



The Metaverse and the Implications for the Securities Industry¹

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INTRODUCTION

The term “metaverse”² has attracted significant attention and curiosity in recent years from the media, entertainment and technology sectors. Though the term has no concrete definition, and interpretations may differ, the metaverse is generally viewed as the next evolution of today’s internet.³ For the purposes of this report, the term “metaverse” refers to virtual worlds that are immersive and interactive and may be experienced in new ways through technological developments in hardware and software.⁴ Metaverse environments may include digital spaces using various techniques to allow individuals to engage in social or business activities through the internet or other networked platforms.⁵

To date, gaming platforms have been at the forefront of metaverse adoption, but companies are developing other entertainment and business applications.⁶ According to one estimate, the global metaverse revenue opportunity could approach \$800 billion in 2024 versus about \$500 billion in 2020.⁷ Moreover, the metaverse is expected, by some, to contribute over \$3 trillion to global Gross Domestic Product (GDP) by 2031.⁸ According to one estimate from the World Economic Forum, 15 percent of the digital economy is already moving to the metaverse, with projections of metaverse activity, led by gaming and e-commerce, reaching 700 million people worldwide by the end of the decade.⁹ Market professionals have also noted that financial institutions have significant opportunities to invest and participate in the metaverse going forward, given the likelihood of increased desire for digital engagement from future generations of investors.¹⁰ In fact, several major financial institutions indicated they have already begun exploring the metaverse to build more immersive online environments to engage with the next generation of customers and to enhance their operations.¹¹ Government bodies around the world (as well as international organizations) have similarly started focusing on the metaverse, including evaluating its possibilities, the attendant risks and the potential impact on the financial industry.¹²

In light of the growth of the metaverse and its potential to play a meaningful role in the future of the financial industry, staff from FINRA’s Office of Financial Innovation (OFI), which is part of the Office of Regulatory, Economics and Market Analysis (REMA), launched a research initiative focusing on the opportunities and risks that the metaverse may present for the industry. This initiative led to the publication of this report. As part of our research, OFI staff engaged with more than two dozen stakeholders, including securities firms and other financial institutions, hardware and software providers, academics, industry observers, and government entities.

This report summarizes the main findings of our research:

- ▶ **Section I** provides a brief overview of the metaverse, including market trends.
- ▶ **Section II** identifies and analyzes the potential applications for the metaverse that the securities industry is exploring.
- ▶ **Section III** addresses potential use cases, challenges and related factors associated with the metaverse.
- ▶ **Section IV** outlines potential regulatory considerations.

This report is intended to raise awareness among FINRA member firms and the broader securities industry by providing an overview of how developments related to the metaverse may impact business models and processes. While the true implications of the metaverse may not be known for years, this report is designed to serve as an initial step in beginning an important dialogue with market participants about potential use of the metaverse within the securities industry. Accordingly, FINRA requests comments on all areas of this report.¹³

SECTION I: Overview of the Metaverse

One financial institution described the metaverse as a “seamless convergence of our physical and digital lives, creating a unified, virtual community where we can work, play, relax, transact and socialize.”¹⁴ At least one prominent international body similarly expressed that the metaverse is not a single space, but rather, a “collection of shared digital spaces for real-time interaction and activities—a continuum that blends digital worlds with the physical world”¹⁵ that “can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence and with continuity of data.”¹⁶ Certain industry observers explain that fundamental characteristics of a metaverse include an immersive and persistent experience, connectivity to other users and a sense of presence.¹⁷ Others believe that a “proper” metaverse also includes aspects such as spatial boundlessness,¹⁸ decentralization and interoperability.¹⁹

According to some analyst reports, over three billion people reportedly accessed some version of a metaverse daily. In addition, 70 percent of U.S. consumers say their digital identity is as important as their real-life identity, and 95 percent of business leaders expect the metaverse to have a positive impact on their industry within the next five years.²⁰ This impact is already starting to take root, with approximately 60 billion messages reportedly sent between users on the immersive online gaming platform, Roblox, every day.²¹ GDP for Second Life, an online multi-media platform where users can create avatars, reportedly reached \$650 million in 2021.²²

