REAL ESTATE TOKENIZATION

AN INDUSTRY REPORT 2022

By DigiShares

INTRODUCTION

Real estate tokenization is an emerging trend consisting of representing the ownership or rights to a single property or a portfolio of properties on a distributed ledger. It provides a solution to a long list of challenges present at the core of conventional real estate financing, which is why it unsurprisingly has gained a lot of attention in recent years. Tokenization, among other things, allows for the automation of middlemen processes, increased liquidity, lowered barriers to investment, and improved transparency. Owing to these attributes, tokenization has been hailed as the beacon of future real estate markets.

While large-scale deployment and adoption of real estate tokenization have yet to materialize, the consistently growing tendency to tokenize properties and property portfolios bears witness to the disruptive potential of this embryonic technology. With the prospect of explosive growth in the number of tokenized real estate assets in the coming decade, DigiShares has positioned itself at the forefront of a digital revolution and accordingly intends to capture a large share of this incipient market. But exactly how big is the real estate market? And more importantly, how big is the addressable market for service providers like DigiShares?

In an attempt to map the addressable market for the tokenization of real estate, this report will present an analysis of the fast-growing security token market and subsequently an analysis of the global real estate market including market analyses of each of the following regions:

- ***United States***
- ***Europe***
- ***Nordics***
- ***Japan***

The markets will be analyzed based on the following metrics:

- ***Market Size***
- ***Capital Raised***
- ***Number of Real Estate Investment Entities***

These metrics will provide the focal point around which a market analysis will revolve and unfold. But before venturing into the quest of analyzing global real estate markets, the report will present an overview of the tokenization market, the legal frameworks surrounding it, and demonstrate how distributed ledger technology (DLT) provides a way for the real estate industry to surmount common-place obstacles in real estate financing and investment.

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THE NEED FOR INNOVATIVE INTERVENTION

While the world at large has gone digital, financial markets rely on analog and archaic methods for issuing, managing, and trading assets. This is especially pronounced in the real estate market that employs highly manual and time-consuming methods for administrating and trading assets. The upshot being that real estate investments are notoriously illiquid and inaccessible. While this undeniably constitutes a massive hurdle for real estate developers and investors alike, DigiShares recognizes the manually intensive infrastructure as a call for innovative intervention. By digitally representing the ownership of real estate on a distributed ledger (tokenization), middlemen processes can be automated, liquidity can be increased, capital requirements can be lowered, and transparency can be improved. This in turn lowers the expenses of real estate issuers and broadens the scope of potential investors. As such, real estate is an industry ripe for tokenization.

To get a better understanding of the insistent need for tokenizing real estate assets, let us consider the manifold issues of current systems for real estate investment and concurrently examine how tokenization allows for a more cost-efficient and accessible real estate market.

AUTOMATION OF MIDDLEMEN PROCESSES

Today, highly inefficient transfer and record-keeping processes plague real estate investment markets. Lack of efficient administrative infrastructure gives rise to a manual and highly cumbersome asset, stakeholder, and compliance management, which in turn produces sizable expenditures. Estimates suggest that administrative work (stakeholder management, property data, trade capture, settlement, collateral management, and other back-office processes) represents 50-75% of an issuer's total operating costs[1]. By automating administrative processes, tokenization eliminates friction and allows issuers to greatly reduce their operating expenditures. Moody's Investor Service projects that tokenization could save $1.7 billion annually in expenses in the U.S. alone[2]. Meanwhile, Roland Berger finds that tokenization of equity could lead to gains of EUR 4.6 billion by 2030 in post-trading processes[3].

INCREASED LIQUIDITY

Another problem integral to current real estate markets is the lack of liquidity. Real estate assets are notoriously illiquid with only 1% of the world's real estate assets being traded on national stock exchanges[4]. The illiquid quality of real estate assets can partly be ascribed to a lack of public markets and partly to the difficulty of transacting[5]. Let us consider each of these problems in turn.

LACK OF PUBLIC MARKETS

Getting listed on public exchanges can be time-consuming and expensive. It can take more than 2 years of planning for real estate investment trusts (REITs) to get listed on public exchanges while costing 3% to 10% of the market value of the trust's assets, which easily amounts to several million dollars[6]. Resulting from the labor-intensive and costly listing processes, a lot of real estate investment firms, funds, and trusts omit the public market thereby occasioning a great majority of real estate deals to be carried out in private markets.

DIFFICULTY OF TRANSACTING

Privately settled real estate deals require the involvement of several parties and demand a lot of manually handled paperwork. Consequently, real estate transactions are usually expensive and cumbersome. KPMG states that real estate transactions can take anywhere from 6 months to 2 years, and that transaction fees usually range from 1% to 3% of the asset value[7].

Tokenization of real estate assets provides a solution to the liquidity issues afflicting real estate markets by providing cost-effective secondary markets for matching buyers with sellers and settling real estate deals. Digital asset exchanges could facilitate near-instant transaction times while offering greatly reduced trading and listing fees. Additionally, digital asset exchanges are open 24/7 whereas most conventional exchanges are open 5 days a week during a limited time span. Owing to these qualities, blockchain-based exchanges for digital assets could greatly improve the liquidity of real estate assets.

Moreover, tokenization enables the fractionalization of securities. A security token can be divided into subparts that permits the buying or selling of a fraction of a security, which in turn could broaden the scope of potential buyers by reducing capital requirements for investment. As a result, liquidity is expected to increase.

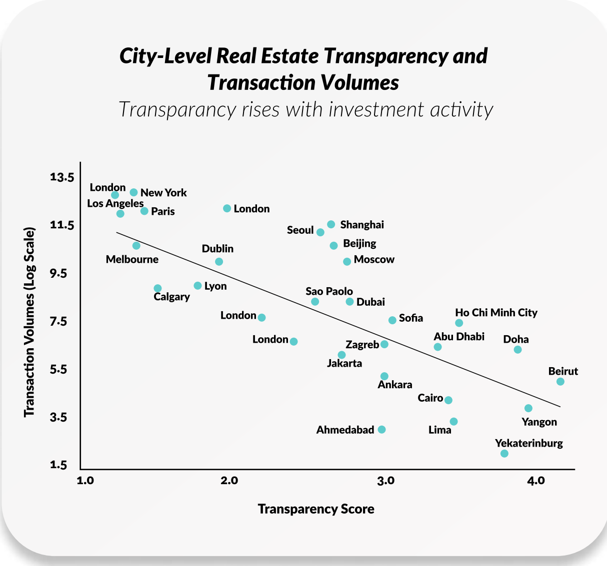
LOWERED BARRIER TO INVESTMENT

Today, non-accredited investors are largely prohibited from trading and investing in real estate. Just consider the fact that approximately 93% of all U.S.-registered commercial real estate is exclusively accessible to accredited investors[8]. Due to excessive capital requirements, the great majority of people in the U.S. (and the rest of the world) are thus excluded from investing in real estate. Meanwhile, the growing popularity of crowdfunding platforms indicates that retail investors are eager to access the real estate market. As of 2021, the global real estate crowd-funding market was valued at US$ 151,9 billion and is expected to grow at a compound annual growth rate of 21,6% reaching an all-time high of US$ 1351,1 billion in 2030[9].

