The metaverse and Islamic financial contracts: The case of Ijarah [version 1; peer review: awaiting peer review]

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Abstract
The metaverse is a virtual world that exists alongside the actual world. While the actual world refers to the real, physical world, the metaverse is a digital world that is accessed through technology. Evidently, several international brands have integrated their businesses with the virtual metaverse providing business opportunities. However, there are currently several gaps in the sector of Shariah finance that need to be addressed in order to take full advantage of the potential of the metaverse. For instance, rare studies enlighten the concept of Ijarah, a substitute for conventional leasing in the metaverse virtual world. Undoubtedly, the metaverse has the potential to revolutionize the Shariah finance industry by providing new opportunities for financial inclusion and innovation. Therefore, for the readiness of Islamic finance institutions, this study is an attempt to explore the possibility of executing Shariah principles that could be utilized in the metaverse. More specifically, this study is an endeavor to explore and discuss how Shariah-based leasing i.e., Ijarah integrates with the recent metaverse technologies. Additionally, this study also discusses the metaverse evolution and its integration into international business brands, the metaverse virtual assets ownership, the metaverse virtual leasing, non-fungible tokens (NFTs), and virtual real estate in the metaverse. Indeed, this study is a novel addition to the Shariah finance literature, which helps policymakers to generate new strategies that guide the execution of Ijarah contracts in the virtual universe of the metaverse.

Keywords
Metaverse, Islamic Finance, Shariah Contracts, Ijarah, Virtual Real Estate, NFTs
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Introduction

The “metaverse” is a blend of two dissimilar words that are “meta”, which means beyond, and the “universe”. Hence, the metaverse has been identified as a post-reality universe that merges physical reality with a virtual digital world (Mystakidis, 2022). Interestingly, this incredible technology, the metaverse, which is also termed as the next internet advancement, is the blend of diverse technologies that allows multisensory interactions with virtual environments, people and digital objects such as virtual and augmented reality (Njoku et al., 2022). Technically, the metaverse is an interconnected web of social network environments that enables seamless embodied user communication in real-time and dynamic interactions with digital artifacts (Wiles, 2022). Hence, in the metaverse, everything could potentially be under one roof, as users would have access to a wide range of virtual environments, experiences, and services. This could include virtual storefronts for shopping, virtual classrooms for education, virtual offices for work, virtual social spaces for entertainment, and much more (Cruz et al., 2023). Typically, the metaverse is a fully virtual interactive space, where users can generate their own avatars and interact with other users, contributing to numerous virtual activities, such as real estate, gaming, shopping, and attending academic events, as well as professional meetings.

The metaverse is generating several business opportunities for industries. Evidently, by using metaverse advancements, companies are altering their ways of functioning and able to offer their services and products, organize their day-to-day operations and increase collaboration with customers, etc. (Sundaram, Sachdev and Pokhriyal, 2023). Also, in 2021, one of the social media giants, Facebook owner Mark Zuckerberg, announced the rebranding of Facebook to “Meta” (Huynh-The et al., 2023). Considering these advancements, it is predicted that by 2026 almost 25% of the world’s population will start spending at least one hour a day in a metaverse-generated virtual world for their meetings, education, business contracts, shopping, and entertainment (Julian, Chung and Wang, 2023). The metaverse has the potential to create a new digital economy with a wide range of business opportunities for businesses of all sizes and industries (Yemenici, 2022). Therefore, many tech businesses and financial institutions are currently capitalizing on the growth of the metaverse, thus, it is anticipated to become a substantial part of our virtual and digital lives in forthcoming years. Remarkably, one of the most noticeable uses of metaverse technology is virtual branches of banks (Zainurin et al., 2023).

Fundamentally, banks play a key role in the financial industry. They act as intermediaries among borrowers and savers, offering financial products to individuals and businesses. Thus, the use of the metaverse in the banking sector is one of the most tremendous growths in the banking industry (Sarkar, 2023). Technically, a virtual bank in the metaverse is a digital financial institution that functions within a simulated world or virtual atmosphere. These banks provide services and products which are similar to those of conventional banks, counting deposits, long and short-term loans, and various types of investment opportunities, but wholly in a digital format. Remarkably, in most Muslim nations, there are typically two types of banking systems in operation: the conventional banking system and the Islamic banking system which are functioning in parallel. This is recognized as a dual banking system. Interestingly, several Islamic banks have also introduced their virtual branches, for instance, the first Islamic bank in the world is Kuwait’s Warba Bank, which first declared its entry into the metaverse’s virtual world (Tamano, 2022). Notably, virtual Islamic banking in the metaverse is aligned with Islamic banking principles and adheres to the rules and regulations which are set by multiple Shariah finance scholars and regulatory bodies (Riyadi, 2022). This development shows how technology is moving very fast to change how financial institutions interact with people, customers, and communities via the highest technological innovation.

