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Chapter 4
Islamic Compliant Frameworks for the Metaverse:
An Opportunity for More Equitable Finance in the Metaverse

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ABSTRACT

The metaverse has become of paramount importance within the last several years, being a virtual universe where individuals and companies can interact. While the metaverses are still in their nascent stage, there has been increasing interest and capital inflow into these universes. For Shariah-compliant focused financial investors and participants, this represents a considerable challenge given the existing lack of Islamic financing frameworks for the metaverses. This chapter outlines options for providing Shariah-compliant financing in the metaverse, outlining the challenges and aspects that have to be taken into account for creating Shariah-compliant financing forms

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in the metaverse. The framework adapts conventional Islamic financing options, such as Murabaha and Sukuk, to the metaverse, ensuring that both the contracting and crypto-payments are Shariah-compliant and supportive in the metaverse. The framework provides an important step towards the development of Shariah-compliant financing forms within the metaverse.

INTRODUCTION

The word "metaverse" has been encountered everywhere in recent years, with Facebook changing its name officially to Meta (Park & Kim, 2022). Non-fungible tokens (NFT) have become one of the major words of the year, where these tokens form a key part of the virtual universe. This has also led gamers and developers to move into this space, making it more and more attractive to conventional consumers. While there has been considerable attention around the virtual universe, understanding the environment behind the virtual universe and what value it creates is of critical importance. The land prices related to digital land have been on the rise, with Republic Real Estate launching a fund for investors to purchase virtual land (Narin, 2021). The fund will purchase virtual land across various online metaverses and transform them into hotels, stores, and other uses. This shall lead to an increase in the value of these properties amongst consumers.

While virtual land has, due to its connotation with physical land, attracted considerable interest, the art sector related to NFTs has experienced an even more significant rise, and there is the expectation that equities and bonds will be hosted on a digital asset platform that is built around blockchain technology. Another key area of the metaverse is the gradual online-only shopping and experience, which implies that individuals purchase assets that are entirely virtual. There are several stores that sell clothing and accessories entirely online, which only exist in the metaverse. Furthermore, there are virtual fashion shoes solely for the virtual world, which has attracted considerable investment amounts. The growing remote work operational model, in addition to the growing utilization of artificial intelligence and virtual technologies, has opened up new business models providing customers with different experiences in the virtual world. Another key change is the move towards remote work, where the metaverse can make remote work more permanent and immersive in order to maximize efficiency and interaction. This will

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enable stronger interaction and engagement of the employees (Wilson, Karg, & Ghaderi, 2021).

Given the growing importance of the metaverse, the financial industry has been looking into how to create value within the metaverse space and how fintech solutions can deliver financial services in this new environment. Furthermore, metaverse technology creates new business model opportunities that may strengthen the utilization of crypto-technology as an alternative financial system.

The technologies behind the metaverse combine technologies such as virtual reality (VR) and augmented reality (AR). This leads to an interactive, immersive and collaborative virtual 3D universe. The idea is that these individual universes may be integrated with each other as well as allow to connect across the world in various environments. This may be in the form of games but also in terms of real estate, commercial transactions, and other associated environments (Wohlgenannt, Simons, & Stieglitz, 2020).

As outlined by Facebook's transformation into Meta, financial data and transaction management will become key parts of the metaverse enabling individuals and corporations to transact and operate within these universes. For example, there are digital assets for purchase, such as the World of Warcraft and the Habbo Hotel, and these assets may be even moved from one universe into the other (Park & Kim, 2022).

The current metaverse is a composition of the capabilities of various social media and video game enterprises that build upon their user base and platform in order to connect these individuals. While this first glance may give the impression that the metaverse is solely about gaming, it has become more of another virtual world where individuals may be fully immersed and conduct most of their life within the metaverse. This may range from dating to having their social interactions within the metaverse, but also conduct business across it. This may be in the form of leading a real enterprise or a digital enterprise within the metaverse. Overall, this will lead to someone being completely immersed in the metaverse and living their daily lives within this universe.