In 2020, there were 13,665,475 accredited investor households in the U.S., which equals 10.6% of all American households[10]. Given the high concentration of financially well-off households in the U.S. relative to the rest of the world, it is safe to assume that a much smaller percentage of the total world population has access to real estate investment markets. Tokenization could lower the barrier to investment and thus open the market to non-accredited investors. As previously mentioned, the tokenization of real estate assets could significantly reduce transaction and administration costs while enabling the fractionalization of real estate securities. Owing to these improvements, tokenization has the potential to lower capital requirements for real estate investments, which in turn could democratize real estate investment and result in new capital entering the space.

IMPROVED TRANSPARENCY

Real estate information is often stored on dispersed and siloed systems prompting a critical lack of transparency[11]. This fosters a milieu fit for inaccuracies and fraud; hence, real estate investors tend to gravitate towards transparent markets[12]. In fact, 70% of all direct real estate investment is assigned to highly transparent cities[13]. Introducing distributed ledger technology in real estate markets could help ameliorate data transparency and increase the inflow of direct investments.



Transparency Index 2018

A NOTICEABLE NEED FOR INFRASTRUCTURE ENHANCEMENTS

Having briefly outlined core issues of real estate investment and showcased the potential for tokenization to greatly optimize said market, one can easily understand the growing popularity of tokenizing real estate assets. There is, in other words, a noticeable need to enhance the infrastructures of real estate investment markets. This is further reflected in a recent study by Citi, which found that 88% of surveyed financial institutions are actively engaged in or exploring use cases for digital assets and blockchain[14]. The participants are implementing blockchain technology with the aim of improving existing infrastructure and with an emphasis on enhancing post trade settlement efficiencies. The study also found that 92% of market participants view tokenization as a means to improve liquidity and increase the range of tradeable assets.

TOKENIZATION AND RETAIL INVESTING

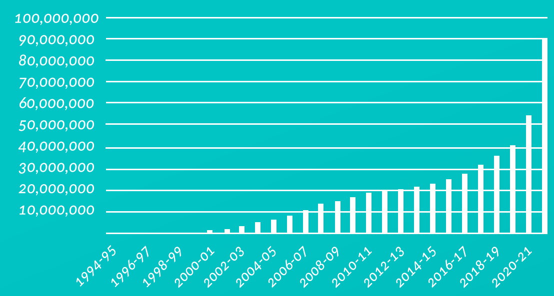
The first modern stock trading was introduced in 1611 in Amsterdam when the Dutch East India Company became the first-ever publicly traded company. Over the next 400 years, stock markets spread and evolved globally and became increasingly sophisticated. With the introduction of the National Association of Securities Dealers Automated Quotations (NASDAQ) in 1971 global stock markets were catapulted into the modern era as public stocks suddenly could be traded digitally on a network of computers. But it wasn't until the launch of internet-based investment platforms such as Saxobank and later Robinhood that stock markets became widely accessible and the floodgates for retail investors were opened. From then on, the continued proliferation and adoption of retail investment platforms have enabled middle- and low-income households to take part in global stock markets and park their hard-earned money in income-generating assets. Attesting to the widespread success of these retail-oriented equity exchange venues, Credit Suisse estimates that retail investors today account for one-third of the US stock market trading[15].

The increasing presence and participation of retail investors in global stock markets have contributed to an increase in aggregate stock market liquidity[16]. This, in theory, should have a positive impact on price appreciation, as liquid assets tend to trade at a higher price than their illiquid counterparts. This is commonly referred to as a liquidity premium. Additionally, the inclusion of retail investors and the accompanying influx of 'new' money has resulted in an upward pressure on stock prices. The inclusion of retail investors has accordingly had an overall positive impact on both aggregate stock market liquidity and prices.

IF THEY CAN, THEY WILL

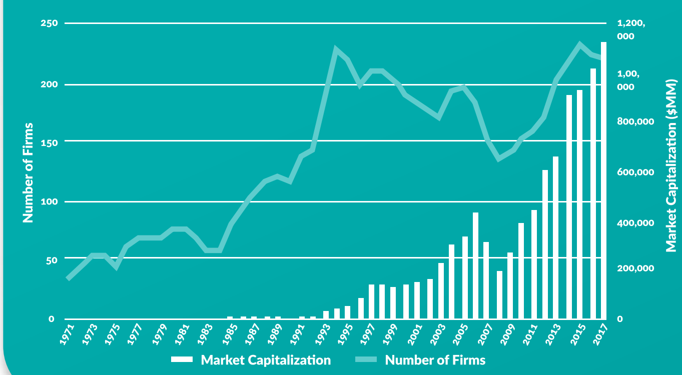
The introduction and widespread adoption of retail-oriented investment platforms testify to the fact that retail investors are eager to channel their savings into the fast-growing global stock market. Indeed, history shows that if retail investors can invest in stocks, they will. Just consider the Indian stock market, which up until recently excluded retail money, but which upon regulatory liberation saw a dramatic increase in the number of retail investors.

Numer of Indian Stock Trading Accounts (1994-2020)



While retail investors are eager to invest their savings into stocks, they may refrain from doing so due to regulatory, technological, or cost barriers. This is especially pronounced in the world of real estate. While not being legally prohibited, the lack of modern technology - and resulting high costs - prevents retail investors from accessing real estate investment opportunities. Meanwhile, the success of REITs, where investors can invest in a trust to earn a share of the income produced by real estate ownership, attests to the ever-growing demand for retail investors to access real estate markets. With the introduction of blockchain technology and tokenization, the costs of establishing easily tradeable REITs have been significantly reduced, thereby allowing small entities to enter the space by establishing their own investment trusts.