Visibly, the metaverse is still at a nascent stage, thus, the formerly available literature that explains how Shariah finance integrates with recent technologies is rare. More specifically, clear guidelines for Ijarah are not available for the metaverse technology. Technically, Ijarah is a concept in Islamic finance that refers to a type of interest-free leasing agreement in which one party, known as the lessor, agrees to lease a tangible asset or property to another party, known as the lessee, in exchange for rental payments (Zafar, 2012). Also, the lessor retains ownership of the asset while the lessee has the right to use the asset for a specified period of time. Ijarah is a popular financing tool in Islamic Finance and is often used for financing business equipment, real estate, and other assets. Islamic Finance is considered a permissible alternative to traditional interest-based loans, as it does not involve charging interest on rental payments (Ghuddah, 1998). Likewise, Ijarah in the metaverse would refer to the application of Islamic finance principles to lease contracts within a metaverse environment (Munadi, 2023). In view of the above discussion, this research endeavored to explore and look at the possibilities of taking advantage of economic opportunities to apply Shariah leasing principles i.e., Ijarah in transactions in the metaverse.

Figure 1 above explains key metaverse technologies. Visibly, the virtual technologies that permit this vision of the metaverse are still growing, however, seven central technologies that are expected to be important include; virtual reality, augmented reality, blockchain, artificial intelligence, 3D modeling and animation, cloud computing and edge computing.

As per the authors’ knowledge, there are currently no established standards or guidelines for applying Shariah leasing principles to metaverse transactions, as the metaverse is a relatively new and rapidly evolving area. Further, this article...
presents a new addition to the Islamic finance literature which helps policymakers deliver a framework that guides the procedure to generate Ijarah-based contracts in the virtual sphere of the metaverse.

As discussed, the metaverse is generating several opportunities for businesses in the virtual world. The next section of this study highlights the evolution of metaverse technologies and their integration with the core international business brands.

The evolution and integration of metaverse technologies by international brands

The metaverse is rapidly gaining attention and changing how customers and businesses interact (Google Trends, 2022). However, the globally increased value of the metaverse has raised questions regarding its existence and overall scope (Barrera and Shah, 2023). Technically, the metaverse is a new enhancement of the Internet which possesses a simulated and physical world and it utilizes avatars, digital platforms, virtual reality (VR) headsets, and blockchain technologies for users to interact (Lee et al., 2021). Thus, the metaverse is a digital hyper-connected platform committed to reshaping and changing brands, industries, and customer interactions (The Verge, 2021).

Visibly, the notion of the metaverse is really not a new one and it has existed since the last century. The term metaverse was first coined in 1992 by the writer Neal Stephenson in the sci-fi book named Snow Crash which discussed reality-based web technologies (Stephenson, 1992). However, the metaverse technology has swiftly risen during the recent Covid-19 pandemic. During the quarantine, internet-based social media facilitated people to get in touch with each other, however, it was really not enough. The thirst to feel everything and the need to go out to explore and see things has always been present. Precisely, that was the time when the metaverse evolution started and began to reach its height (LearnTek, 2022). According to Market Research Future (MRFR, 2022), the value of the metaverse market in 2022 was $7.91 billion. The metaverse market is anticipated to increase from USD 11.47 billion in 2023 to USD 107.79 billion by 2030, at a compound annual growth rate (CAGR) of 45.2%. Clearly, the anticipation for the significant growth of metaverse technology is due to its global recognition, adoption, and execution in businesses (Mileva, 2022).