The technology driving experiences within the metaverse include:

- ▶ **Virtual Reality (VR):** a fully immersive three-dimensional (3D) simulation of images, using computers and wearable devices such as head-mounted displays—smart goggles or headwear that can be strapped around one’s head—to replace or occlude a user’s physical environment (*e.g.*, a recreation of ancient Rome);
- ▶ **Augmented Reality (AR):** an overlay of digital computer graphics on top of a real-world visualization (*e.g.*, a car windshield that displays upcoming traffic conditions); and
- ▶ **Mixed Reality (MR):** an interactive blend of a real-world experience with digitally created content allowing users to experience simulated experiences within their physical environments and to manipulate and interact with virtual elements in real time (*e.g.*, a surgeon repositioning a 3D image of a patient’s heart in her virtual workspace).²³

These VR, AR and MR technologies are all components of the concept known as extended reality (XR), which serves as an umbrella term to describe different types of systems that may comprise various metaverse environments. As discussed below, developments in these environments have been influenced by changes in the computer gaming industry, demographics and hardware systems.

- ▶ **Computer Gaming:** Today's most popular metaverse platforms (e.g., Roblox, Fortnite) are computer gaming environments. According to one estimate, approximately 87 percent of Generation Z polled indicated that they are actively engaged in gaming. With a total value of over \$200 billion, the gaming sector is larger than movies and music combined.²⁴ Time spent in the metaverse has also reportedly been on the rise; for example, the number of daily active users for Roblox has grown from about 14 million in 2018 to about 78 million in Q1 of 2024.²⁵ Market participants are also exploring social engagement systems that entice users to spend more time in other types of virtual spaces via gamified incentives that are not obviously "games."²⁶ The gamification trend that started on mobile devices is also present in immersive metaverse spaces, fueled by targeted advertising and features such as leaderboards and loyalty points.²⁷
- ▶ **Demographics:** Market participants have noted that the younger generations—Generation Z and Generation Alpha—are the driving force behind metaverse adoption.²⁸ While older generations, such as Baby Boomers and Generation X, may still use phones to communicate with friends and family, their younger cohorts may make less phone calls and instead use their devices to connect with others over text, video and voice within metaverse spaces. Commercial enterprises recognize this and are "meeting them where they are" by introducing brand awareness within virtual platforms.²⁹ For instance, one yoga brand has sold more digital yoga pants in the metaverse than in the physical world.³⁰ This may come as no surprise, considering that 52 percent of Gen Z reportedly better identify with their avatars than their real-life selves.³¹
- ▶ **Hardware:** XR hardware technology systems combine space and computational power using an interface accessed through devices such as smartphones, head-mounted displays, tablets and smart glasses.³² Advances in computing power and XR hardware have been catalysts for metaverse adoption. Nearly 80 percent of hardware within XR headsets is similar to that for mobile phones; the remaining 20 percent includes expensive advanced optics (e.g., vergence accommodation and eye tracking); motion technology (e.g., inside-out tracking and hand-gesture pattern recognition); and haptics (e.g., sensory gloves and digital scents). The largest hinderance to XR hardware adoption may be linked to the need for more advanced technology and resulting increased price tag.³³

Industry experts have noted that the metaverse may impact many commercial sectors in some way in the coming years, while some business leaders are already asking their staff to consider developing a metaverse strategy.³⁴ According to some estimates, by 2025, 25 percent of people will spend at least one hour per day in a work-related metaverse space³⁵ and, by 2030, the economic impact of the metaverse is expected to reach \$5 trillion, including the various live events that will occur in these spaces.³⁶ Even further into the future, another study found that 54 percent of the industry polled expects that, by 2035, the metaverse will replace mobile phones as the primary gateway to digital content and, by 2040, the metaverse will be fully refined and immersive such that the internet will be a place that people can spend significant time visiting and exploring each day.³⁷

In response to these thematic tailwinds for the metaverse, investors have poured billions of dollars into metaverse projects. There are currently over a dozen exchange-traded funds (ETFs) that thematically invest in only metaverse-related publicly traded companies, including investing in some of the largest technology companies in the world (e.g., Apple, Meta, Alphabet) as well as those that focus specifically on metaverse platforms and virtual modeling (e.g., Roblox, Ansys, PTC).

