Law: How America Regulates Its Most Lucrative Vice*, 2020 WIS. L. REV. 907 (2020).

statutes, or financial regulation.[231] These efforts are based on the different states' definitions of what constitutes illegal gambling and often require specific disclosures, registration, or even bonding requirements for such contests.[232] One particularly interesting example of state regulators looking into this, includes Massachusetts's high-profile lawsuit against Robinhood, arguing that its use of gamification—such as digital confetti, prize incentives for account sign-ups, and push notifications—violates state securities laws by encouraging frequent, high-risk trading that could be considered unsuitable for many investors. This lawsuit highlights growing concerns about whether such features in trading apps effectively transform investing into a form of gambling, subject to similar regulatory scrutiny.[233] And while the case ended on January 18, 2024 when Robinhood agreed to pay $7.5 million to settle the charges brought by Massachusetts regulators, it highlights ongoing regulatory scrutiny of trading apps and the debate over the line between engagement and exploitation in financial technology.

The dual nature of gambling regulation in the U.S.—where federal law sets overarching guidelines and states manage specific enforcement—provides a potential blueprint for regulating DEPs in trading apps. At the federal level, Unlawful Internet Gambling Enforcement Act (UIGEA) of 2006, 31 U.S.C. §5363, has been a critical tool in curbing online gambling by targeting financial transactions related to

[231] Jennifer J. Schulp, *The Trading Game*, REG. REV. (May 3, 2021), https://www.theregreview.org/2021/05/03/schulp-trading-game/ [https://perma.cc/7832-GZ8Q].

[232] *See generally Prize Promotion & Competition Law in the U.S.*, GLOBIG, https://platform.globig.co/knowledgebase/US/how-to-marketing-for-us/prize-promotion-competition-law-us [https://perma.cc/5P4F-PWVM].

[233] Bruce Kelly, *Robinhood to Pay $7.5M to Settle Massachusetts Charges*, INV. NEWS (Jan. 18, 2024), https://www.investmentnews.com/regulation-and-legislation/news/robinhood-to-pay-7-5m-to-settle-massachusetts-charges-248214 (explaining that Massachusetts officials argued that Robinhood violated state laws by using gamification features that encouraged excessive trading, especially by younger and less-experienced investors).

illegal gambling activities.[234] A similar approach could be applied to trading apps that deploy gamified features. If these features are found to foster addictive behavior similar to gambling, federal authorities could impose transaction restrictions, disclosure requirements, or even outright bans on specific practices.

Furthermore, the potential for federal-state cooperation in this area could mirror efforts seen in other regulatory contexts, such as data privacy. Just as California's privacy laws set a precedent for broader national frameworks,[235] early

[234] The UIGEA prohibits individuals or businesses from knowingly accepting payments connected to unlawful Internet gambling. *See Compliance Guide to Small Entities: Regulation GG: Prohibition on Funding of Unlawful Internet Gambling*, FED. RSRV. (2017), https://www.federalreserve.gov/supervisionreg/regggcg.htm [https://perma.cc/L8YW-D5B8]. To regulate global online poker, Congress targeted the payment system, including banks, to reach entities subject to U.S. law. Financial regulators, such as the Federal Reserve, implemented rules requiring banks to monitor and block transactions involving potential gamblers, gambling companies, and payment intermediaries like system operators, card issuers, and processors. *Id.* Banks must establish procedures to detect and prevent payments related to unlawful Internet gambling as required by UIGEA. *See* Aaron Klein, *Payment Systems' Changing Role: From Economic Growth to the New Foreign Policy Lever*, BROOKINGS (Feb. 13, 2024), https://www.brookings.edu/articles/payment-systems-changing-role-from-economic-growth-to-the-new-foreign-policy-lever [https://perma.cc/8A74-SYAP]. Unlike other criminal enforcement mechanisms in the U.S., UIGEA uniquely mandates banks to proactively block payments for illegal online gambling. The Treasury Secretary and Federal Reserve, in coordination with the Attorney General, are responsible for setting up this regulatory system. *Id. See also* CONG. RSCH. SERV., INTERNET GAMBLING: AN ABRIDGED OVERVIEW OF FEDERAL CRIMINAL LAW 1 (2012).

