

Tokenized Real Estate in the United Arab Emirates

Crypto Economist, Blockchain Center Foundation

Abstract—This paper aims to educate readers and facilitate the institutional adoption of ethical tokenized real estate in the United Arab Emirates. Traditional real estate investments provide consistent returns and significant benefits to investors. However, real estate investments are very illiquid assets, with a tedious transaction process and a lack of transparency between buyers and sellers. Tokenized real estate could bring additional capital efficiency and liquidity into the market. Real estate tokens compliant with the UAE’s laws could provide a more robust real estate structure on the blockchain. We will explore critical elements of tokenized real estate in compliance with Islamic laws and finance, including real estate industry dynamics, advantages, challenges and development, and its use cases.

Keywords: *Real Estate, Tokenization, Blockchain, United Arab Emirates*

I. INTRODUCTION

Historically, real estate has been a safe investment. Regardless of what happens in the stock market, people will need a place to live, rent, and work. The global commercial real estate market value was approximately \$32.6 trillion in 2020 (Statista, 2021). Technological advancements have driven the tremendous expansion of the global real estate industry. Property buyers and sellers have access to a wealth of information on the internet. Despite the industry’s developments, real estate transactions are notoriously illiquid.

The current technology used for real estate is mainly focused on connecting buyers and sellers. It does not address the market’s liquidity, transparency, and timeliness issues. The real estate industry’s adoption of blockchain technology might be a viable answer to these problems. Real estate tokens, or tokenized real estate, could provide additional liquidity, transparency, and less friction in the market.

The United Arab Emirates (UAE) has been at the forefront of innovation with technological developments and cutting-edge real estate. Is-

lamic standards could intertwine with real estate and blockchain technology to further transform the market. Dubai and Abu Dhabi have already established themselves as centers for blockchain development.

In 2018, the United Arab Emirates government launched the Emirates Blockchain Strategy, an initiative for the institutional adoption of blockchain technology. The growing popularity of tokenization is one of the main reasons why jurisdictions are adopting crypto-asset legislation. The global economy is transitioning to an entirely decentralized distributed system. Institutions need to understand the tokenization process to create a strong framework that allows industries like real estate to develop further.

II. TOKEN STANDARDS

A. Overview

Token standards are blueprints for smart contracts that mint and manage token transactions. The most common standards on the Ethereum blockchain are ERC-20s (fungible tokens) and ERC-721s (non-fungible tokens). The ERC-20 standard that issues fungible-tokens are considered utility tokens. A platform’s utility tokens are issued and bought by users in exchange for a platform’s products or services.

A tokenized asset is an on-chain representation of an off-chain asset. These off-chain assets are represented on-chain by security tokens. Security tokens are different from utility tokens issued by a platform. The ERC-1400 standard, used for security tokens, has fungible and non-fungible attributes. This standard can limit the usage of a token based on the user’s identity, location, and asset class.

III. SECURITY TOKEN

Security tokens are tokens that represent legal ownership of an underlying asset, such as real es-

tate. A security token can simultaneously represent full ownership of an asset and be split up into fractional shares that represent partial ownership. Predominantly, when a platform distributes security tokens, they are issued by a Security Token Service (STS) to ensure tokenized assets adhere to federal securities regulations.

Security tokens can authenticate a users identity online and still protect confidential information. For that reason, a real estate platform would need to require user identification from each investor. The STS could limit the usage of a security token based on the user's identity, location, and asset class. The security token market is a new phenomenon extending the number of investment opportunities available to investors. As shown in Table 1, the market cap for security tokens has increased by 644.808% from May 2020 to June 2020.

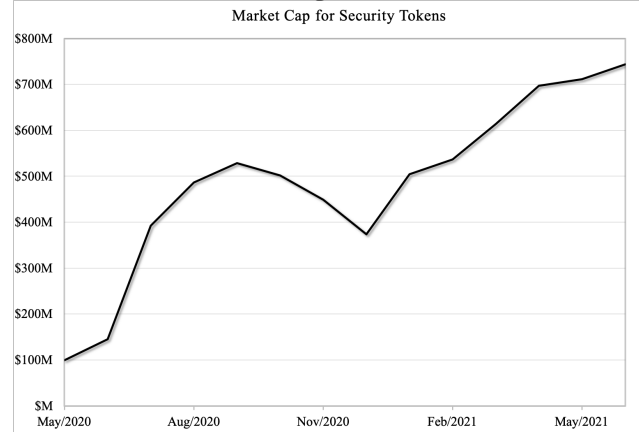
A. Security Token Offerings

A security token offering (STO) allows companies to raise funds under one of the SEC's registration exemptions while adhering to U.S. securities rules and regulations (Dilendorf Law Firm, 2021). Security token offerings have become prominent among governments and institutions. The security tokens represent ownership of physical assets and therefore need to operate within a regulatory framework.