However, despite the enthusiasm, metaverse adoption may still face challenges in the foreseeable future. These challenges include cost, accessibility of hardware, the ability to build a proper network infrastructure, interoperability, data security and privacy.³⁸ In addition, operating in a new virtual environment will entail review to ensure compliance with legal and regulatory considerations.³⁹

SECTION II: Metaverse Use Cases in the Financial Services Industry

A segment of financial institutions, including broker-dealers, are actively experimenting with incorporating the metaverse and its immersive technologies.⁴⁰ Metaverse technologies can include VR and AR, but these are not the only portals to the metaverse. Users can access virtual worlds through laptops, gaming consoles and phones.⁴¹

Some firms indicated that they are examining how to leverage metaverse technologies for internal training and staff development. Others noted that they are assessing the potential for metaverse-related marketing and appealing to the next generation of investors, while also considering metaverse applications for other business purposes (e.g., trading, monitoring and surveillance and enhanced data visualization). These may have future implications for communications with customers, internal operations, trading and investment opportunities.⁴² Below is a non-exclusive list of areas where the securities industry and related financial markets are considering or exploring potential metaverse-related use cases.

Data Visualization

Market participants are looking to augment traditional two-dimensional (2D) data visualization techniques using 3D platforms in metaverse environments to improve data consumption, analysis and presentation (e.g., for investor pitches),⁴³ with richer and more nuanced 3D pictures of applicable data sets. Firms are also exploring data visualization applications within the metaverse to help make complex data sets more visually appealing, enabling teams to more readily grasp trends, patterns and connections.

The metaverse may also impact the way firms present financial information to investors, particularly as advanced and immersive technologies become more readily available. Some market participants noted that using interactive 3D platforms within the metaverse may provide investors with an enhanced view of their financial health, in comparison to static information relying on numbers and written text, by potentially making financial information easier to absorb and remember.⁴⁴ Enhanced visualizations may facilitate investors' understanding of concepts such as volatility, diversification, bull and bear markets, and the prospective growth of investments. For example, market participants noted that 3D visualization techniques could potentially be used to show investment gains as a towering building and a loss as a chasm in the ground to present information in an easier to understand format for investors.

Virtual Trading

Some firms are assessing the role that a metaverse environment using VR and AR technology may play in the future of trading. Within a metaverse environment, traders may be able to customize data and research in novel ways, see data in interactive 3D formats, and more readily communicate with colleagues and counterparties.⁴⁵ Some third-party providers have indicated that they are already able to offer VR- and AR-based trade blotters, tickets and charts.⁴⁶ Firms are also exploring proofs of concept to leverage VR to bring greater efficiency to trading desks.⁴⁷ For example, one firm's prototype would allow traders to see data presented in multiple tiers that are dynamically updated, and to interact with data using hand gestures and voice commands.⁴⁸ However, firms noted that they have not yet implemented any actual virtual trading capabilities, and those exploring these opportunities indicated that they need to fully assess technological, regulatory or other risks.