Given these enormous opportunities, questions arise what kind of financial services may be provided within the metaverse. Providing management of finance and transactions is critical to provide the level of interaction and services that consumers require. As the metaverse will be a virtual version of everyday life, where one can work, earn salaries, spend on assets, such as furniture, clothing, cars, and also purchase and rent out land, this requires necessarily the financial infrastructure but also the financial regulatory

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environment. Furthermore, the integration of various financial services and technologies may lead to the creation of a finverse.

Substantial questions arise in terms of how financial services will be provided in such an environment and how these services differ from conventional financial services that are provided. Furthermore, questions arise on how artificial intelligence and blockchain play a critical role in strengthening the finverse and making it compatible with Shariah law. This chapter will provide an overview of Islamic financial options and opportunities in the metaverse.

Islamic Finance Options in the Metaverse

The metaverse has been a key component of the new digital economy representing a new virtual environment of life. Given the virtual nature of the metaverse, various financing structures that are applicable for conventional Islamic finance have to be analyzed how they can be applied to the metaverse. The first form of Islamic financing is the utilization of a financial lease, Ijara, that a Shariah-compliant version of a conventional lease. The terms of the ijara indicate that the maintenance responsibilities of the asset are separated into the major and minor maintenance of the asset. The major maintenance of the asset belongs to the lessor, while the minor maintenance belongs to the lessee. Furthermore, the lessor is likewise responsible for the insurance of the asset, which may be, in practice, challenging. Additionally, the special purpose vehicle (SPV) has limited operational functionality, which requires separate servicing agency arrangements. Additionally, the lessee is not liable for repaying if the asset is lost or destroyed. This is the responsibility of the SPV, and if the lessee wants to own the asset after the end of the maturity date, then a separate purchase contract is required.

In the case of the metaverse, the Ijara would involve a digital asset. This may be in the form of various digital assets such as virtual clothing or means of transportation. The main question is whether these digital assets incorporate components of Gharar, which would make them not permissible for investment. Gharar in Islamic finance relates to uncertainty, deception, and risk that may be associated with assets. In another context, it may be considered similar to the situation of an asset or service that is not present nor determinable. In a conventional sense, this relates to crops that are not harvested or fishes that are not yet netted. The concept of Gharar is critical in Islamic finance as it provides a measure of the legitimacy of a risky investment. Especially, this relates to short-selling, gambling, and selling goods and assets of uncertain

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quality. Furthermore, any contract that may not be drawn out in clear terms can be considered Gharar.

Necessarily, the term is rather broad and subject to interpretation. Therefore, sales or financial transactions are considered as gharar depending on the level of misunderstanding between the parties and the degree of uncertainty that exists in terms of the delivery of goods and payments. The main objective is to avoid situations that cause injustice or deceit against one of the parties and is generally considered a form of cheating.

The main source for Gharar can be found in the hadiths, where the prophet Muhammed outlined that one shall avoid selling birds in the sky, fish in the water, and unborn calf's in a mother's womb (Brown, 2017). Specifically, the prophet emphasized "Sell not what is not with you" (Sunan Ibn Majah, Hadith 2187). Specifically, gharar arises when the claim to ownership is either unclear or suspicious. Furthermore, the Quran states "And do not eat up your property among yourselves for vanities." which outlines the prohibition of predatory business practices.

In determining whether a specific asset class is classified as gharar, it is important to perform a comparative approach to analyzing whether an asset or transaction is to be considered gharar. Derivative transactions, such as forwards, futures, and options, are mostly forbidden as they involve significant uncertainty related to the future delivery of the underlying asset.

A critical differentiation is between minor and substantial gharar. Speculative forwards, such as betting on exchange rates, are clearly substantial gharar and forbidden. On the other hand, commercial insurance is generally permitted provided it adheres to Islamic principles, and the short-selling of fungible items, such as wheat and other commodities, where the items are delivered at a later time is also permissible.