In the United Arab Emirates, the Securities and Commodities Authority (SCA) regulates security tokens and other certain crypto-assets. The degree of due diligence required for an STO varies depending on the jurisdiction. In the first quarter of 2019, \$67 million was invested through 47 STOs in the UAE (Jibrel, 2019).

Initial Coin Offerings (ICOs) are similar to STOs because they rely on blockchain technology and smart contracts to distribute tokens. ICOs lower the barriers to entry, allowing investors to invest in cryptocurrency or fiat in exchange for the company's token. These tokens are used as utility tokens. STOs, on the other hand, are considered a type of investment because their value is derived from ownership of the underlying asset.

Fig. 1.



IV. TOKENIZED REAL ESTATE

When a real estate property is tokenized, a security token is used to represent it. Real estate tokens are security tokens, as the token itself represents full or partial ownership of the underlying property. A security token issuer can mint (create), burn (destroy), force trades (move), and issue (distribute) tokens - even in secondary markets (CodeFi, 2021). Real estate platforms based in the United Arab Emirates could use security tokens to create more transparent, easily transferable, and divisible real estate funds that are Sharia-compliant.

Assume a company wanted to issue a real estate token worth \$10 million for a commercial real estate building. The company could tokenize the building, issue a security token, break the token up into one million real estate (security) tokens, and sell each token at \$10 on the secondary market. Fractionalization allows proprietors to sell their security tokens at a lower cost to a broader range of potential buyers, increasing liquidity in the real estate market.

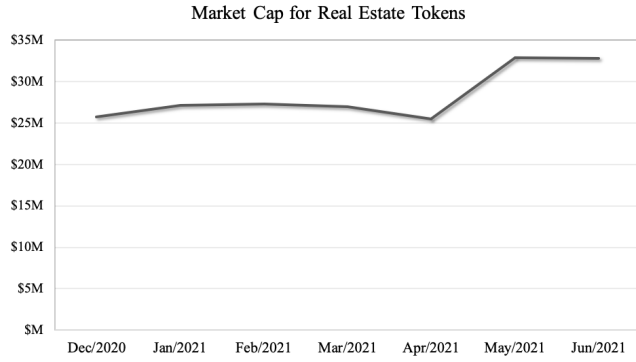
In June 2021, the total market cap of tokenized real estate was equal to \$32,783,381.27 (STM, 2021). Table 2 shows the market cap for tokenized real estate over the past seven months. We predict that tokenized real estate platforms will continue to impact the global real estate market heavily.

V. ADVANTAGES OF TOKENIZED REAL ESTATE

A. Transparency

Each block embedded into the blockchain can store information such as the legal rights to a

Fig. 2.



property - which is typically kept offline in traditional real estate. The information is not stored with a central entity. Instead, it is spread across each block on the network where anyone in the world can view transactions. This decentralized ledger enhances transparency considering anyone can verify the rights to a property.

B. Timeliness

Tokenized real estate may speed up transactions and save money. A smart contract and digital signatures could replace most legal paperwork in real estate transactions. A smart contract, for example, would save encrypted data from the papers and execute the transfer of rights automatically (or forcefully). The private and public keys used to sign and verify signatures would also save time by eliminating the need for extra documentation and signatures. The decentralized nature of blockchain allows property owners and investors to connect without a ton of intermediaries. Unlike the underlying property, transferring assets does not necessarily require adjustments to the land registry, making real estate tokens quicker and more adaptable to transfer.

C. Immutability

The blockchain ledger is immutable, indicating that malicious attackers cannot alter the previous on-chain data or information. Its' immutable nature protects the security of documents and transactions while decreasing expenses and speeding up decision-making. Therefore, individuals can use the blockchain network to ensure that the real estate they purchase or invest in is fraud-free.

D. Liquidity

Tokenization has the potential to democratize the industry while bringing capital efficiency and liquidity into the market. A real estate token representing a tokenized property could be split into multiple fungible security tokens, lowering capital requirements and bringing democratization to smaller investors. These smaller investors will be able to invest in high-value properties themselves. The minimum investment amount will be reduced, lowering the barriers to entry and transforming an industry that lacks liquidity.