Growth of U.S REIT Market (1971-2017)



THE POPULARITY OF CROWDFUNDING PLATFORMS

Crowdfunding platforms are another example of the perpetual desire for retail investors to invest in properties. Through the syndication of investments, real estate crowdfunding lowers the barrier to investment. That, in turn, allows for a more democratic market where everyone - not just accredited and institutional investors - can freely participate in real estate investments. Owing to its democratic nature, real estate crowdfunding partly resembles tokenized real estate assets. Despite the crowdfunding market being in its infancy, 60,000 investors participated in real estate crowdfunding in 2020[17]. This serves as a testimony to the noticeable demand for a more open and accessible property investment market.

In tandem with STOs, the popularity of real estate crowdfunding is expected to skyrocket in the next decade. In 2021, the global real estate crowdfunding market was valued at $10.78 bn USD and is expected to grow at a compound annual growth rate of 45.6% with a revenue forecast of $250.62 million by 2030[18].

OVERCOMING THE BARRIERS

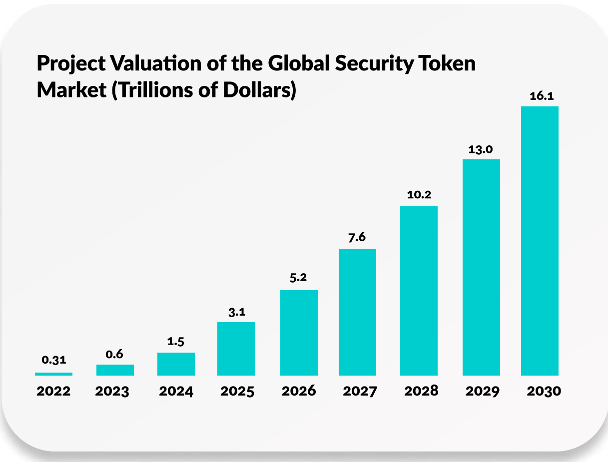
With the technological (r)evolution of blockchain networks, real estate investment markets can now take a quantum leap into the future of finance. By tokenizing real estate assets on the blockchain, middleman processes can be automated, liquidity can be increased, portfolios can be diversified, and ticket sizes can be significantly reduced. Put differently, the barriers excluding retail investors from the property investment market can be fully overcome with the introduction of blockchain technology and tokenization.

In a similar way that retail-oriented investment platforms accelerated the widespread access to global stock markets, we should expect to see a similar trend in real estate retail investments enabled by tokenization. Reiterating the aphorism outlined above: if retail investors can invest, they will. And tokenization of real estate assets indeed allows retail investors to direct their money into a historically safe and high-yielding asset class, namely real estate. In line with the words of Claus Skaaning, CEO of DigiShares, we should therefore expect to see a massive inflow of real estate retail investments "once people are aware of it, there are sufficient assets available, and trading is simple."

THE STO MARKET IS UNDERSERVED

Owing to the highly requested qualities of blockchain technology, the market for security tokens is growing at a rapid pace. Just consider the fact that a measly 5 STOs were launched in 2017, while 64 STOs were successfully funded just two years later in 2019[19]. Today the total value of tokenized assets amounts to $0,31 trillion, but the boom in STOs is projected to continue and could reach a total valuation of $16 trillion by 2030[20] with a compound annual growth rate of 63.8%. Asset-backed security tokens (ABST), such as tokens representing the ownership of pooled real estate assets, are expected to be the growth driver of the emerging STO market[21].

Despite the attractiveness of the STO market, the number of companies within the STO ecosystem is not overwhelming. There is, in other words, a great discrepancy between the projected size of future STO markets and the current number of companies seeking to satisfy the demand for security token-related services. In 2019, there were a total of 90 companies in North America offering services related to security tokens, while Europe only contained 75[22]. Forty-two of these were situated in Germany, Switzerland, and Malta[23]. The same year, there was an aggregate of 40 issuance providers, with only 16 of them focusing on real estate assets[24]. The number of secondary market platforms was slightly bigger with a total of 53 – only 7 of them being fully operational and 46 in development[25].



Source: BCG & ADDX, Relevance of on-chain asset tokenization in 'crypto winter'(2022)

REAL ESTATE TOKENIZATION IN THE REAL WORLD

State Street, an American financial services company, contends that "financial markets will have to digitize their processes and tokenize their assets to remain relevant"[26]. And indeed, financial markets are slowly adapting to the emerging landscape of blockchain. Consider, for example, the fact that a growing number of large-scale institutions have ventured into tokenizing real estate. Mizuho Trust, the third biggest banking group in Japan, has announced its plans to tokenize real estate assets before the end of the year 2022[27]. In doing so, the company enters the slipstream of MUFG and Mitsui Trust, the two biggest banking groups in Japan, which both started tokenizing property assets last year.

On the other side of the Pacific, we see a similar tendency. Coldwell Banker, a global real estate franchise headquartered in New Jersey, has announced it plans to tokenize luxury residential and commercial properties this year[28]. Meanwhile, BTG Pactual, the leading investment bank and real estate manager in Latin America, has already issued ReitBZ, a security token backed by Brazilian real estate[29].

The trend is strong and spans multiple continents. In Europe, Abrdn, a UK-based asset manager, recently announced that it plans to tokenize a broad palette of real-world assets, including properties, in close collaboration with Citigroup[30]. And Vonovia, one of the biggest real estate companies in the world, entered the security token space last year when issuing bonds on the blockchain worth €20 million EUR[31].

EMPIRICAL DATA

It's safe to say that a digital revolution is slowly unfolding, but despite the growing popularity of tokenization, the market is still in its infancy. As of today, only $20 billion USD of real estate has been digitally represented on the blockchain, out of which $194 million USD is traded on secondary markets[32]. To put this number into perspective, Moore, a global accounting and advisory firm, estimates that $1.4 trillion USD of property assets will be digitally represented on the blockchain by 2026[33].

Given the embryonic state of the market, the quantitative benefits of real estate tokenization have yet to be adequately documented. However, there currently exists a small sample of case studies. One such case study was conducted by Laurens Swinkel, Associate Professor at Erasmus University Rotterdam. Using a sample of 58 residential properties in the United States tokenized through the RealT platform, it was shown that tokenization - consistent with its proclaimed attributes - is able to increase liquidity, fragmentation, and diversification.