Universally, it has been witnessed how the metaverse formed its place in the gaming industry and social media. For instance, in 2021 Facebook announced Meta as a new brand name for its application (Kraus et al., 2022). Subsequently, NIKE launched its interactive brand, NIKELAND, which was introduced on Roblox (global virtual gaming platform) and developed by using metaverse technology (Hollensen, Kotler and Opresnik, 2022). NIKELAND used the metaverse platform to offer its new athletic brand where users are allowed to enter virtually to play games. Later, NIKE also attained RTFKT studio (pronounced “Artefact”), the latest technology of the metaverse in digital fashion, blockchain verification, and increased reality to create digital objects. Likewise, RTFKT also focuses on crypto-based projects to integrate blockchain with sneakers and fashion. Furthermore, via adopting metaverse technology NIKE also presented a new platform, Web3, which is also called Swoosh to expand the visibility of its products (Longshak, 2023) to expand the visibility of its products (Longshak, 2023).

In the same vein, Hyundai, which generally targets tech-savvy inhabitants start-ups, created a partnership with Roblox to develop new products using metaverse technology. Lately, Samsung, also known as a technology giant, launched its first store to offer metaverse products. Also, Coca-Cola, originally a beverage firm, joined the metaverse race and introduced its collection of non-fungible Tokens (NFTs) with Opensea (Mileva, 2022). NFTs are blockchain-based cryptographic...
assets with metadata that has separate identification codes from each other (Wang, Wang and Chen, 2021). Evidently, during the Covid-19 pandemic lockdowns the tourism industry suffered vast losses but Sentosa, an island resort off Singapore’s southern coast, continued with the tourism market for the people who were stuck at home. In 2020, Sentosa launched a virtual island in its gaming product ‘Animal Crossing’. Similarly, following the footprints of other international brands Walking Dead, Louis Vuitton, Adidas and Gucci integrated their products with metaverse-based technologies.

Undoubtedly, with the flourishing of NFT-based platforms, metaverse is now the most thriving virtual platform around the globe (Wang, Yu and Li, 2022). Moreover, the metaverse has presented an innovative business model for industries and financial markets (Chen, 2022). Considering the benefits attained from adopting metaverse technology, numerous international brands integrated their businesses with metaverse technologies and started functioning on several top platforms of a metaverse in order to maintain sustainable financial growth (Lee, 2021). Thus, now the actual business world is rapidly connecting with the virtual world by adopting metaverse transformation and integration, therefore, expectations from metaverse technology are hyping and rising. Remarkably, metaverse platforms are online virtual environments that permit clients to interact with other individuals in a seamless way. These simulated platforms are often constructed using virtual or augmented reality technologies and offer users the facility of creating, customizing, and experiencing digital and simulated content in a shared space in the metaverse’s virtual world.

Table 1 below displays the top virtual metaverse platforms which are graded according to their monthly regular users. Also, in the Islamic finance industry, the use of the metaverse potentially opens up new opportunities. Nevertheless, it is essential to note that any use of a metaverse in Islamic finance must be in accordance with the principles of Shariah, which prohibits all those activities which are forbidden in Islam such as riba (interest) and Gharar (uncertainty). Notably, for Shariah following investors, the evolution of the metaverse represents an extensive challenge indicating the lack of Shariah financing guidelines for the rapidly evolving metaverse technologies (Ishak and Billah, 2022).

**Metaverse in banking and finance**

In the banking context, the metaverse has the potential to modernize how financial services are delivered and implemented (Dubey et al., 2022). Technically, in the banking industry the metaverse is taken as a concept that refers to the use of virtual and augmented technology for the creation of a sort of digital universe in which financial services and their customers can interact in a much more engaging and immersive way (Zainurin et al., 2023). Metaverse banking is, therefore, actualized by integrating the metaverse and online banking services using various advanced technologies. Moreover, metaverse banking and financing also provides customers with synchronous banking and financing services through integration of metaverse and online banking services, facilitated by a combination of numerous advanced technologies, that provides customers with synchronous banking services accompanied by 3D virtual world experiences (Koohang et al., 2023).

Notably, there are many aspects in metaverse banking which include virtual financial advisors, virtual branches, virtual product demonstrations, and so on. Thus, the essence of using the metaverse in banking is that it is a potential way of improving customer engagement, satisfaction, and more importantly accessibility to financial services for customers, particularly those in remote or underserved areas (Sarkar, 2023). Besides, by adopting virtual banking, several banks create virtual branches that are available 24/7, offering clients the accessibility to interact with their accounts and