Digital Twins and the Industrial Metaverse

Digital twins refer to “the digital representation of physical objects.”⁴⁹ According to some experts, digital twins that are enhanced with immersive, interactive and collaborative features are “the foundation of the enterprise metaverse” as they can allow business assets, processes and people to be recreated virtually in immersive environments.⁵⁰ Market participants have noted that recreating or simulating physical environments in the digital world may allow firms to improve decision making, business processes and the quality of their products.⁵¹ While this concept is not new (for example, digital models have been used to run simulations for years), the metaverse offers potential enhancements on ways to develop and interact with digital twins for graphically-enhanced simulation, analysis and monitoring in a range of daily business activities.⁵²

For example, one company recently created a digital twin model to guide its return to office strategy during the COVID-19 pandemic.⁵³ The company gauged its re-opening process by using digital twins to determine capacity questions and scheduling when workers would return.⁵⁴ A major financial institution also relied on a digital twin to reduce complexities related to institutional client onboarding.⁵⁵ In addition, a stock exchange worked with video game developers to digitally replicate an initial public offering (IPO).⁵⁶ Market participants have indicated that digital twins with enhancements available through the metaverse, may provide more efficient ways to run test-case scenarios and can help firms improve how their offices are set up and business operations, as well as enhance situational awareness (such as by conducting cybersecurity tests), identify and prevent fraud and assess human behavior.⁵⁷

Payments

The metaverse offers a potentially lucrative environment for commerce. According to current estimates, there are 37.6 million users spending over \$28 billion per year in the metaverse.⁵⁸ As individuals are projected to spend more time in the metaverse, they may potentially be more prone to engage in commerce by purchasing virtual goods. Consumers in the metaverse reportedly hold a total of \$163 billion in value in total digital payments, with a median value of \$500 per user, and an average of over \$7,300, including crypto assets across various metaverse platforms.⁵⁹ Bitcoin, Ethereum, and Robux (the main currency for the centralized gaming platform Roblox) are the most commonly held digital payments in the metaverse.⁶⁰ They are followed by V-bucks (the digital payment on Fortnite’s platform), MANA (the digital payment for Decentraland) and SAND (the digital payment for The Sandbox).⁶¹ Market participants have noted that metaverse users also have a stronger desire to use crypto assets compared to most e-commerce shoppers.⁶²

On Roblox, users purchase the Robux digital payment through a process known as a “booking.” Bookings, which can be processed via one-time purchases or monthly subscriptions (typically through payment processors or cards), can be used to purchase virtual goods and services on Roblox.⁶³ In the past year, Roblox saw bookings increase to \$1.12 billion, a 25 percent increase over the previous year.⁶⁴ Decentralized platforms also offer users opportunities to purchase virtual items in the metaverse, including skins, emotes, names and land.⁶⁵ Two notable examples are The Sandbox and Decentraland, which are Ethereum-based virtual worlds where players can build, own and monetize gaming experiences in economies based on the platforms’ native tokens.⁶⁶ However, it is important to note that the native tokens for both of these platforms are currently the subject of regulatory scrutiny as to their legal status within U.S. securities law.⁶⁷

Some market participants believe that metaverse payments may further accelerate the trend toward digital commerce and away from physical commerce as a result of fundamental changes in technology that drive how consumers engage with merchants and service providers.⁶⁸ If users become more accustomed to conducting financial services in the metaverse, this may ultimately shape how investors wish to interact with financial market professionals, including within the securities industry.⁶⁹ In addition, metaverse environments, particularly those involving wearable devices (such as headsets or other devices that connect to the body and gather biometric data), may allow for the collection of far greater amounts of information on users that financial services firms can acquire from data brokers.⁷⁰ Such data can be acquired by firms for a variety of uses, including improving customer acquisition and conducting market research.⁷¹

Training and Collaboration

One study comparing learning within a physical or online classroom environment with learning in a metaverse environment containing immersive virtual spaces found that learners in the metaverse are four times faster to train, nearly three times more confident in applying skills, nearly four times more emotionally connected to content and four times more focused.⁷² The study notes that this enhanced learning may be, in part, attributable to a fully immersive learning experience commanding a student's attention and thereby making it less likely for distractions from other devices (e.g., smartphones, desktop computers).⁷³ Embodied learning helps learners retain information by fortifying the relationship between information delivery and physical and sensory experiences.⁷⁴ In addition, some analysts predict that learning in virtual spaces, using VR and AR technologies, may serve as an important part of the next generation of teaching and training methods given the metaverse's potential to provide elements of realism and sustained engagement.⁷⁵