Conventional comparisons are performed with cryptocurrencies, whose permissibility has been intensively discussed. Generally speaking, cryptocurrencies have been heavily associated with gambling and uncertainty, making them impermissible. However, they have an inherent nature of being a medium of exchange similar to gold and conventional currencies and solely utilize blockchain technology as their underlying technology. One of the major supporting declarations in Islamic law was the permissibility statement of Bitcoin by the Shariah advisor Mufti Muhammad Abu-Bakar (Alam, Gupta, & Zameni, 2019). The reasoning was that cryptocurrencies by themselves contain an element of speculation, but this is a common feature in any currency and does not automatically make it haram. Another supportive argument is that blockchain and cryptocurrencies are, by their design, not

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associated with any interest (Abu-Bakar, 2017). While there are staking options for these cryptocurrencies, this is not a form of riba but rather utilizing one's cryptocurrencies for transactions and the creation of value within the network. Another key aspect is that the decentralized nature of the blockchain allows reducing potential manipulation and greater transparency. Another key parameter is contracting, as Islamic contract rules state that there needs to be a form of Mal within the contract. This refers to the possession or effective storage of the asset underlying the contract (Bouheraoua, Mohamad, Kasri, & Abdullah, 2015). Cryptocurrencies can be possessed and stored and have a commercial value (Mutaqawwam). The main feature of cryptocurrencies is that they are real and viable digital assets. The worth is determined within an open market and is traded commercially (Asif, 2018).

Another key focus in evaluating cryptocurrencies is whether the income derived from an investment into these products satisfies Shariah law. Crypto investments comply in general with social justice, accountability, and ethics that transcend from the financial transaction. Therefore, the underlying transaction and not the cryptocurrency itself determines the compliance. This implies that just because cryptocurrencies can be used for illegal activities does not make them by themselves illegal, as the same applies to conventional currencies. Even though crypto is not backed by any central government, except for those issued by governments such as e-CNY, this does not make them an unlawful means of exchange (Yao, 2018). Furthermore, the owning of cryptocurrencies as a means of exchange and as a form of money, which may make its storage subject to Zakat.

Furthermore, there is the general view that as a medium of exchange and its widespread availability, it may make it more accessible to people in need. Especially when it comes to impoverished people, their access to the conventional banking system is typically limited, making a solution utilizing blockchain an attractive alternative to empower and support them (Howson & de Vries, 2022). When it comes to contracting, these contracts are based on smart contracts utilizing blockchain technology, which is both secure and automated. This implies that they reduce both administrative complexities, but also confusion and errors. Given that several cryptocurrency agencies are already operating in Dubai and Malaysia, cryptocurrencies can be, in most instances, considered permissible in Shariah law (Wilson C., 2019; McDevitt, 2021).

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Given the general permissibility of cryptocurrencies, the cryptocurrencies within the metaverse can be considered a permissible medium of exchange, which assists in the execution of transactions and supports the ecosystem.

The next challenge is how assets in the metaverse are assessed in terms of their Shariah compliance. Virtual land may be considered similar to physical land as an asset within the metaverse, mimicking the evaluation of physical land (Sait & Lim, 2006). In comparison, this equality may, in its current form, be subject to debate since the perception is that the virtual land is more akin to software or intangible asset rather than a tangible asset.

We will outline for the metaverse framework several forms of Islamic financing options that are adapted to fit the needs of the metaverse.