<table>
<thead>
<tr>
<th>Position #</th>
<th>Metaverse virtual platforms</th>
<th>Monthly regular users</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roblox</td>
<td>200m</td>
</tr>
<tr>
<td>2</td>
<td>Minecraft</td>
<td>170m</td>
</tr>
<tr>
<td>3</td>
<td>Fortnite</td>
<td>80m</td>
</tr>
<tr>
<td>4</td>
<td>Second Life</td>
<td>1m</td>
</tr>
<tr>
<td>5</td>
<td>Axie Infinity</td>
<td>548k</td>
</tr>
<tr>
<td>6</td>
<td>Horizon Worlds</td>
<td>300k</td>
</tr>
<tr>
<td>7</td>
<td>Sandbox</td>
<td>9,604k</td>
</tr>
<tr>
<td>8</td>
<td>Decentraland</td>
<td>604k</td>
</tr>
</tbody>
</table>

m = million, k = thousand. Source: Ferjan, 2023; Dappradar Data.
make transactions from anywhere in the globe. Likewise, another use of the metaverse in the banking and finance industry is the construction of virtual economies. Banks maintain simulated currencies such as crypto that are traded within the metaverse virtual world, permitting customers to earn rewards for completing tasks or attaining goals. In addition to banking, the metaverse has also been introduced to finance as virtual reality and other digital technologies are employed to create a shared, immersive digital space that can serve as a platform for people to interact, transact, and engage in other forms of financial services (Gadekallu et al., 2022).

Visibly, the metaverse offers several virtual products to the financial industry such as virtual banks, virtual stock exchanges, virtual insurance companies, virtual trading floors, virtual financial education centers, as well as virtual financial planning tools (Morgan, 2022). Hence, it is anticipated that introducing more advancements of the metaverse to the finance industry will help in granting the clients more access to important financial services and offer new opportunities for more cutting-edge innovations in the financial industry (Cho, Dieck and Jung, 2022). Thus, the metaverse is altering the banking and financial industry in a positive and effective manner by augmenting performance and offering innovative experiences to customers (Ding, Kou and Wu, 2023; Seth, Gupta and Singh, 2022). Evidently, various banking and financial institutions have already adopted opportunities afforded by the use of similar metaverse technologies in banking and finance. For instance, Mastercard made a partnership agreement with a virtual reality company to create a metaverse for the company’s financial and banking services. Likewise, BBVA also launched a virtual branch in the metaverse of the video game known as Entropia Universe (Turi, 2023). Similarly, the Singapore Exchange (SGX) announced that it agreed to work with a virtual reality company (Singapore Exchange, 2021). The reason giant banking and financial institutions are becoming increasingly interested in metaverse banking and financing is because of the new avenues of opportunities it opens for businesses and better and more effective customer service. It is, therefore, not only a more modern way of banking and financing but also more sustainable than the existing alternatives (Lee, 2021).

The metaverse provides a platform for reaching a bigger audience and presents the opportunity to develop novel strategies for delivering virtual financial services that adhere to Shariah principles while avoiding speculation. In other words, the metaverse enables the development of new and more accessible ways of offering Islamic financial and banking services in a virtual environment that adheres to Shariah principles (Katterbauer, Hassan and Cleenewerck, 2022). Thus, the metaverse presents opportunities and challenges in equal measure for the application of Islamic banking principles. As the metaverse continues to evolve, it is likely that Islamic financial institutions will need to adapt and develop innovative solutions to meet the needs of this emerging virtual economy.

**Virtual ownership in the metaverse**

After the recent evolution of metaverse technologies, it seems that our indulgence in the economy, money, assets and possessions, businesses, and their ownerships have dramatically converted into the virtual and digital world (Kim, 2021). Ownership of virtual assets such as homes, books, farms, furniture, and vehicles is established in the metaverse economy by the proof of their digital presence. Possession of these assets is essentially determined by the confirmation of their virtual presence in the metaverse, rather than physical possession in the real world. Individuals and businesses can now own and trade virtual assets that exist entirely in the metaverse economy, opening up new avenues for virtual commerce and asset ownership. The key component which is required for the validation of virtual assets and possessions in the metaverse economy is NFTs which are underpinned by the technology of blockchain. Technically, the blockchain serves as a form of publicly opened transparent owner registration where every virtual asset transfer can be tracked. Whereas NFT is a unique type of cryptographic token that is used to confirm the ownership of certain virtual assets (Far et al., 2022). Typically, every NFT is protected by a cryptographic identification key that is not erasable, copied, or damaged and provides decentralized and robust verification. This verification process is essential for each digital and virtual identity in the metaverse economic society. Also, this cryptographic-based identification procedure is helpful for the differentiation and interaction of one metaverse-based society with another (Xu et al., 2022). Thus, unique digital assets recognized as metaverse NFTs such as simulated homes, businesses, video game possessions and virtual banks are present inside the metaverse’s offered virtual world.