[235] The California Consumer Privacy Act of 2018 (CCPA), which became effective in 2020, and its associated legislation, the California Privacy Rights Act of 2020 (CPRA), have had a significant impact on shaping data privacy policies and regulations across the United States, setting the stage for future federal privacy legislation. Josh Nadeau, *How the CCPA is Shaping Other States' Data Privacy Regulations*, SEC. INTEL. (Dec. 23, 2022), https://securityintelligence.com/articles/how-ccpa-shaping-states-data-privacy/ [https://perma.cc/R8FM-BZX4]. As the most comprehensive privacy regulation in the country, the CCPA has not only influenced similar laws in other states but has also sparked nationwide discussions about the need for

a cohesive federal data privacy framework. Indeed, states like Colorado, Connecticut, Utah, and Virginia have adopted privacy regulations that align with the CCPA's core principles, emphasizing consumer rights, data transparency, and the regulation of data processing practices. *See, e.g.,* F. Paul Pittman et al., *Colorado Privacy Act Rules Finalized Ahead of July 1, 2023 Effective Date*, WHITE & CASE (Apr. 14, 2023), https://www.whitecase.com/insight-alert/colorado-privacy-act-rules-finalized-ahead-july-1-2023-effective-date[https://perma.cc/BV8L-UPL6]; Brenna Goth & Skye Witley, *Connecticut Privacy Report Details Company Leeway in Enforcement,* BLOOMBERG L. (Feb. 2, 2024, 5:05 AM EST), https://news.bloomberglaw.com/privacy-and-data-security/connecticut-privacy-report-details-company-leeway-in-enforcement [https://perma.cc/GW2P-XB4F];Aaron Nicodemus, *New Utah Privacy Law 'Lighter' Than Predecessors*, COMPLIANCE WK. (Mar. 30, 2022), https://www.complianceweek.com/data-privacy/new-utah-privacy-law-lighter-than-predecessors/31518.article; *Virginia Consumer Data Protection Act (VCDPA)*, BLOOMBERG L., https://pro.bloomberglaw.com/insights/privacy/virginia-consumer-data-protection-act-vcdpa [https://perma.cc/U6US-J9YJ] (last visited Aug. 21, 2024). Each of these state laws includes rights that are similar to those found in the CCPA, such as data access, deletion, and opt-out rights, with some adding unique provisions like Colorado's right to appeal data subject decisions or Virginia's default opt-out for sensitive data. *See Which States Have Consumer Date Privacy Laws?*, BLOOMBERG L., https://pro.bloomberglaw.com/insights/privacy/state-privacy-legislation-tracker [https://perma.cc/8D8G-E7Z9] (last visited Aug. 21, 2024). Likewise, the CCPA has sparked discussions at the federal level about the need for a unified privacy standard. *See* Makenzie Holland, *Data Privacy Law Is Coming, Big Tech Privacy Officers Say*, TECHTARGET (Jan. 19, 2021), https://www.techtarget.com/searchcustomerexperience/news/252495066/Data-privacy-law-is-coming-big-tech-privacy-officers-say [https://perma.cc/XVR6-NUGP]. Several federal bills have been introduced, including the Consumer Online Privacy Rights Act and the American Data Privacy and Protection Act (ADPPA), both of which draw from the principles established by the CCPA. *See* Lynn Parker Dupree & Taryn Willett, *Seeking Synergy Between AI, Privacy Regulations*, REUTERS (Nov. 17, 2023, 4:09 PM EST), https://www.reuters.com/legal/legalindustry/seeking-synergy-between-ai-privacy-regulations-2023-11-17. Finally, due to California's economic influence and population size, many companies have chosen to apply CCPA-compliant policies to all U.S. consumers rather than maintain separate privacy practices for different states. This trend has effectively made the CCPA a de facto national standard, pressuring federal lawmakers to create a uniform privacy regulation. *Id.*

state action on the gambling-like elements of trading platforms could influence future federal regulations. The role of gaming boards, traditionally confined to regulating casinos and lotteries, could expand to include oversight of trading apps if these platforms are determined to function as hybrid financial-gambling entities.

As this Article explores, the intersection of addictive digital engagement practices and trading apps demands a recalibration of existing regulatory frameworks. The fusion of investing and gambling calls for a holistic approach that considers both financial and consumer protection perspectives. Regulatory bodies, including state gaming boards, the SEC, and the FTC, may need to collaborate in defining and addressing these issues. This might involve updating definitions of gambling to encompass financial products, imposing stricter requirements on the design and marketing of gamified trading apps, or even developing new categories of regulation that recognize the hybrid nature of these platforms.