The study found that ownership of tokenized properties on average changes hands once per year, while properties listed on decentralized exchanges are traded significantly more. With 2,173 unique investors, the study also found that 59 investors had invested in 40 or more properties, thereby demonstrating the ability to greatly diversify one's portfolio by investing in tokenized real estate.

Using empirical data, real estate tokenization has thus proven to increase liquidity and diversification. Analyzing the price history, it has further been shown that tokenized residential real estate yields comparable price returns to that of REITs sitting at approximately 7% annually[34].

Despite the nascent state of the market, preliminary data accordingly has demonstrated the beneficial attributes of real estate tokenization. And naturally, these proclaimed benefits are expected to further materialize as both infrastructure and regulations mature.

INFRASTRUCTURE PROVIDERS

Parallel to the growing popularity of tokenized real estate, a rising number of primary and secondary markets for security tokens are cropping up at a rapid pace. According to research conducted by FIBREE, more than 476 blockchain-based products with a focus on real estate exist as of 2022, out of which almost 50% are focused on real estate investing[36]. The accelerating expansion of the STO industry makes it difficult for both industry experts and laymen to keep track of key players, so to help you navigate in the ever-growing sea of STO-oriented enterprises, we have identified and compiled a list of central entities in the sector and classified them according to their services.

WHITE-LABEL SOLUTIONS FOR PRIMARY MARKETS

DigiShares provides a white-label platform for the issuance, management, and trading of security tokens. Being the market leader in real estate tokenization and with a highly adaptable back- and frontend, DigiShares distinguishes itself from key competitors, which, to mention but a few, include:

- ***Securitize*** *– a white-label platform for the tokenization of securities issued by funds, companies and other entities.*
- ***Tokeny*** *– A turnkey white-label solution for tokenized assets with a focus on financial actors and companies.*
- ***STObox*** *– a white-label solution for the issuance, management and trading of tokenized shares.*

CENTRALIZED EXCHANGES

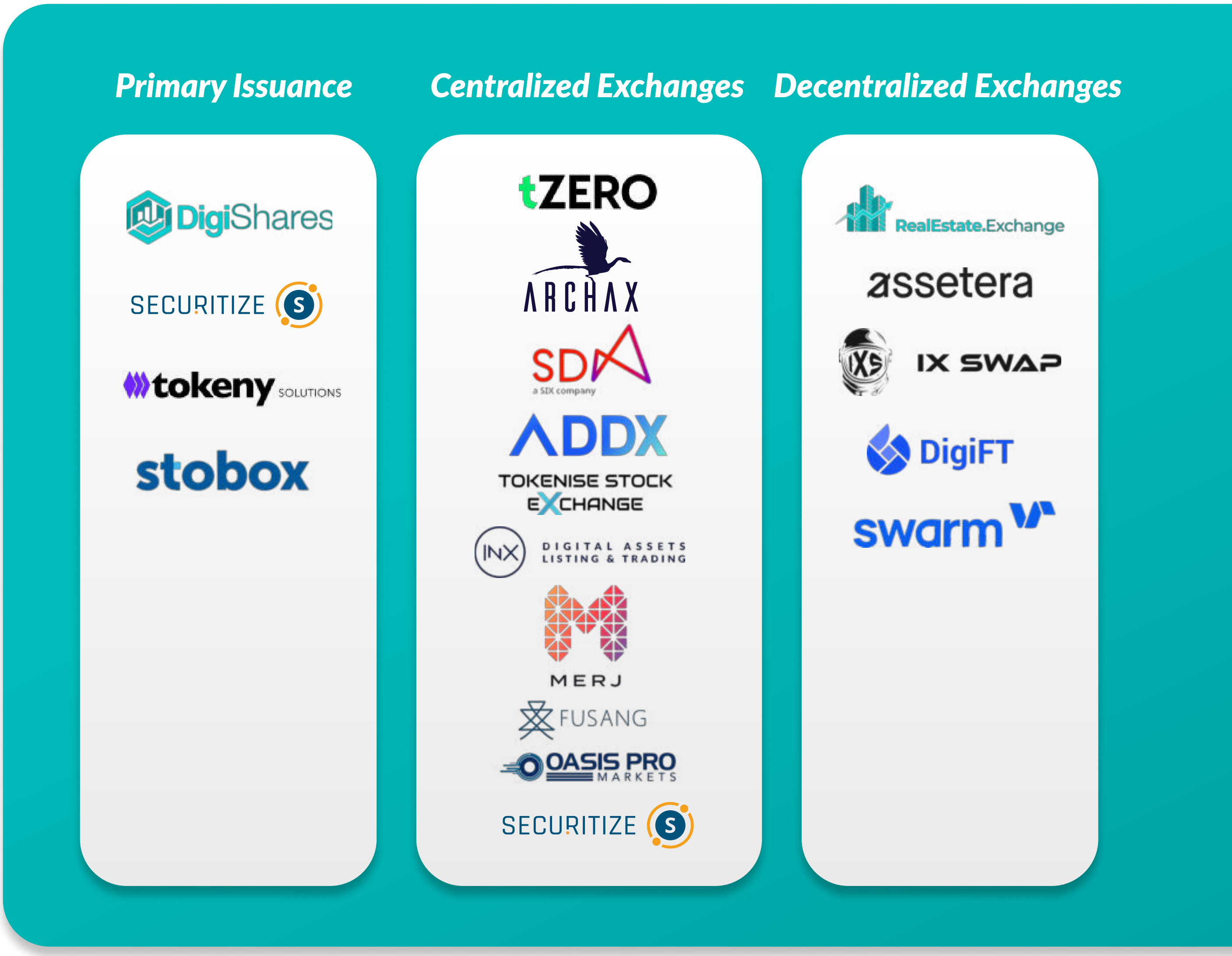
Coinbase, Binance, and Kraken have managed to establish themselves as infrastructural key players in the crypto sphere by providing highly liquid secondary markets for the trading of cryptocurrencies and utility tokens. But despite their conspicuous success, they have yet to penetrate the world of security tokens. One reason for this is the abundance of regulatory red tape surrounding the trading of these financial instruments. To address the growing demand for liquidity in security token markets, a handful of centralized exchanges have meanwhile started to emerge. These include:

- ***tZERO*** *– a premier ATS registered with the SEC based out of New York that enables liquidity for private markets.*
- ***Archax*** *– Based out of London, Archax is the first FCA-regulated global exchange for tokenized securities.*
- ***SDX*** *– A FINMA-regulated digital exchange and CSD headquartered in Zurich.*
- ***ADDX*** *– A Singapore-regulated marketplace for digital securities servicing accredited investors*
- ***Tokenise Stock Exchange*** *– a regulated exchange for tokenized securities registered in Barbados.*
- ***INX securities*** *– an ATS registered with the SEC for tokenized securities*
- ***MERJ Exchange*** *– a global exchange for traditional and tokenized securities registered in the Republic of Seychelles.*
- ***Fusang*** *– A fully regulated securities exchange in Asia for security tokens.*
- ***Oasis Pro Markets*** *– FINRA-registered marketplace and ATS for digital asset securities*
- ***Securitize Markets*** *– Besides its white-label services, Securitize also provides a secondary market for the trading of securities.*

DECENTRALIZED EXCHANGES

With the upcoming launch of RealEstate.Exchange (RE.X), DigiShares plans on building one of the first truly liquid and composable secondary markets for tokenized properties. By making it easy for investors to buy and sell fractionalized properties in a peer-to-peer manner, without the involvement of financial intermediaries like for example Central Security Depositories (CSDs) and Central Counterparty Clearing Houses (CCPs), RealEstate.Exchange will undoubtedly be a game-changer in the space. But despite the pioneering nature of the soon-to-be-launched exchange, RealEstate.Exchange is not the only DEX focused on security tokens. Others include:

- ***Assetera*** *– the first EU/EEA regulated trading platform for digital securities and digital assets, targeting institutional and private clients.*
- ***IX Swap*** *– A DEX with built-in regulatory compliance that allows for the trading of security tokens*
- ***DigiFT*** *– As a member of the Singaporean Fintech Regulatory Sandbox, DigiFT is one of the first regulated decentralized security token trading platforms.*
- ***Swarm Markets*** *– A regulated DeFi infrastructure that enables P2P trading of digital assets.*



A REGULATORY OVERVIEW

Real estate tokenization refers to the process of digitally representing the fractionalized ownership of real estate assets on a distributed ledger. In practice, this is done by securitizing real estate assets in a special purpose vehicle (SPV) and then tokenizing an instrument issued by said SPV (often shares or bonds) in the form of digital tokens on a blockchain.

While the process of tokenizing real estate, as sketched out above, may appear simple, the prevalence of outdated requirements and lack of regulatory clarity often complicate matters. Consider, for example, the requirement for notarization to effectuate the transfer of rights, the non-recognition of digital shareholder registers, or the legal uncertainty with respect to the enforceability of smart contracts; common regulatory hurdles that thwart the issuance of security tokens.

The discrepancy between the frictionless world of DLT and the intricate world of securities regulations is noticeable. But while some countries seem to uphold excessive and antiquated laws incompatible with security tokenization, others are quickly adapting to the emerging markets of digital assets by implementing modern and innovation-supportive frameworks that allow for the compliant representation of financial instruments on the blockchain. The choice of jurisdiction for setting up the tokenization vehicle, therefore, is of prime importance, which is why DigiShares also offers a legal pre-assessment of your real estate project, giving advice on both jurisdiction, token structure and prospectus.

CHOOSING THE RIGHT JURISDICTION

To help you navigate the seemingly endless complexity of regulatory frameworks, we have compiled a non-exhaustive list of suitable jurisdictions that avoid the typical pitfalls of tokenization either through introduction of dedicated digital asset legislation or targeted removal of obstacles to tokenization:

- ***United States*** *(Delaware, Wyoming, California)*
- ***EU/EEA*** *(Germany, France, Spain, Denmark, Luxembourg, Liechtenstein, Estonia, Malta, Portugal)*
- ***United Kingdom***
- ***Switzerland***
- ***UAE*** *(Dubai, Abu Dhabi)*
- ***Asia*** *(Hong Kong, Singapore, Malaysia)*
- ***Africa*** *(Nigeria, South Africa, Mauritius)*
- ***Offshore*** *(BVI, Bermuda, Cayman Islands, etc.)*

The choice of jurisdiction for the tokenization vehicle and the conduct of the offering are crucial pieces of the puzzle that help determine the applicable law and regulatory constraints. While some jurisdictions enable issuers to raise funds from non-sophisticated investors, others make such practices next to impossible due to an abundance of regulatory requirements. Similarly, some jurisdictions are agnostic as to the type of instrument that you put on the blockchain, while others only allow for the tokenization of debt instruments. The structure and conduct of the offering therefore should be taken into consideration when deciding on a jurisdiction.

LEGAL STRUCTURE

If the real estate assets are in a jurisdiction separate from that of the tokenization vehicle, then such assets must be securitized in a separate local special purpose vehicle (SPV) which is wholly owned by the tokenization vehicle. This is necessary due to the complexities of direct ownership of foreign real estate and for liability purposes.

Having set up the SPV, the next step is to link the tokens with a specific financial instrument, typically in the form of shares or bonds. This process may vary from one jurisdiction to another, but it typically involves an amendment of the articles of association (bylaws) of the company, issuance of board resolution, and preparation of investor agreements. The tokens can be minted using DigiShares platform which ensures the authenticity of the digital representation of equity shares by embedding a unique link within the token's metadata to the actual share certificate or an equivalent document.

THE OFFERING

In planning their STO, issuers should decide what type of investors they are targeting, in what countries they would like to promote the offering, and how much are they looking to raise. The answers to these questions would determine the exact type of offering and any applicable exceptions to registration and financial supervision.