Fundamentally, the asset possession in the metaverse digital world is not dissimilar from the prevailing virtual zones of different gaming platforms such as Roblox, Second Life, etc. The virtual and digital assets in these metaverses are NFT, meaning they are unique and not interchangeable. Also, these virtual assets are available on the blockchain and their verification can easily be done outside the meta premises (Nakavachara and Saengchote, 2022). In view of these aspects, numerous brands such as Samsung and Mcdonald’s have acquired their possessions in the metaverse virtual world. Remarkably, Samsung is operating its own metaverse display centers. In the same way, Mcdonald’s is running its virtual restaurant which is delivering food to the physical world. Likewise, virtual land possession is another important aspect of the metaverse world (Sant, 2022).
Metaverse real estate prices are rapidly increasing. In several cases, the metaverse land prices deliver 100% profit to its proprietors. Typically, the metaverse has divided its available space into several areas and then distributes and allocates those areas into several virtual plots. The users can simply purchase and sell these parcels of land using cryptocurrency and exchange it as NFTs. Interestingly, the cost of metaverse property increased by 700% in 2021, bringing the market to almost $500 million. The market is expected to double to around $1 billion by 2022 (Sensorium, 2022). The user can purchase available space on the metaverse, or they can adopt a secondary market to acquire land that is a NFT based platform such as OpenSea or Binance NFT. As virtual metaverse land is purchased and sold as NFT, in order to secure the transaction, the ownership deed is always etched and available on the blockchain (Kiong, 2022). Thus, the key important aspect of the metaverse land parcel is that it is an NFT-based transaction, thus, the purchase, sale, and possession of land are considered secure. Interestingly, the Shariah-based principles do not clearly explain the notion of virtual ownership. Nevertheless, several scholars indicate that the ownership principles of Shariah finance can also be applicable to virtual assets such as NFTs and real estate (Chong, 2021).

Virtual leasing in the metaverse

Virtual leasing in the metaverse mentions the rent of simulated properties such as land, buildings, vehicles, and other objects in a simulated world. The Covid lockdowns increased awareness among people to have their own simulated spaces. Thus, as recovery starts following the pandemic shock, the latest variety of real estate leasing, i.e., metaverse virtual land leasing, has rapidly gripped the real estate market and is rated as one of the top virtual investment venues in 2021 (Mulia, 2022). This trend continued into 2022, and sales of metaverse virtual land surpassed USD 500 million and is also anticipated to have doubled by the end of 2022 (Frank, 2022). Importantly, it is also projected that between 2021 and 2026, investments in the metaverse real estate market will rise by USD 5.37 billion with an annual compound growth rate (CAGR) of 61.74% (Garcha et al., 2022).

Typically, the metaverse assigns its free space into several areas available for purchasing, and owners are allowed to offer it for leasing. The virtual land leasing procedure in the metaverse is simpler and cheaper than its counterpart, real-world land leasing. The virtual land price started rising after the funds were launched by Everyrealm (formerly Republic Realm), a company that specializes in investing in and managing virtual real estate in the metaverse. Everyrealm is considered a leader in metaverse real estate in acquiring a virtual parcel of land in the metaverse. These allocated funds are used to acquire metaverse land and convert it into online stores, buildings, hotels, etc. (Narin, 2021). Recently, Sandbox, Somnium, Decentraland, and Cryptovoxels (Voxels) are the four big platforms that are dealing in sales of metaverse virtual land (Coelho, 2022). Technically, each platform has a limited number of virtual plots, for instance, Sandbox acquired 166,654 virtual plots of land parcels (Ibrahim, 2022). Notably, firms that are dealing in sales of metaverse virtual land also offer NFT-based proof of ownership to landowners (Saengchote, 2022). Thus, NFT-based ownership not only secures ownership but also provides a way to earn revenue without selling possessed virtual land. This leads to an upsurge in the value of these virtual land properties among its clients (Narin, 2021).

From an Islamic finance perspective, metaverse simulated leasing should be organized to comply with Islamic principles. Also, the conditions of the lease contract must be clear and unmistakable, with no room for ambiguity or uncertainty (Morshed, 2022).