Some firms within the securities industry have already been exploring ways in which the metaverse may provide more effective ways to train staff as well as offer options for collaboration for team members in different physical locations.⁷⁶ Market participants have indicated that immersive digital training techniques may offer a new, more efficient and cost-effective way to upskill remote staff in both technical and "soft skills" (e.g., leadership, resilience and management).⁷⁷ For example, workers can practice using skills in highly realistic simulations before testing them out in the physical world.⁷⁸ Relatedly, some analysts believe that the first major use cases of technologies such as VR will be carried out by employees using devices bought for them by their employer to increase collaboration in remote work, with immersive 3D meetings being more engaging than 2D video calls.⁷⁹ Others add that, in the near term, they expect that firms will use metaverse technologies for internal collaboration, meetings and conferences and workforce training.⁸⁰

Investor Education

Extensive research has been written about the economic importance of financial literacy and the need for effective teaching methods around financial services.⁸¹ Accordingly, there is increasing demand for strong financial education programs across the country, which some states mandate must be taught in the classroom to better educate future generations.⁸²

Because the metaverse is targeting the same future generations for its user base, it may be one avenue to address demands for more effective financial education. With metaverse technology driven by the popularity of immersive gaming platforms, such as Roblox, as well as the presence of popular and exclusive brands (e.g., Nike, Gucci, Ferrari) on various platforms, the metaverse presents an opportunity to reach—and teach—younger investors in the metaverse.⁸³ As one observer noted, financial services firms "have a unique opportunity to enter the metaverse and supply financial education, financial well-being [and] brand awareness."⁸⁴ By meeting potential future investors in the digital realm for education purposes, firms can seek to keep them engaged through content. With several virtual platforms already having a component of earning and spending in-game currency, firms can leverage the embedded financial element to teach about related concepts, such as savings and investing, while cultivating brand awareness and loyalty.

In 2022, prominent financial services firms began announcing their presence in Decentraland and The Sandbox, as further detailed in the subsequent section. Though these firms reportedly entered the metaverse to pursue different ways to engage with their current, and potential future, investor base, at least one of these firms appears to have created a dedicated entertainment space complete with gamified financial education components.⁸⁵ The firm expanded its efforts with additional (and novel) overtures for meeting younger investors in digital spaces, with games on Roblox and Decentraland.⁸⁶ The games focus on introducing players on these platforms to financial concepts such as earning, spending, saving and investing as well as a "more mindful approach to money."⁸⁷ They are designed to appeal to both young players as well as parents who seek to provide practical financial know-how through entertaining games and characters that mirror levels of investing risk.⁸⁸

Customer Solicitation and Service

With digital platforms increasingly embedded into daily life (for commerce, communications and entertainment), the metaverse represents a potentially powerful new avenue for financial institutions to reach and engage with the next generation of investors.⁸⁹ Some analysts predict that future customers may look to the metaverse, using AR and VR technology, to assist with their financial service needs, including banking, insurance and wealth management.⁹⁰ Financial institutions have announced plans to acquire virtual land in a third-party metaverse, while others overseas have actively experimented with opening virtual branches.⁹¹

As noted, in the U.S. market, firms are seeking a presence in the metaverse to build brand awareness. For example, one firm reportedly aimed to engage with investors in sports and gaming communities by purchasing a plot of land in The Sandbox; others acquired a virtual lounge and a dedicated multi-level design space with digital venues including a dance floor, rooftop sky garden, teleportation mechanism and educational games to teach users about finance.⁹² As one of these firms, noted, the way that people engage socially and view finances is changing, and their metaverse strategy is an extension of their social media strategy to engage with younger investors, many of whom rely on social media and gamification to both learn about investing and to actually invest.⁹³

Though one U.S. firm reportedly collaborated with a major technology platform to create a tool to allow customers to discuss stock portfolios with a VR-based financial planner, none of these U.S. firms currently offer investment services directly in the metaverse but may look to do so in the future.⁹⁴ However, such efforts largely appear to be only exploratory at this stage and would face a number of regulatory considerations (as noted below), particularly as they pertain to existing rules around the communication of financial advice, risk disclosures, recordkeeping and identity verification that may be applicable.