In short, the offering of securities to the public (i.e. addressed to an unrestricted group of people including retail investors) would necessitate a publication of an approved prospectus which is normally a long and cumbersome process. However, a number of exceptions are typically available to issuers conducting a more private or restricted offering. These exemptions have been outlined below for both EU and the US:

European Union

- *Total offering size of the offering in a year per issuer is below the threshold (varies from EUR 1 to 8 million depending on the Member State)*
- *The offering is directed solely to qualified investors*
- *The offering is directed to less than 150 non-qualified investors per EU Member State*
- *The minimum size of the ticket is EUR 100,000*

United States

- *Private placement for accredited investors under Regulation D rules*
- *Offer to retail investors for up to 5 million in a 12-months period under Regulation Crowdfunding (the offeror must be a US issuer and requires the offering to take place through an SEC-registered intermediary)*
- *Offering to accredited and non-accredited investors for USD 20 to 75 million in a 12-months period under Regulation A*
- *Certain types of intrastate offerings*

LISTING ON EXCHANGES AND TRADING

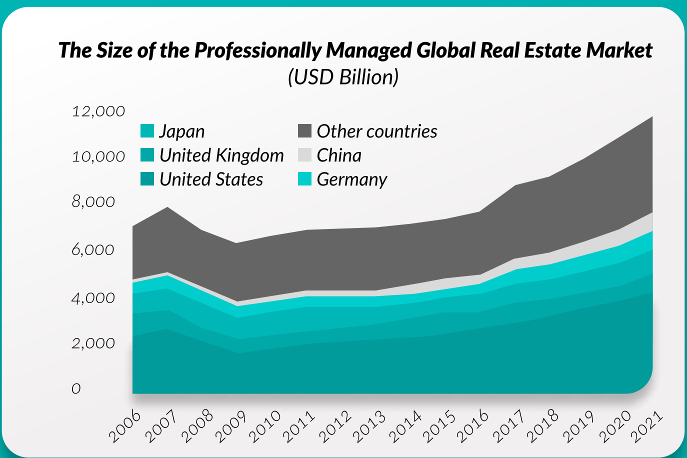
After the primary issuance, issuers and their investors would naturally be interested in the possibility of trading the tokens as it would unlock the flood gates to explosive liquidity and growth in value. In this case, two alternatives exist – either listing on an established security token exchange or internal peer-to-peer trading.

In terms of established exchanges, the legal framework around digital asset securities is still in the works in the majority of jurisdictions, meaning that the capital market infrastructures for the trading of security tokens are still in their infancy. Nevertheless, a number of notable exchanges focusing on security tokens have emerged in recent years paving the way for secondary liquidity, as described in previous section.

REAL ESTATE INVESTMENT GLOBALLY

Real estate is the world's biggest and most important asset class representing a total value of $326 trillion[36]. To put this number into perspective the aggregate value of stocks, shares, and bonds amounted to a mere $170 trillion in 2016[37]. It is estimated that commercial real estate represents $33.6 trillion in value[38].

While the professionally managed global real estate investment market only comprises 3.5% of the total real estate market capitalization, it nevertheless constitutes a massive industry. According to MSCI, the professionally managed real estate investment market increased by 8.5% from $10.5 trillion to $11.4 trillion in 2021[39], with roughly 40% of this being traded on stock exchanges. 40.2% of total AUM was appointed the Americas while 33.8% and 26% were appointed EMEA (Europe, Middle East and Africa) and APAC (Asia Pacific) respectively[40].



Source: MSCI, Real Estate Market Size 2021/2022

CAPITAL RAISED

In 2021, full-year investments in the global real estate market hit a record-breaking $2.1 trillion, thereby emphasizing the continuous demand for safe and scarce assets producing a stable yield[41]. Further reflecting the attractiveness of this market, real estate investment managers raised a record $254 billion in capital in 2021[42] while estimates suggest that real estate funds launched in 2019 were oversubscribed by $150 million on average per tranche[43].

Surveys additionally report a noticeable under-allocation of capital to the real estate market among institutional investors (relative to target allocations) suggesting the possibility that additional capital may enter the market in the coming years[44]. In accordance with these findings, a 2021 survey found that 61% of investors intend to increase their allocation to real estate over the next two years[45].

REAL ESTATE INVESTMENT ENTITIES

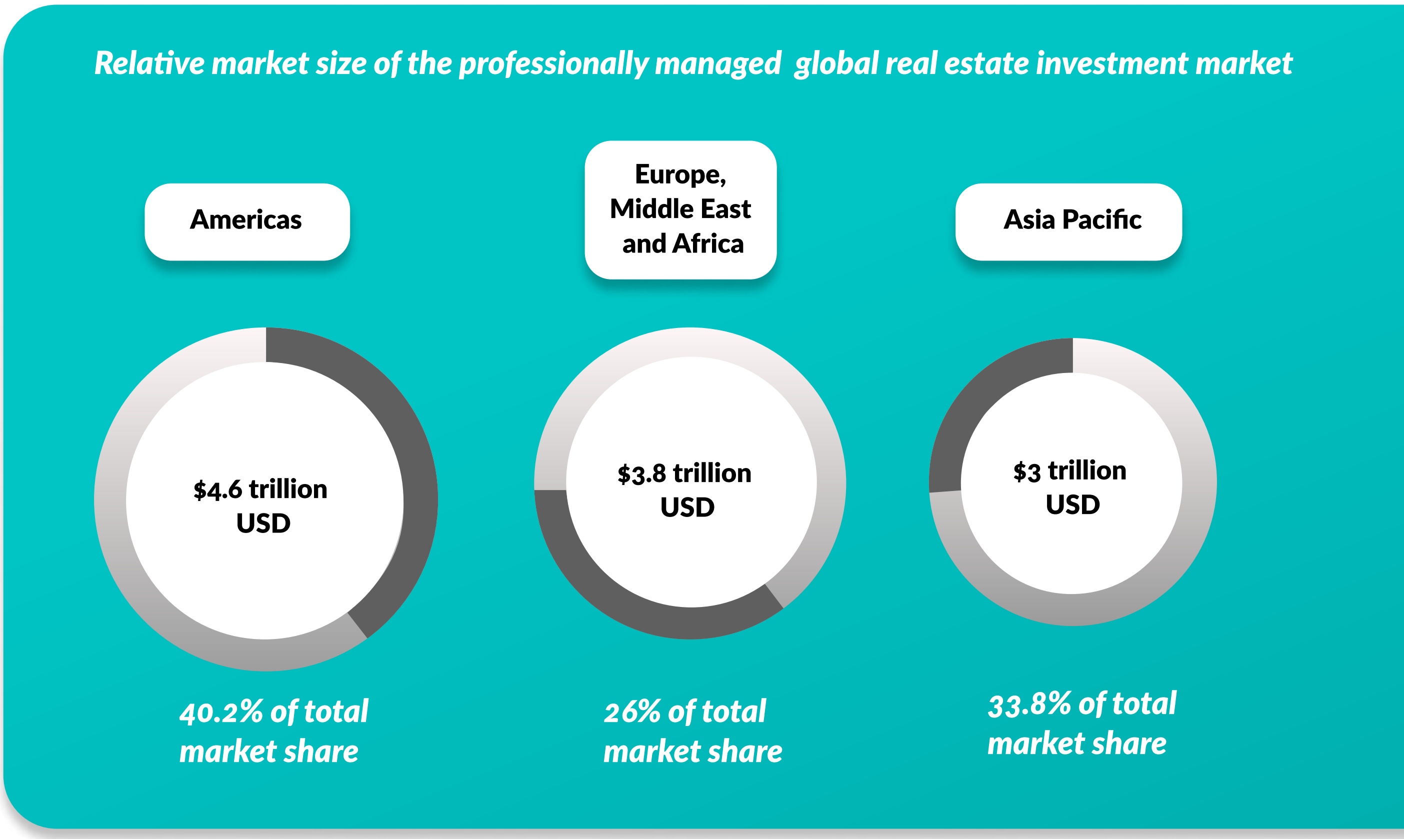
With a combined valuation of $326 trillion, it should come as no surprise that the real estate market is packed with real estate investment entities (from developers, funds, and trusts to crowdfunding platforms and equity firms). However, given the enormous size of the global real estate market – combined with the fact that a great majority of real estate investment entities reside and operate in private markets – it is nearly impossible to gather adequate information on the exact number of players in the global markets. As such, we must rely on extrapolation and rough estimates to get an adequate approximation of the total number of real estate investment entities currently in existence.