Given the social and financial risks posed by addictive DEPs, the time is ripe for a serious reconsideration of how trading platforms are governed. The lessons from gambling regulation—focused on addiction prevention, consumer protection, and ethical business practices—can provide valuable insights for crafting robust rules that address the emerging threats in this rapidly evolving space. Ultimately, the integration of gaming boards and addiction regulation into the broader oversight of trading apps could play a key role in protecting retail investors from the predatory practices that DEPs enable.

ii. First Amendment Challenges

The broad scope of the First Amendment in the U.S. provides robust and distinctive protections to speech, often extending beyond the limitations seen in other jurisdictions.[236] When applied to the gamified features of digital trading platforms, this protection could significantly shape regulatory approaches. In the U.S., attempts to regulate these design elements might be met with claims that they infringe on free speech, as platforms could argue that their user interfaces and gamified features constitute expressive conduct. Under U.S. jurisprudence, courts would carefully consider whether such features are commercial speech, fully protected expression, or merely conduct that could be more easily regulated. In contrast, freedom of speech in jurisdictions like the European Union or the UK, is typically more balanced against competing interests such as consumer protection, public order, or privacy. While these jurisdictions recognize expressive rights, they are more willing to limit or regulate speech when it conflicts with these other priorities.[237] For example, gamified features that might

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[236] In *Healy v. James*, 408 U.S. 169, 188 (1972) (citing Communist Party v. SACB, 367 U. S. 1 (1961) (Black, J., dissenting))., the Supreme Court emphasized that First Amendment protections must extend even to "the ideas we hate" to preserve those we cherish. The Court ruled that a state college's refusal to recognize a Students for a Democratic Society (SDS) chapter violated free speech rights. Similarly, in *Matal v. Tam*, 137 S. Ct. 1744, 1768 (2017), the Court struck down a federal law prohibiting disparaging trademarks after the U.S. Patent and Trademark Office denied a band's attempt to trademark "The Slants." The decision reinforced that "the proudest boast of our free speech jurisprudence is that we protect the freedom to express 'the thought that we hate.'" The First Amendment also protects "indecent" but not obscene speech, as defined narrowly in *Miller v. California*, 413 U.S. 15 (1973). The Court in *Reno v. ACLU*, 521 U.S. 844, 874 (1997) (citing Sable Commc'ns of Cal., Inc. v. FCC, 492 U. S. 115, 126 (1989)), struck down a law banning internet transmission of pornography, holding that "indecent but not obscene" sexual expression is protected.

[237] *See, e.g.*, Dirk Voorhoof, *Freedom of Expression Versus Privacy and the Right to Reputation: How to Preserve Public Interest Journalism*, *in* WHEN HUMAN RIGHTS CLASH AT THE EUROPEAN COURT OF HUMAN RIGHTS: CONFLICT OR HARMONY? 148, 148–70 (Stijn Smet & Eva Brems eds., Oxford Univ. Press 2017), *Freedom of Speech v Privacy: A Balancing Act*, FIELDFISHER, (July 13, 2016), https://www.fieldfisher.com/en/insights/freedom-of-speech-v-privacy-a-balancing-act (showcasing how in the UK, freedom of speech is not absolute and is balanced against other societal concerns, especially under the Human Rights Act 1998. Courts have often engaged in a balancing act, considering

encourage excessive risk-taking or blur the lines between investing and gambling would likely face stricter regulatory scrutiny in Europe, where consumer protection often takes precedence over broad speech claims. Thus, while U.S. trading platforms may rely heavily on First Amendment arguments to resist regulation of gamified interfaces, similar claims would likely hold less weight in other legal systems where freedom of speech is not as absolute and is more readily balanced against regulatory goals. Indeed, if deemed commercial speech, they would be subject to intermediate scrutiny, where the government must demonstrate that any regulation directly advances a substantial interest and is narrowly tailored to achieve that interest.

In this context, regulators might defend restrictions on gamified interfaces by arguing that these measures are necessary to protect consumers from deceptive or predatory practices. The key legal question would be whether regulations targeting gamified features genuinely advance consumer protection goals without unduly limiting free expression. Courts would likely weigh the harms associated with these features—such as promoting excessive risk-taking and exploiting vulnerable users—against the platforms' right to design and communicate through their digital interfaces.

CONCLUSION

The rapid rise of gamified trading platforms is an important and innovative development, which offers greater access to the market, and, together with the on-line social platforms, can democratize financial investments. However, its gamblified features mark a troubling new frontier in financial technology. While these platforms have opened the door to various communities to invest directly and with very few barriers, they have been doing do so by embedding addictive DEPs directly into their design. Gamblification blurs the line between investing and gambling, transforming

whether the public interest in free expression outweighs potential harms to privacy or public order).

financial decision-making into a high-stakes game that exploits cognitive biases and behavioral vulnerabilities. What was once seen as an exciting and democratizing force in finance increasingly reveals itself as having a dark, sophisticated side of potentially predatory finance.