SECTION III: Potential Challenges and Related Factors

By offering new ways for financial institutions to engage and interact both internally and externally, the metaverse may provide new opportunities and present novel challenges. For example, market participants have noted that the metaverse may offer new methods to engage with and educate a broader group of investors, particularly younger investors who are beginning their investing journey. The metaverse may also provide ways to improve operational efficiencies through enhanced collaboration within firms. However, several challenges remain, including those related to technology development and adoption as well as risks associated with privacy and cybersecurity. The following section highlights a few challenges and factors that firms may wish to consider as they explore applications on the metaverse or implement a metaverse strategy.

Challenges

Resource Needs

Firms may wish to consider the types of technological and personnel upgrades they would need to develop and implement a desired metaverse application or an associated metaverse strategy. As part of this process, firms may want to map out their distributed data storage plans for optimal metaverse performance and scalability, as storing data locally may not be possible for live immersive applications that require significant real-time cloud streaming.⁹⁵ Depending on the level of sophistication of the metaverse application, firms may also wish to consider the capacity of their current wireless infrastructure to determine whether it is sufficient for the desired application.⁹⁶ In addition, firms may want to ensure they have staff with the appropriate skill and expertise to support the development of metaverse-based applications. This may involve hiring properly trained talent and investing the time and expenses to train existing personnel.

Data Privacy and Protection

Consumers and business leaders list privacy among their top concerns in a future metaverse.⁹⁷ Extensive data collection could mean that users have the potential to reveal far more behavioral data, including body language cues, retina tracking and other biometrics.⁹⁸ The better the digital representation of a person, the more personal information firms may be able to collect. Firms engaging in metaverse-based interactions may consider whether they have adequate controls to protect their customers' rights and to shield them from bad actors acquiring their personal data.⁹⁹ As the metaverse continues to develop, protecting personal information and ensuring ethical use of data may be a significant concern, particularly when virtual environments intersect with real-world personal data.¹⁰⁰ Accordingly, demonstrating sufficient privacy protections, ensuring appropriate recordkeeping and clearly disclosing personal data that is collected and with whom it is shared may be a key feature in promoting trust within various metaverse environments.

Cybersecurity

Cybersecurity remains an area of focus within the securities industry and with regulators.¹⁰¹ Business leaders have also indicated that cybersecurity is their top concern with respect to the metaverse.¹⁰² A recent report highlighting cybersecurity risks within the metaverse noted that, "[w]hile phishing and social-engineering attacks continue to be a top threat vector in our current digital ecosystem, the risk of bad actors impersonating your personal virtual banker/adviser or your boss/colleague and giving you directions to execute malicious tasks in a virtual room only gets compounded in the virtual world."¹⁰³

Apart from the specific cybersecurity challenges noted above, firms may also wish to consider additional risks and ways to enable them to continue to fully comply with their regulatory obligations. These include the increased threat vector potentially caused by introducing any new application to an environment, which data are shared with metaverse applications and whether there exists a potential for data leakage. Firms may assess how metaverse technology, particularly when offered by vendors, are compatible with their own internal operational and compliance systems, and they may examine the entirety of their network segmentation and access controls to ensure that new devices and applications adhere to firm cybersecurity policies. Doing so may help limit the potential for enhanced cybersecurity risk as well as limit other errors and inefficiencies.