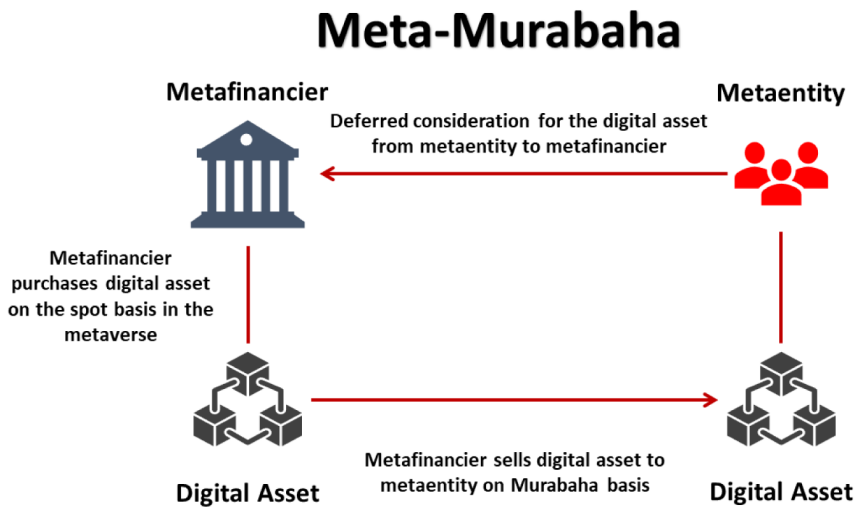
META-MURABAHA FINANCING

One of the major forms of Islamic financing is based on Murabaha. Obviously, Murabaha financing is a form of financing where the financier will purchase the asset and sell it to an entity for an amount consisting of the asset price in addition to a profit margin. Murabaha financing needs to be adapted for the metaverse and is outlined in Figure 1. Henceforth, it will be denoted as Meta-Murabaha. The first main parties are the metafinancier and the metaentity. The metaentity may be an avatar or digital company that engages in a transaction with the metafinancier. The metafinancier may be a digital financial service provider, such as individuals or a lending company, or a digital bank within the metaverse. The metafinancier and metaentity then engage in a sale and purchase agreement for the digital asset, which requires the metafinancier to purchase the digital asset on a spot basis. The digital asset may be in various forms, such as digital clothes, equipment, avatars, and others. The metafinancier purchases the asset from a 3rd party, and then the metaentity either pays the metafinancier within a single payment or a series of phased payments. All these payments are conducted with the metaverse's cryptocurrencies. The overall agreement is a smart contract that is supported by the metaverse's contract blockchain. This, in general, secures the asset's ownership as well as contractual terms of the asset. Furthermore, the immutability of the blockchain framework makes the cybersecurity of the contractual terms strong.

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The utilization of meta-Murabaha financing faces several challenges as it is not suitable for long-term financing. This is due to the fact that the price will be pre-set at the time of the purchase, which does not account for changes in the cost of funds. For the metaverse, the cost of funds may increase considerably within a short period of time if there is significant demand for the services within the metaverse. Hence meta-Murabaha is best suited for spot digital asset purchases that are paid off within a relatively limited period of time.

Figure 1. Meta-Murabaha structure in the metaverse

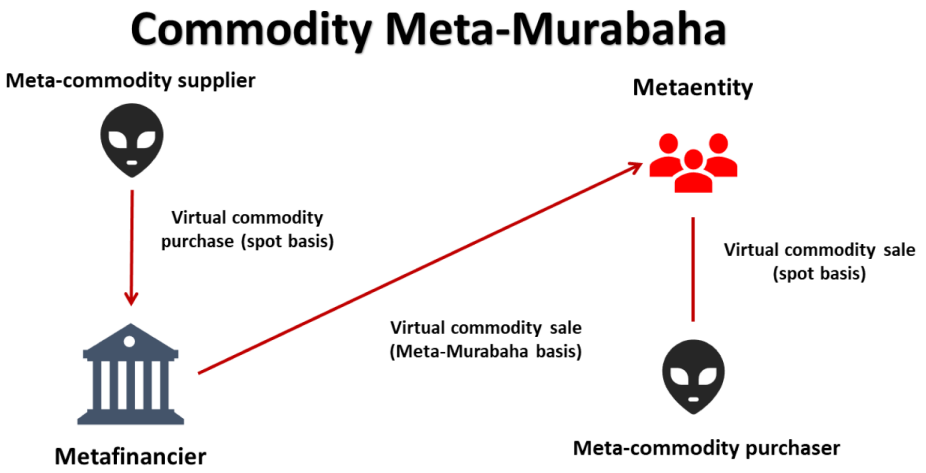


Another Islamic financing form in the metaverse is the commodity meta-Murabaha, as outlined in Figure 2. Virtual commodities may be in the form of various shapes, but non-fungible tokens (NFTs) have been amongst the most valuable commodities in the metaverse. Furthermore, land in metaverses is a significant commodity and has experienced considerable value increases. The commodity meta-Murabaha financing framework provides a Shariah-compliant financing option for commodities in the metaverse. In this instance, the metafinancier purchases the virtual commodity, such as NFT or virtual, which then forms the basis of the master meta-Murabaha agreement (MMAA). This provides long-term meta-financing without the necessity to acquire the virtual asset and the risks associated with it. The metaentity will serve an e-notice to the metafinancier in the agreement that the metafinancier will