Drawing from Zinberg's model, which emphasizes the role of product and environmental factors in promoting addiction, it becomes clear how these digital ecosystems manipulate users into compulsive, high-risk financial behaviors. DEPs like push notifications, instant rewards, and social relatedness/competitive features like leaderboards are not simply engagement tools; they may lead to exploiting decision-making biases such as loss aversion and the gambler's fallacy, pushing users into cycles of excessive, impulsive trading that closely mirror problematic gambling. The convergence of gaming and finance has created environments that reward short-term thinking and impulsivity, disproportionately affecting younger users and those with lower financial literacy.[238]

Regulatory bodies in the U.S. and Europe have begun to recognize the risks posed by gamblified finance, as highlighted by the FCA's 2024 report.[239] However, existing regulatory frameworks lag behind these innovations. This Article advocates for a regulatory response that not only restricts harmful gamified features but also redefines the ethical obligations of these platforms. By imposing a duty of care informed by Zinberg's environmental model, regulators can require platforms to design features that mitigate, rather than amplify, compulsive behaviors. Thus, innovation could be harnessed to foster literate and responsible investing. Enhanced transparency and mandatory behavioral impact assessments should be integral to this framework, ensuring that DEPs do not exploit consumer vulnerabilities for profit.

[238] *See, e.g.*, Voigt, *supra* note 44 (discussing how the trading application is less suitable for those seeking comprehensive financial guidance or educational resources. Webull's features like paper trading, real-time data, and the community forum cater more to experienced traders comfortable with self-directed investments).

[239] *See* FCA Report, *supra* note 10.

As financial technology continues to evolve, the stakes could not be higher. The industry's transformation offers opportunities for growth and inclusion, but without targeted safeguards, it risks embedding a new era of financial predation that undermines market integrity and consumer well-being. Recognizing gamified trading as a distinct category of predatory finance is essential to protecting consumers from exploitation and preserving trust in financial markets.

Appendix 1. Possible gamblification features for trading apps

Disinhibition 	High speed of acting opportunities High frequency of acting opportunities Lack Automatic play/investment capability, Continuous in-running activity, Lack/minimal buttons to stop/delay/hold Excitement, arousal peaks (e.g., color, Lack/minimal self-tracking/monitoring Continuous availability Streaming information/nonstop changes
Payment characteristics 	Non-cash payment methods Easy access to additional funds (remote, Few restrictions on the amount that can Ease of withdrawals vs. depositing funds Ease & various leverage options Various reimbursement options; Payment for recruiting others
Information 	Dynamic, constantly changing messages insufficient/ static information regarding probabilities of winning No warning of potential risks, lack of reminders to reappraise behavior during usage Underscoring other's achievements; non-stop scrolling of other's opinions
Reward/punishment types (Competence)	Levels or progress feedback, Progress Digital rewards or prizes Real-world rewards or punishments Badges or achievements

	In-game bonuses (e.g. free spins, extra Points/investment represented as some Competition, social competition Social comparison, social pressure, Leaderboards, social status Quest or challenges Mini games Praise/blame/please/annoy
Reward / cost characteristics 	Highlighting large potential financial Hiding large potential loss (hiding losing Disproportional presentation of small Volatility Changing patterns of reward distribution Losses-Disguised-as-Wins Positive, winning-related sensory Highlighting near misses Immediate gratification following risky No restrictions on stake size Speed of play & event frequency Obfuscation of cost Promotion of cryptocurrencies (special graphics, info feed, badges)
Autonomy 	Personalization Customization
Relatedness (commitment, trust)	Social networking, Social cooperation, Herd, imitation, popular / familiar Following social influencers & Narrative context, story/theme

	Social affiliation (r/WallStreetBets); Gambling language and praising Avatar
Harnessing intrinsic motivation 	Narrative, fantasy Interactivity Reminders of a concrete goal/s & Reminders of general goal/s and value/s Motivational quotes Compare actual behavior with goals
Engagement Mechanisms 	Daily log-in rewards Push notifications, Update Emails, Time-limited rewards/offers/limited Special events Curiosity & Exploration: Frequent Ease of Use/Play/Friendly interface Arousal: Exciting visual scheme, Special Interesting sound effects Surprise Elements; Means to escape