(De)centralization and Interoperability

There are various other factors that firms may wish to consider when exploring applications on the metaverse or implementing a metaverse strategy, including the trade-offs associated with decentralized and centralized metaverse platforms and the current limitations on interoperability. A centralized metaverse generally refers to a platform that is run by a corporation or similar entity, while a decentralized metaverse generally refers to an environment governed, in varying degrees and in certain respects, by a community and software protocols. Each environment offers its own sets of benefits and risks that firms may wish to consider.¹⁰⁴ Firms may also wish to consider the current limitations associated with interoperability between different metaverse platforms when selecting a platform and determining how to implement a metaverse strategy. Market participants have also noted that, going forward, developers of applications, games and platforms in the various virtual worlds may not see economic incentives or practicalities to achieving true interoperability and there may be friction in this area.¹⁰⁵

SECTION IV: Regulatory Considerations

In addition to the potential challenges and related factors noted above, member firms should also be mindful of the potential implications to their regulatory obligations as they consider whether to incorporate the metaverse into their internal systems and processes or use this technology within product offerings. FINRA reminds its member firms that FINRA's rules—which are intended to be technology neutral—and the securities laws more generally, continue to apply if member firms use the metaverse in the course of their businesses, just as they apply when member firms use any other technology or tool. Using any given technology does not absolve firms of their regulatory obligations. The specific rules applicable to member firms' use of the metaverse will vary—and could implicate many areas of member firms' regulatory obligations—but will ultimately depend on how member firms deploy the technology.¹⁰⁶

This report is not intended to provide an exhaustive or cumulative list of all factors or regulatory issues associated with the metaverse and related technologies. Moreover, this report does not create any new legal or regulatory requirements or new interpretations of existing requirements, nor does it relieve firms of any existing obligations under federal securities laws and regulations. Member firms may consider the information in this report when developing new, or modifying existing, practices that are reasonably designed to achieve compliance with relevant regulatory obligations based on the member firm's size and business model. Member firms should conduct their own risk assessments regarding the potential regulatory implications of virtual spaces that pertain to their unique use cases and business models.

FINRA welcomes the opportunity to engage with member firms regarding the metaverse and its immersive technologies. To the extent member firms find ambiguity in the application of FINRA rules based on their specific use of metaverse technology, they may seek interpretive guidance from FINRA. Member firms may seek interpretive guidance by following FINRA's process for interpretive requests.¹⁰⁷

SECTION V: Request for Comments

FINRA welcomes comments on this paper, including input from financial industry market participants who are currently exploring metaverse technology or have identified other use cases in the securities industry.

Comments are requested by **March 14, 2025**. Member firms and other interested parties may submit their comments using the following methods:

- ▶ online using FINRA's comment form for this paper;
- ▶ emailing comments to pubcom@finra.org; or
- ▶ mailing comments in hard copy to:

Jennifer Piorko Mitchell
Office of the Corporate Secretary
FINRA 1700 K Street, NW
Washington, DC 20006

To help FINRA process comments more efficiently, persons should use only one method to comment on the proposal.

Important Notes: All comments received in response to this paper will be made available to the public on the FINRA website. In general, FINRA will post comments as they are received.¹⁰⁸

Direct inquiries regarding this paper to:

- ▶ Haimera Workie, Vice President, Office of Financial Innovation (OFI), at (202) 728-8128 or Haimera.Workie@finra.org;
- ▶ Jacob Yunger, Director, OFI, at (202) 728-8253 or Jacob.Yunger@finra.org; or
- ▶ Alex Khachaturian, Director, OFI, at (202) 728-8275 or Alex.Khachaturian@finra.org.