Virtual ownership of NFTs, real estate and vehicles in Islam

In the metaverse all users are allowed to conduct free transactions for buying and selling (Ishak and Billah, 2022). Fundamentally, this is because of NFTs and blockchain (Guidi and Michienzi, 2022). In the virtual world of the metaverse, NFTs provide the ownership facilities of land, merchandise, avatars, etc. (Raman and Raj, 2021). Thus, the use of NFTs in the metaverse is to support secure asset exchange, transaction, and trading that removes security-related issues for consumers (Zainab et al., 2022). Virtual ownership is a relatively new concept, thus, there is not a clear consensus among Islamic scholars on its permissibility (Schuijers, 2023; Wang et al., 2022). The concept of virtual ownership in the context of Islamic finance could be referred to as intangible asset ownership in Islamic law. In Islam, the notion of ownership is founded on the principle that every person has a right to own, control, and use the property as long as it is attained through lawful means (Daneshfar et al., 2023). This includes the concept of virtual ownership, which refers to the ownership of virtual assets such as NFTs. Thus, non-fungibles that are created to improve people’s lives are authorized in Islam (Adam, 2021).

Islamic scholars generally recognize the ownership of intangible assets, such as intellectual property, and this can be extended to virtual real estate and other virtual assets that have real-world economic activity and utility (Alhabshi et al., 2018; Bouheraoua et al., 2015). For instance, real estate in a virtual world that is used for legitimate purposes such as gaming or social interaction may be recognized as a form of ownership. In addition, the concept of virtual ownership of real estate in Islam is subject to the same rules and principles that govern traditional ownership. This includes requiring
real estate property to be acquired through lawful means and not through fraud, theft, or other illegal activities (Fauzi et al., 2021; Faishal and Eng, 2008).

In the context of the metaverse real estate, Ijarah can be applied to simulated properties and assets. In the metaverse, a virtual property developer could own a virtual building or land and lease it to users through an Ijarah contract (Wang, 2022). The users could pay rent for the use of the virtual property, while the developer retains ownership of the asset. However, Ijarah contracts for real estate in the metaverse would have to comply with Islamic principles, such as ensuring that the rent charged is fair and not exploitative and that the asset being leased out is not used for any unethical or prohibited purposes (Maksalmina, 2022). Noticeably, virtual ownership of NFTs, real estate, and other assets must also be used for the greater good and not solely for personal gain. Thus, several scholars (see for example, Wang, Wang and Chen, 2021; Laldin and Djafri, 2019) argue that the ownership of NFTs and virtual real estate assets can be permissible in Islamic finance as long as the underlying assets are halal and the transactions are done without riba i.e., interest (Qamar, Anwar and Afzal, 2023).

Visibly, in the next few years, the metaverse will unquestionably mark the major tipping point in the history of the vehicle industry. Notably, the first retail car sale in the metaverse is to be carried out by Germain Toyota (Guerra, 2022).

Like other virtual assets, the notion of virtual possession of vehicles in a metaverse presents new challenges and queries from an Islamic viewpoint. This would mean that the ownership of these virtual vehicles would be subjected to the same rules and restrictions as other virtual assets, including the prohibition of interest (riba) and the requirement for assets to be permissible (halal in accordance with Shariah law), and has a valuable usufruct for Ijarah purposes. Remarkably, implementing these Islamic finance principles in the context of virtual assets is still a topic of debate among Islamic scholars (see Samad and Hasan, 2022; Kamdzhalov, 2020). Hence, Islamic finance’s principles of ownership and possession can be applied to virtual assets such as NFTs, real estate, and vehicles. Additionally, lack of physicality, high volatility, lack of stability and tangibility, limited Shariah rulings and studies are some challenges that hinder virtual ownership in Islam (Adam, 2022).

**Ijarah of virtual properties in Islam**

In the context of virtual properties, Ijarah is used to structure transactions involving the ownership and use of virtual assets without charging interest (Toraman, 2022). In this case, the owner of the virtual property, the lessor, would lease the property to another party, the lessee, for a specified period, and in return, the lessee would pay the lessor a rental fee (Usmani, 2001). Typically, Ijarah can be applied to virtual properties such as land, real estate, virtual reality platforms, and other virtual assets (Rabbani et al., 2020). Thus, Ijarah as a concept is permissible in Islamic finance for virtual properties as long as it adheres to the principles of fairness and justice. Principally, the concept of fairness and justice explains that the lessee should not be charged more than the fair value of the property, and both parties should agree upon the lease period, thus, the same would be applicable on virtual properties (Daly and Frikha, 2016). Importantly, the lessee should not be able to make any changes to the virtual property that would harm the lessor’s interests (Alam, Gupta, and Zameni, 2019).