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sell a virtual commodity to the metaentity. The metafinancier will purchase the commodity on the spot from a 3rd party within the metaverse. The virtual commodities are then immediately sold to the metaentity on the Murabaha contract, and the metaentity acquires the title of it. However, the crypto-consideration is deferred for a certain period of time. This may be in general three months but can be agreed on by the parties. The crypto-consideration is composed of the cost of the commodity in addition to the profit amount that is agreed in the e-agreement. The metaentity will immediately sell it to a 3rd party in the metaverse based on the market value. The resulting crypto-funds can be utilized by the metaentity for other purposes, such as the acquisition of an asset. At the end of the meta-Murabaha period, a new agreement is then set up where virtual commodities are purchased and sold on the spot. This recurring nature of the virtual commodity purchase brings some security to the metafinancier to engage in the meta-Murabaha agreement and provide consistent financing in the metaverse.

Figure 2. Commodity Meta-Murabaha process outline

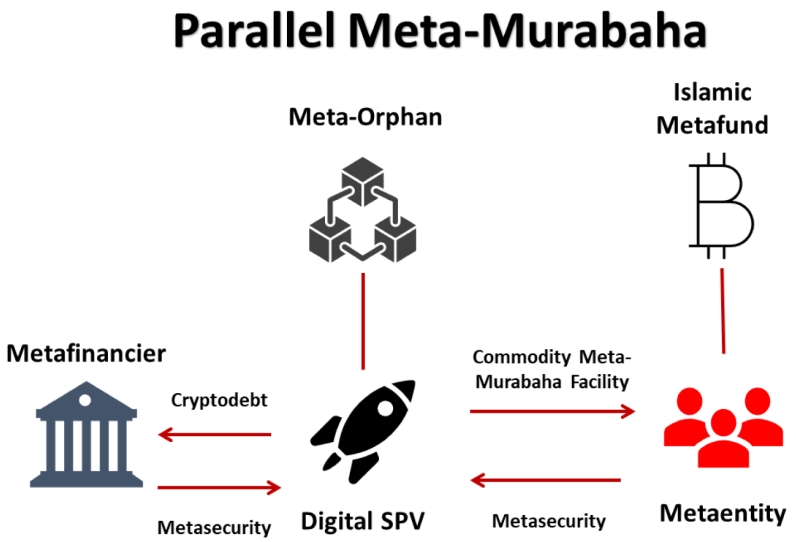


The parallel commodity meta-Murabaha structure is another financing format where a crypto interest-bearing facility agreement together with a special purpose vehicle (SPV) structure. The metaentity provides an e-notice to the SPV within the master meta-Murabaha agreement to sell the virtual

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commodity to the metaentity. The digital SPV takes out the loan within the facility agreement, and then the SPV purchases the commodities from a 3rd party. The SPV then sells the digital commodity on the basis of the meta-Murabaha agreement. The metaentity then sells the virtual commodity in order to perform another purchase with the received funds. In the end, the metaentity will then repay the cost in addition to a profit margin to the SPV that will cover the repayment of the crypto-loan.