REITs: There are a total of 865 listed REITs globally with a total market capitalization of $2.5 trillion[46]. 27% (or 225) of these are U.S.-based and accordingly trades on U.S. stock exchanges[47]. Only 15% of all U.S. registered REITs are traded on stock exchanges as of 2012 meaning that 85% of all U.S.-based REITs are privately held[48]. Extrapolating the percentage of privately held U.S.-based REITs to a global scale affords us a very rough estimate of the total number of REITs currently in existence: 5766.

REIFs: In 2019, there were approximately a total of 800 real estate investment funds (REIFs) seeking capital[49].

Real Estate Developers: In aggregate, there are currently ~200,000 real estate developers dispersed across China (99,554[50]), the U.S. (53,000[51]), India (44,967[52]) the U.K. (4,626[53]), and Australia (4,345[54]).

These countries represent some of the most active markets for real estate investment while also embodying nearly half of the world's citizens; we estimate that there are a total of 300,000-400,000 real estate developers currently in existence.



Source: MSCI, Real Estate Market Size 2021/2022

REAL ESTATE IN THE UNITED STATES

The U.S. represents the world's biggest real estate market with private residential real estate being valued at $43.4 trillion[55] and a commercial real estate market valued at $16 trillion[56]. Naturally, then, the U.S. also constitutes the biggest market for professionally managed real estate investment with a total AUM of more than $4 trillion[57]. The massive size of the U.S. real estate sector is further reflected in the fact that it comprises 16.9% of U.S. GDP[58].

CAPITAL RAISED

A 2022 survey revealed that Americans consider real estate to be the best long-term investment for the 9th consecutive year in a row[59]. Similarly, another survey discovered that 89% of U.S. investors are interested in incorporating real estate into their investment strategies and that 96% of millennial investors are interested in investing in real estate[60]. The sentiment among U.S. investors thus emphasizes the continuous demand for real estate assets.

This demand is further reflected in the amount of capital raised among U.S.-aimed real estate vehicles, which managed to raise an aggregate of $56.8 billion in 2019[61]. Surveys, meanwhile, suggest that U.S.-based institutional investors are significantly under-allocated relative to their target allocation for real estate[62]; hence, one may expect an increase in the amount of capital raised in the coming years.

Especially noteworthy is a recent report published by Bank of America showing that the new generation of American investors, which collectively is expected to inherit $73 trillion in the coming years, regard digital assets and real estate as the two most lucrative investment opportunities[63].

REAL ESTATE INVESTMENT ENTITIES

Being the biggest real estate market in the world, the U.S. is naturally full of real estate investment entities:

REAL ESTATE INVESTMENT TRUSTS

1,100 - with only 225 of them being listed on major stock exchanges[64].

PRIVATE REAL ESTATE INVESTMENT FUNDS

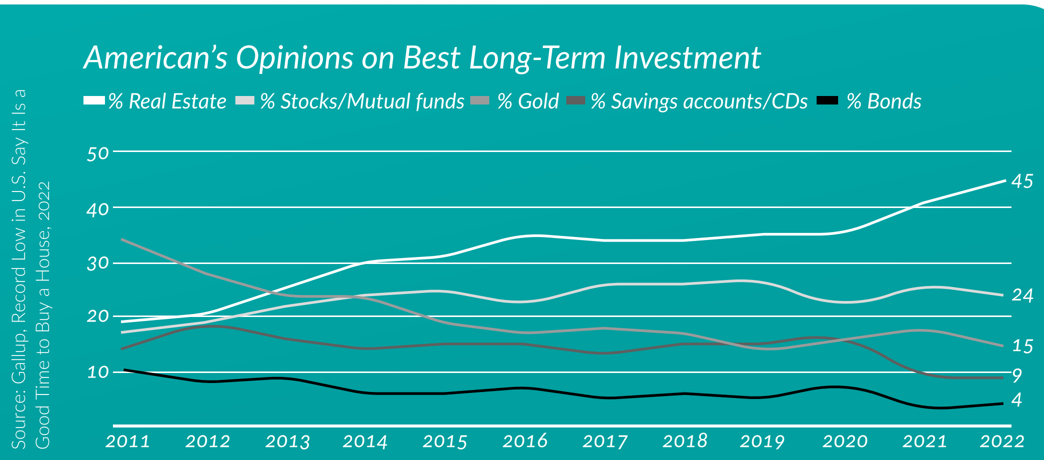
3,758[65]

REAL ESTATE INVESTMENT COMPANIES

1629[66]

REAL ESTATE DEVELOPERS

~53,000[67]



REAL ESTATE IN EUROPE

Europe represents one of the world's biggest real estate markets with a total valuation of $24.9 trillion[68]. The commercial real estate market comprises roughly 20% of this number and is valued at $7.5 trillion[69]. Meanwhile, only a total of $400 billion in real estate assets is listed on public stock exchanges[70].