Typically, the Ijarah notion for virtual properties can be a valuable tool for Islamic finance as it offers a way to structure transactions involving virtual assets in a way that is compliant with Islamic principles. Besides, it can also provide an alternative to traditional forms of financing, such as interest-based loans, which are not permissible in Islamic finance (Katterbauer et al., 2022). However, it is essential to note that there have not been issued any specific guidelines or rulings so far on the Ijarah of virtual properties within Islamic law. It would ultimately depend on the details and circumstances of the virtual property (Maksalmina, 2022). Therefore, for Islamic scholars it is warranted to clear the rules for the usage of Ijarah contracts in recent metaverse technology, as in several Muslim nations Shariah tagged businesses cover a major portion of the market: for instance, in Malaysia where 80% of the market is covered by Shariah based firms (Rehan and Abdul Hadi, 2019; Rehan, Abdul Hadi and Hussain, 2019; Abdul Hadi et al., 2018).

Thus, the Ijarah of virtual properties is a way to structure transactions involving virtual assets in compliance with Islamic principles. However, since it is a new area of research, it would depend on the specific details and circumstances of the virtual property in question. Considering this, several scholars (see Maksalmina, 2022; Adam, 2021; Laldin and Djafri, 2019) argue that Ijarah can be applied to virtual assets as long as the assets are halal, the transactions are done without riba (interest), and the lessee has the right of possession and usufruct of the assets during the lease period.

In the context of the metaverse, the concept of virtual properties is relatively new, and the legal and regulatory frameworks surrounding it are still yet to be developed. This could make it challenging to create contracts and agreements for virtual properties that are legally bound and enforceable. Likewise, evaluation of virtual properties is also a significant challenge in the metaverse, where determining the value of these properties within the metaverse may be challenging as the value of
digital assets can fluctuate rapidly and may not have a clear market value (Watson, 2022). However, in the case where the market value of an asset on metaverse is clear and there is no excessive risk then it will be okay according to the general Shariah rules.

**Virtual Ijarah in the metaverse space**

In the metaverse context, the concept of virtual Ijarah is applied to facilitate the leasing of simulated assets such as buildings, land, vehicles and other dissimilar types of virtual goods (Riyadi, 2022). This enables individuals and businesses to attain virtual assets for a definite period of time without making large upfront payments or taking on the risks connected with possessing simulated assets. Notably, Ijarah in the metaverse for virtual properties is still a relatively new area in Shariah finance and there are opposing opinions and clarifications among scholars. For instance, Ishak and Billah, (2022) postulate that the rental transaction of an Ijarah contract is not considered secure in the metaverse virtual environment. Hence, the volatile price of Crypto and NFTs in the metaverse poses a serious threat to people and all these sorts of transactions which cover Gharar, (uncertainty and speculation) must be avoided since they are dubious and do not serve the goals of Islamic law. In Islamic finance, Gharar mentions the existence of risk, speculation or uncertainty in a transaction (Dewi, 2023). Therefore, it is advisable to seek the guidance of a qualified Islamic scholar or advisor before entering into any meta-Ijarah contract for virtual properties.

Visibly, the metaverse concept for virtual Ijarah, has not yet been fully explored in an Islamic context. However, it is possible that the principles of Islamic finance, such as the prohibition of interest and the promotion of shared risk (Abdul Hadi et al., 2019), could be applied to the development of virtual assets in the metaverse (Riyadi, 2022). For instance, Islamic finance could be used to fund the development of virtual assets, such as virtual real estate, and leasing models like Ijarah could allow users to access and use these assets without owning them outright. Hence, the principles of Shariah compliance and transparency could be applied to the governance and management of the metaverse Ijarah to ensure that it aligns with Islamic values (Belk, Humayun, and Brouard, 2022). Moreover, looking into the general principles of Ijarah, if the virtual asset in the metaverse is a Shariah compliant asset and has a valuable usufruct then it has fulfilled the requirement of Ijarah.