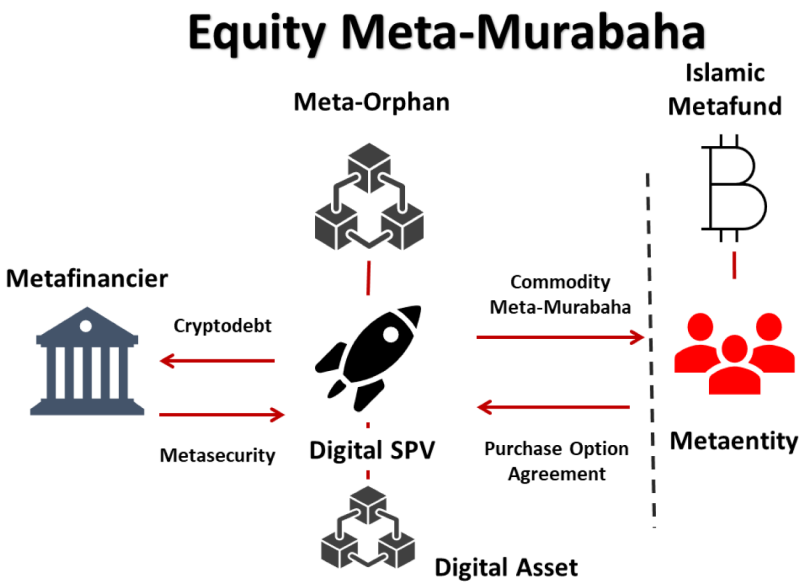
Figure 3. Parallel meta-Murabaha



Another financing format is the equity Meta-Murabaha in the metaverse (Figure 4). This form of meta-Murabaha overcomes the concerns with respect to the security of the asset. The equity Meta-Murabaha has two parallel structures that are adjacent to each other. One of the structures is based on a crypto-interest bearing facility, and the other is Shariah-compliant. The main difference to the parallel meta-Murabaha agreement is that the income is utilized to service the interest within the crypto-facility agreement.

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Figure 4. Equity Meta-Murabaha

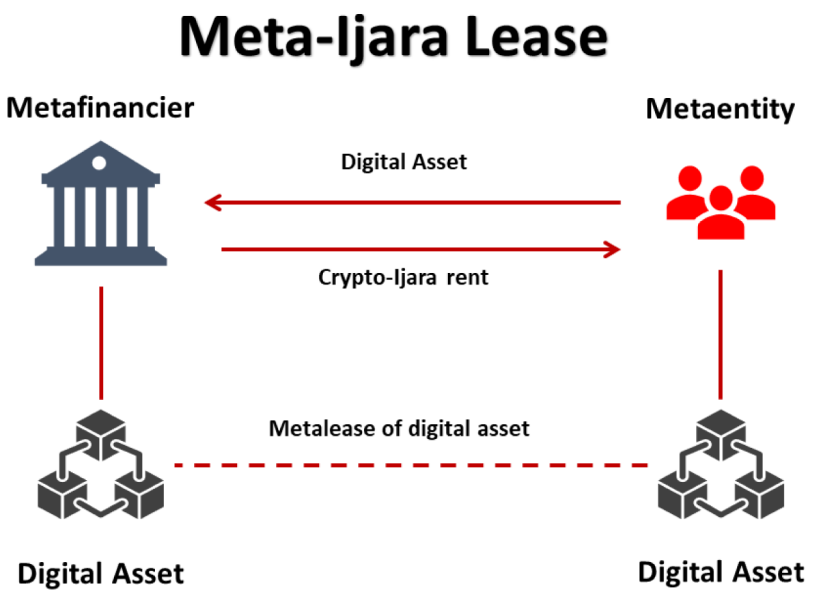


Meta-Ijara Financing

In order to provide lease options in the metaverse, the meta-Ijara lease agreement is one of the Islamic finance forms available to parties. The metafinancier and the metaentity engage in an agreement where the right to use an asset is granted for a specified time period. The rental crypto payments are predetermined, and this may work well for digital asset financing, as it allows, for example, to rent virtual land within the metaverse. Likewise, virtual dresses may be rented for special occasions for avatars in the metaverse. The lease process is initiated by the metaentity that specifies the asset it wants to acquire, and the metafinancier purchases the digital asset. The metaentity then enters into a meta-Ijara lease agreement with the metafinancier, where the metaentity leases the digital asset from the metafinancier. The periodic crypto-rental payments represent the cost of the asset in addition to a mark-up payment. Finally, the metaentity is responsible for the maintenance and insurance of the digital asset. Maintenance and insurance of the digital asset