CAPITAL RAISED

Europe is not surprisingly one of the most attractive regions for real estate investment in the world. At 41% Western Europe is the preferred investment destination among investors, while 39% of capital delpoyment is targetted North America[71]. 2022 further epitomized the popularity of European real estate when total investments reached €128.1 billion in Q1[72]. The second best result after Q1 2020.

The continued popularity of European real estate is echoed in the fact that institutional investors keep increasing their target allocations for European property assets year after year[73].

REAL ESTATE INVESTMENT ENTITIES

There are 531 real estate investment companies in the Nordics[74]. Extrapolating these numbers to the European region affords us a rough estimate of the number of real estate investment companies in all of Europe.

REAL ESTATE INVESTMENT COMPANIES

~14,500

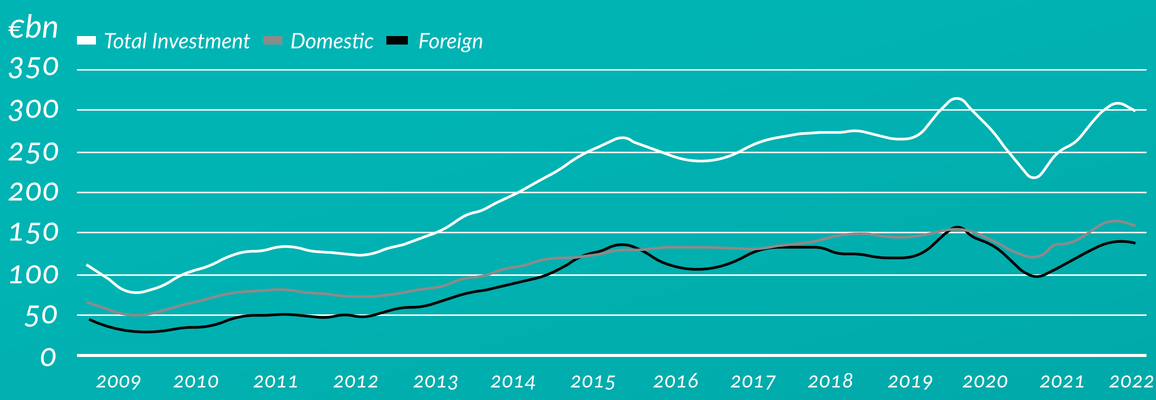
REAL ESTATE PUBLIC COMPANIES

301[75]

REAL ESTATE INVESTMENT TRUSTS

194[76]

Commercial Real Estate Investment in Europe



Source: Gallup, Record Low in U.S. Say It Is a Good Time to Buy a House, 2022

REAL ESTATE IN THE NORDICS AND JAPAN

THE NORDICS

The Nordic countries contain some of the most active markets for real estate investment in the world relative to population size. Total investment volumes in the Nordics breached all-time highs in 2021 when reaching €63.6bn[77]. Residential investments accounted for €21.2 billion while the office investment market accounted for more than €20 billion.

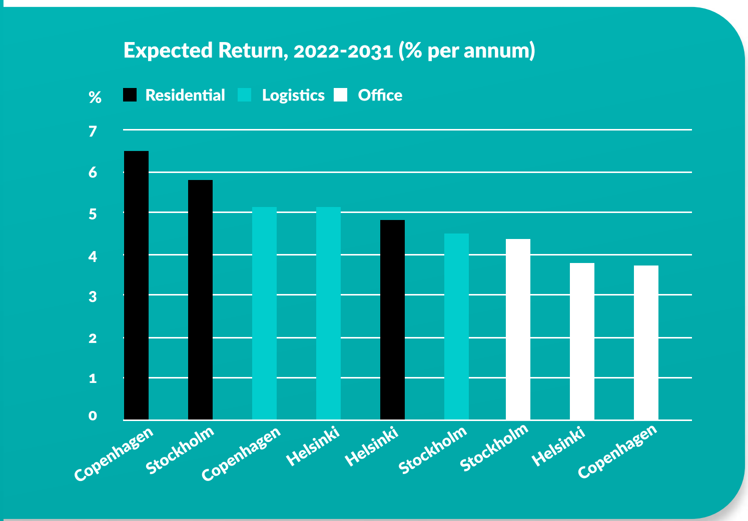
A survey conducted in 2018 revealed that 82% of investors in Nordic real estate were planning on allocating a greater share of their portfolio towards investments in Nordic properties[78].

In terms of real estate investors, there are currently 531 real estate investment companies dispersed across the Nordic countries[79].

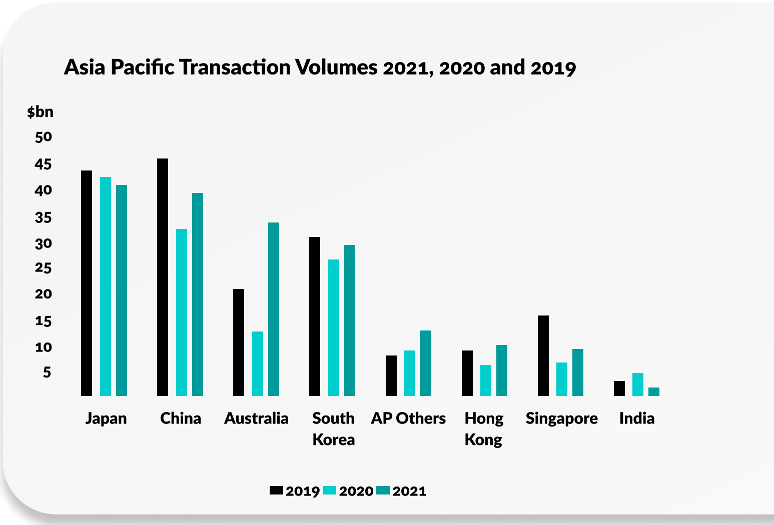
JAPAN

In 2019, the Japanese real estate market had almost $350 billion of assets under management[80]. Japanese private real estate funds accounted for nearly half of this number while public REITs accounted for the other half. Real estate investment trusts thus capture a substantial share of the total AUM, which meanwhile should come as no surprise as the country is the second-largest listed REIT market in the world after the U.S[81]. In 2021, direct real estate transactions reached a total of $177 billion USD in the APAC region out of which $41 billion USD was accounted for by Japan[82].

The number of publicly offered real estate investment trusts in Japan is 61 as of 2022[83].



Source: Nordics Real Estate Strategic Outlook, DWS, 2022



Source: Asia Pacific Capital Tracker 4Q21, JLL, 2022

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