Therefore, it is possible to argue that the Ijarah principles can be applied to virtual assets in the metaverse as long as the underlying assets are halal, have value and usufruct and the transactions are done without riba i.e., interest. It can also be argued that using blockchain technology in the virtual metaverse Ijarah transactions are consistent with the principles of transparency and accountability in Islamic finance (Elasrag, 2019). Thus, in the metaverse Ijarah lease contract, the financial institution buys the virtual asset and then leases it to the individual or company for an agreed time period. Technically, throughout the total lease period, the individual or company pays agreed rent to the owner i.e., the financial institution. Notably, the agreed rent is settled based on the actual cost of the virtual asset and the total rental period of the lease. At the end, the individual or business has the choice to buy the virtual asset from the financial institution at an agreed rate (Katterbauer et al., 2022). Figure 2 below explains the Ijarah leasing process in the metaverse.

![Figure 2. Metaverse Ijarah Leasing.](Source: Katterbauer et al., 2022)
In view of the above discussion, it is clear that Ijarah in the metaverse is still in its nascent phase, thus there has been growing attention in this zone by investors to gain capital. However, for Shariah-based financial investors, the metaverse virtual land leasing specifies a sustainable challenge and indicates a gap in the existing Shariah financing models. In the case of Shariah finance, the Ijarah incorporates a digital-based asset concept but the important question that arises is whether this virtual land platform integrates the mechanism of Gharar (El-Gamal, 2001). Clearly, the upsurge of metaverse-based virtual land leasing also exposes several threats. Moreover, selected academics claim that ownership and possession principles of Shariah finance also apply to virtual assets such as virtual real estate, virtual leasing, and NFTs (Lajis, 2019). Thus, the metaverse virtual transactions fulfill the perspectives of Shariah Muamalah (Islamic laws of transactions), hence, are permissible. Likewise, according to the 2021 Ijtima Ulama MUI (Majelis Ulama Indonesia - Indonesian Council of Islamic Scholars) fatwa, transactions that are done among intangible assets such as crypto and virtual land purchasing and leasing, can be classified as assets and commodities if they meet the requirements (Maksalmina, 2022).

Conclusion

Metaverse is a new buzzword in the technological space. It is a notion that describes a virtual world where users can interact with each other and digital objects. Technically, NFTs, which are underpinned by the technology of blockchain, offer a way to represent virtual assets ownership in the metaverse. These unique digital assets, also recognized as metaverse NFTs include virtual real estate, businesses, video game possessions, banks, vehicles, etc. which are present inside the metaverse’s virtual world. Evidently, the metaverse has revolutionized the entire financial industry and introduced numerous financial products and services, such as a simulated environment where users are able to make virtual businesses, exchange virtual currency, and can also access banking facilities inside the simulated world. In the banking industry, numerous banks including several Islamic banks opened their virtual branches in the metaverse simulated world. Visibly, Islamic finance products are developed and integrated into the metaverse as it grows and evolves. Though, until now, no specific guidance or regulation exists that clarifies the application of Shariah finance principles for the metaverse virtual world. The concept of virtual Ijarah and virtual ownership is one of them. The virtual Ijarah and ownership is referred to as the rental of simulated properties such as buildings, land, intangible assets or objects in a metaverse virtual world. Importantly, Islamic finance principles require that transactions be based on real assets and that speculative transactions be avoided. However, multiple scholars have argued that intangible assets are allowed and can be treated like tangible assets if they represent real economic value and are used for productive purposes. Also, virtual assets treated like tangible assets must not be used for any activities forbidden in Islam such as riba (interest, gambling etc.). Therefore, the application of the concept of Ijarah on virtual properties and assets such as NFTs, real estate, and vehicles in the metaverse could be seen from this angle. Hence, virtual Ijarah is permissible in Islamic finance as long as the underlying assets are halal, have valuable usufruct and are free from Gharar (risk). Notably, the use of blockchain technology in virtual transactions is also considered consistent with the principles of transparency and accountability in Islamic finance. This comprehensive discussion is a fresh addition to the Islamic finance literature which helps policymakers produce a new policy that guides the implementation of Ijarah contracts in the simulated metaverse universe. Visibly, several challenges may arise when implementing virtual Ijarah contracts in the metaverse space such as there may be some overlap with the principles of Shariah finance. Thus, there is still a need for more research and in-depth discussions to establish clear standards for the virtual Ijarah contracts in the metaverse space.

Data availability

No data are associated with this article.

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