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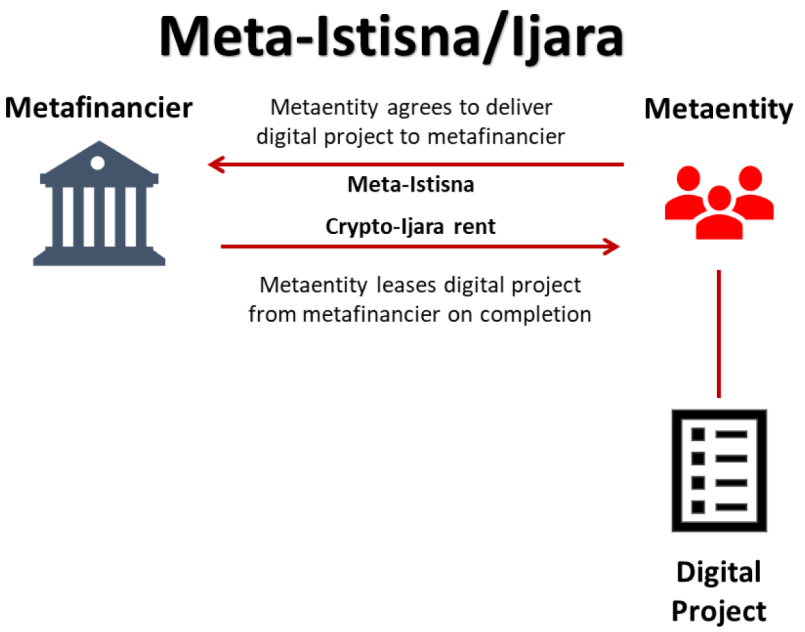
Figure 5. Meta-Ijara lease



Another form of contract is the Meta-Istisna - Ijara, which is a contract that specifies an item to be manufactured or constructed, and the contractor is required to deliver the item upon completion (Figure 6). While the metaverse and assets seem to be created within an instance, there are several projects that require longer time periods for construction. Specifically, when it comes to the creation of new environments or features within the metaverse, these projects require substantial resources and are constructed over longer time horizons. The Meta-Istisna – Ijara contract provides an Islamic principles compliant project financing framework within the metaverse. The metafinancier and the metaentity enter into a meta-istisna agreement where the metaentity will deliver a project to the metafinancier within a specified timeframe. The metafinancier makes scheduled crypto payments to the metaentity that may mirror conventional payment advances in projects. The metafinancier will then assume the title of the digital project upon completion, after which the meta-Ijara lease is then started, where the metaentity will lease back and operate the project from the metafinancier. Furthermore, the metaentity may purchase the digital project for the in the Meta-Istisna/Ijara agreement outlined crypto-amount.

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Figure 6. Meta-Istisna/Ijara process



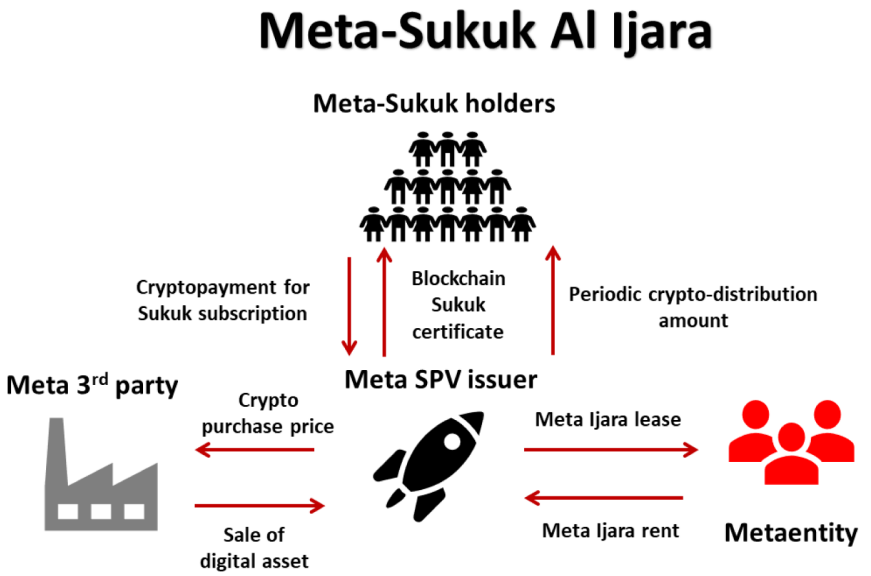
Meta-Sukuk

The metaverse Sukuk market is still in its nascent stage but will experience with the growth of the metaverse significant growth in the coming years. The first step in the Meta-Sukuk Al Ijara is the establishment of a meta SPV issuer that will issue the e-Sukuk in the metaverse. The Meta SPV issuer will issue an e-Sukuk in the form of trust certificates that either represent an undivided ownership interest in certain digital assets or a usufruct of assets. The e-Sukuk holders also obtain the right to the income that is generated by the meta SPV from the assets. The e-Sukuk holders then subscribe to the meta-Sukuk and pay the proceeds to the meta SPV issuer. The meta SPV issuer then declares its trust in the proceeds and the digital asset it has acquired for the e-Sukuk holder. The Meta SPV issuer then purchases the digital assets from the metaentity or a 3rd party with the proceeds of the Sukuk issuance. The meta SPV issuer then leases the digital assets to the metaentity under the meta-Ijara lease. The term of this meta-Ijara lease may be similar to the term of the Sukuk. The metaentity is required to pay periodic rental