E. Ownership Verification

Anyone with the property owner's public key can authenticate property rights on the blockchain. But verifying that a wallet holds the tokenized deed to a property is not sufficient to verify that the person that you are looking to do business with owns the property. You need to verify that your potential business partner owns wallet itself. To do this, you simply ask the user to send a transaction with the wallet in question that includes a random 256 bit number. The only way they can do this is if they control the wallet so writing a randomly generated 256 bit number onto the chain acts as a zero knowledge proof that they person you are looking to do business with actually owns the property in question.

Suppose a potential buyer wanted to verify someone owned the rights to the property. The buyer could give the owner a unique integer, a 256-bit integer, to the owner. The owner could then display that 256-bit integer onto the blockchain. This would prove to the potential buyer that the owner actually owns the right to the property. This is known as Zero-knowledge proof.

Since the network runs 24 hours a day, seven days a week, it could include a plethora of participants from all around the globe. Platforms could ensure that their standards are akin to other jurisdictions to establish a regulatory framework around tokenized real estate and better international relations with customers.

VI. FUNDING

A. i-REIT

Islamic real estate investment trusts (i-REITs) pool together funds to purchase, manage, and sell

income-producing real estate properties that adhere to Sharia law. Investors invest in these trusts to earn higher returns and as a hedge against inflation. However, these funds lack transparency and cannot guarantee permissible trades. There are also higher barriers to owning a share of an investment trust. Tokenized i-REITs have the ability to make the market capital efficient while bringing in additional liquidity. A tokenized fund could be broken up into smaller tokens than traditional trusts. The fungible tokens bought by retail investors could be traded on a secondary exchange.

Case Study: Aqarchain

Aqarchain, located in Dubai, is a blockchain-based real estate crowdfunding platform that is Sharia-compliant. The company aims to bring greater liquidity and democratization to the market with fractionalized real estate tokens. The property owner could ultimately decide how many shares they would like to issue, allowing for flexibility. A security token represents a tokenized property on Aqarchain. This security token is labeled as the name of the property itself. The property owner would decide the supply of tokens. The security token would then be split into multiple fungible utility tokens. Each of these fungible tokens would represent each square centimeter of the property.

Case Study: RealT

RealT is a crowdfunding platform that manages real estate properties, rights, and dividends using blockchain technology. Real Token Inc. offers fractional ownership of tokenized real estate on the Ethereum blockchain. Real Token LLC is an umbrella company registered in Delaware and thereby serves as a legal entity that creates a Series LLC for each individual tokenized building. Investors can purchase security tokens representing fractional ownership or rights in the LLC that owns the deed to the property. The company hires a property manager to upkeep the property and manage all landlord responsibilities. Investors and property managers are paid a portion of the rent that is collected from the tenant. These payments are weekly in the form of a stable coin.

B. Mudharabah

Private equity real estate firms pool together capital from investors to purchase and develop properties before selling them. The money of the Islamic PE fund firm must be invested in a Shariah-compliant structure. An Islamic PE or VC company's fund activities are based on actual assets, such as real estate and not gharar. Qualified investors are sophisticated high net-worth individuals, banks, companies, pension funds, and government institutions.

Investments in private equity real estate are highly illiquid, considering it is limited to high-profile investors and the funds are locked up for a significant amount of time. PE and VC companies also encounter friction in transactions such as record-keeping, long settlement periods, issuance, and numerous signatures.

If a PE firm were to tokenize a property's funds, they could ultimately optimize their procedures. PE firms can use a blockchain-based platform to manage their investors and responsibilities and automate tasks. Tokenized funds might present additional resources from an international pool of larger investors. Subsequently, making international relations more manageable.

Case Study: ASA Capital

ASA Capital, a venture capital firm located in Dubai, aims to tokenize real estate holdings in the United Arab Emirates and Portugal. The company issues Sukuk tokens that adhere to Islamic standards. One security token is used for asset management and two utility tokens are used for property management (Keszthelyi, 2019)

Case Study: Mata Capital

Mata Capital, a French private equity real estate company, utilizes blockchain technology to optimize the distribution of funds and modernize its procedures. According to CodeFi, Mata Capital's long-term goal is to reduce the minimum investment required from 100,000 to €1. In 2019, they partnered with ConsenSys CodeFi to create security tokens for three distinct projects totaling €350 million (2020). Codefi used the ERC1400 standard to issue these security tokens. Mata Capital aims

to lower the minimum upfront cost to attract a broader range of shareholders.