ENDNOTES

- 1 The views and opinions made in this report are those of the authors and do not represent official views or policies of FINRA. This report does not express any official FINRA legal position and does not create any new regulatory requirements or suggest any change in any existing regulatory obligations, nor does it provide relief from any existing regulatory obligations. This report summarizes key findings from FINRA's outreach and research on the potential impact of the metaverse and related immersive technologies, in the financial services industry, and does not endorse or validate the use or effectiveness of any of these applications. While this report highlights certain regulatory areas that FINRA members may wish to consider, it does not cover all applicable regulatory requirements or considerations. FINRA encourages all member firms to conduct a comprehensive review of all applicable securities laws, rules and regulations to determine potential implications including any regulatory implications of the metaverse.
- 2 Throughout this report, the terms metaverse, immersive digital experiences, virtual spaces, virtual reality (VR), augmented reality (AR), extended reality (XR), and mixed reality are all used. Each term has different meanings and can be viewed as different components of persistent, immersive, engaging online environments, though we will use the term "metaverse" most often. There is not a *single* metaverse, nor does the metaverse imply an interoperable online space like the internet or a dedicated type of technology. Rather, there are various immersive online modalities and metaverse environments as well as different technologies to allow users to engage with these different environments. See Eric Ravenscraft, [What is the Metaverse Exactly?](#), *Wired* (June 15, 2023) ("[T]he term [metaverse] doesn't really refer to any one specific type of technology, but rather a broad (and often speculative) shift in how we interact with technology.") [hereinafter *Wired Metaverse*].
- 3 Swaptik Chowdhury and Timothy Marler, [The Metaverse: What It Is and Is Not](#), *Rand* (June 20, 2022) ("[I]n Meta's announcement, they defined the metaverse as 'an embodied internet where you are in the experience, not just looking at it.' Similarly, Microsoft described its enterprise metaverse as being '...made up of digital twins, simulated environments, and mixed reality.'").
- 4 "[Metaverse](#)," Merriam-Webster Dictionary; [What is the Metaverse?](#), McKinsey & Company [hereinafter *McKinsey What is the Metaverse?*].
- 5 *Wired Metaverse*.
- 6 Ivy K. Lau, [Metaverse and Money](#), PayPal Newsroom (June 5, 2023) [hereinafter *PayPal Metaverse and Money*].
- 7 [Metaverse May be \\$800 Billion Market, Net Tech Platform](#), Bloomberg Professional Services (Dec. 1, 2021).
- 8 Aywan Awada, [The Metaverse Revolution: How Banks Can Tap Into a \\$860 Billion Market](#), *EY* (Apr. 26, 2023) [hereinafter *Metaverse Revolution*].
- 9 Martin Armstrong, [This Chart Shows How Big the Metaverse Market Could Become](#), World Economic Forum (Feb. 7 2023).
- 10 FINRA Investor Education Foundation, [Investors in the United States: The Changing Landscape](#) (Dec. 9, 2022); *Metaverse Revolution*.
- 11 Reza Akhlaghi, [Banking and its Inroad into Financial Markets](#), *Coindesk* (June 8, 2023).
- 12 Digital Regulation Cooperation Forum (DRCF), [Immersive Technologies Foresight Paper](#) (Dec. 2023) (noting that the DRCF, a collaboration of regulators in the United Kingdom, is exploring the transformative potential of immersive technologies and is considering related regulatory implications); Carlos Cantu, Cecilia Franco, and Jon Frost, [The Economic Implications of Services in the Metaverse](#), Bank for International Settlements (BIS) Papers No. 144 (Feb. 2024).
- 13 See Request for Comments section of this paper.
- 14 J.P. Morgan, [Opportunities in the Metaverse](#) (2022) [hereinafter *J.P. Morgan Metaverse*].
- 15 World Economic Forum, [Metaverse Privacy and Safety](#) (July 2023).
- 16 World Economic Forum, [Interoperability in the Metaverse](#) (Jan. 2023).
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- 108 Parties should submit in their comments only personally identifiable information, such as phone numbers and addresses, that they wish to make available publicly. FINRA, however, reserves the right to redact or edit personally identifiable information from comment submissions. FINRA also reserves the right to redact, remove or decline to post comments that are inappropriate for publication, such as vulgar, abusive or potentially fraudulent comment letters.