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payments to the meta-SPV issuer that may be done at a fixed or variable rate. The meta-SPV issuer receives the periodic payments and will make periodic distribution payments to the e-Sukuk holders. There will be guarantees such that at maturity or in the case of a default, the meta SPV issuer will sell, and the metaentity will buy the digital asset at a prescribed price. The amount will be equal to what is owed by the metaentity to the meta SPV issuer. The funds are then distributed to the e-Sukuk holders. If there is maintenance and insurance required, the metaentity will engage in an agreement with the meta SPV issuer to service the digital asset.

Figure 7. Meta-Sukuk Al Ijara

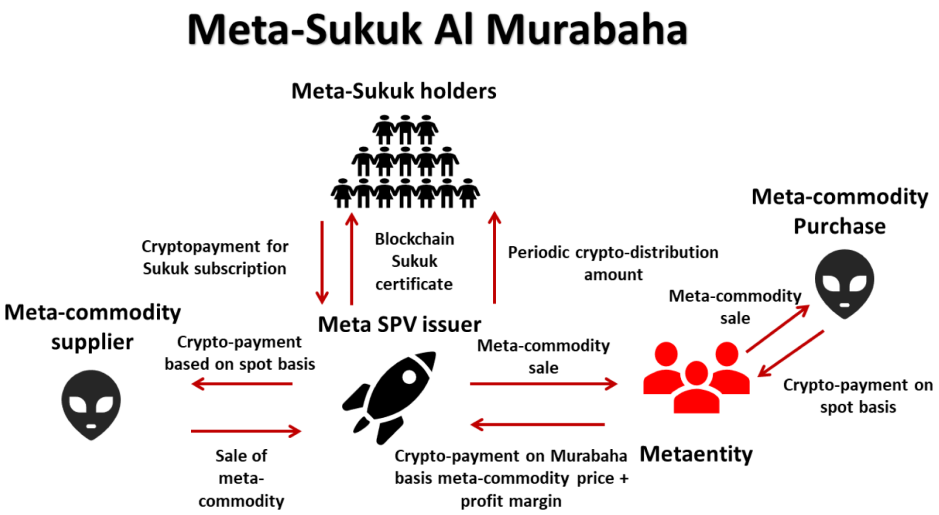


The final meta-sukuk option for the metaverse is the meta-sukuk al muarabaha (Figure 8). The metaentity will establish a meta SPV issuer in order to issue the Sukuk. The process regarding the Sukuk issuance and the retrieval of funds is similar to the meta-Sukuk al Ijara. The main difference is that the Meta SPV issuer purchases the meta-commodity on the spot basis, and the metaentity purchases the meta-commodity and makes a deferred crypto-payment. The meta-entity then immediately sells the meta-commodity and may utilize it for the purchase of other digital assets. After a specified

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period of time, the metaentity will then conduct a deferred crypto-payment, and a new Meta-Murabaha contract will be created. The metaentity will solely pay the meta SPV issuer the profit margin, which will be subsequently distributed to the e-Sukuk holders.

Figure 8. Meta-Sukuk Murabaha



CONCLUSION

The metaverse has become of paramount importance within the last several years, being a virtual universe where individuals and companies can interact. While the metaverses are still in their nascent stage, there has been increasing interest and capital inflow into these universes. For Shariah-compliant focused financial investors and participants, this represents a considerable challenge given the existing lack of Islamic financing frameworks for the metaverses. We have outlined new frameworks for providing Shariah-compliant financing in the metaverse, outlining the challenges and aspects that have to be taken into account for creating Shariah-compliant financing forms in the metaverse.

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