VII. WESTERN CRYPTO-LAWS

A. Overview

Security tokens cannot be issued or traded in the United States without registering with the Securities and Exchange Commission (SEC) unless they qualify for an exception (Dilendorf Law Firm, 2021). Failure to report tokens to the SEC may result in penalties. More decentralized firms are expected to need some form of identity to issue security tokens, which might involve KYC¹

The regulations for virtual tokens may be influenced by the type of investment and the legal organization that owns the property. Certain jurisdictions are implementing laws to legally recognize security tokens and eliminate restrictions on blockchain technology (Deloitte, 2020). Tokenization has the best chance of gaining traction quickly in the world of real estate when the legal framework is already in place. Therefore, we need developers and regulators on the same page to minimize money laundering and enhance market efficiency.

B. Wyoming State Laws

Wyoming recently passed a bill that grants decentralized autonomous organizations (DAOs) the opportunity to register as a limited liability company (LLC) in the state. This legislation predominantly establishes developers' protection by limiting charges against them and protecting their rights as legal entities in court. This law also allows cryptocurrency firms to apply for a special purpose depository institution (SPDI) license in Wyoming, thereby creating a new type of banking institution. These new cryptocurrency banks are legally required to keep a hundred percent reserves of deposited fiat currency (Krakenfx, 2021). Wyoming's new laws may attract new businesses looking to be involved in the decentralized industry.

¹Know Your Customer (KYC) processes are in place to identify and confirm that a customer is whom they claim to be. KYC allows for financial services firms to assign customers a risk value based on their susceptibility to commit a financial crime.

VIII. CONCLUSION

The United Arab Emirates real estate market would benefit from tokenization. From the tallest skyscraper in Dubai to its state of the art homes in Abu Dhabi. The real estate and financial industries will have the most potential when it comes to tokenization. Real estate tokens would increase liquidity, transparency, and reduce friction in the market. The global adoption of blockchain technology will not thrive unless there is a desirability for it, accessibility to the technology, and regulatory framework around it. While most governments have taken a passive approach on regulations, the UAE has taken a clear approach to legislation on crypto-assets. This dedicated approach is an innovative step to global blockchain development. The United Arab Emirates' regulatory framework and financial standards could create a robust blockchain infrastructure, potentially drawing interest from those beyond the Islamic community.

REFERENCES

- [1] Aqar chain. Aqar Chain. (n.d.). <https://aqarchain.io/>.
- [2] Baum, A. (2020). Tokenization: The Future of Real Estate Investment? Oxford; University of Oxford Research.
- [3] Berson, D. (2021). Money Transmitter Licensing Law. *Blockchain Law Guide*. <https://blockchainlawguide.com/mtl/>.
- [4] Consensys CodeFi . (2020). Mata Capital Case Study: Real Estate Investments with Blockchain Technology. <https://consensys.net/codefi/assets/mata-capital>
- [5] Deloitte. (2020). *Security token offerings: The next phase of financial market evolution?* <https://www2.deloitte.com/cn/en/pages/audit/articles/security-token-offerings-the-next-phase-of-financial-market-evolution.html>.
- [6] Dilendorf, M., Zahn, B., Tabba, K. (2021, May 31). *Security Token Offerings (STOs) for NFTs?* Dilendorf Law Firm. <https://dilendorf.com/resources/security-token-offerings-for-nfts.html>.
- [7] Jibrel. (2019, August 29). *Tokenization in the Middle East*. Medium. <https://medium.com/jibrel-network/tokenization-in-the-middle-east-7a8089c45e3f>.
- [8] Keszthelyi, C. (2019, May 24). ASA and Ibc to launch Gallery STO. The Malta Business Weekly. <https://maltabusinessweekly.com/asa-ibc-launch-gallery-sto/3083/>.
- [9] Krakenfx. (2021). Kraken Wins Bank Charter Approval. *Kraken Blog*. <https://blog.kraken.com/post/6241/kraken-wyoming-first-digital-asset-bank/>.
- [10] Security Token Group (STG). (2021, July 12). *Security Token Market Real Estate Report: June 2021*. Medium. <https://blog.stomarket.com/security-token-market-real-estate-report-june-2021-acd826e30e05>.

- [11] Security Token Group (STG). (2021, June 1). *Security Token Market Report: June 2021*. Medium.
<https://blog.stomarket.com/security-token-market-report-june-2021-1aa2b997af5c>.
- [12] Statista. (2021, June 9). *Global commercial real estate market by region 2020*. Statista.
<https://www.statista.com/statistics/1189630/commercial-real-estate-market-size-global/>.