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Real estate STO whitepaper
1st paper

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Contents

Introduction

Deloitte is a pioneer in digital transformation. We promote new growth by elevating the human experience with connected ideas, technology, innovation, and perspectives.

In recent years, digital assets have gained popularity, and the adoption of digitalization has been rapidly increasing across different sectors, including the financial industry and capital markets. The world of digital assets is expanding, and we see the great potential for its adoption in the real estate sector.

The term "security token" generally refers to any digital asset or token that is characterized as a security from a regulatory perspective. The term "security token offering" is a type of offering that creates tokenized digital securities, known as security tokens and makes them tradable under a blockchain environment.

By applying security token offerings to the real estate sector, the immediate benefit is that it allows you to design and create more innovative product structures which are backed by real estate as underlying asset. Security token offering is also poised as a new fundraising channel with the potential to unlock a new base of investors.

We are confident that this paper would provide a great illustration of the potential benefits of security token offerings in real estate sector.

Acknowledgements

HKbitEX

Company introduction

HKbitEX is a leading digital asset exchange headquartered in Hong Kong. HKbitEX is committed to providing a compliant and regulated digital asset spot trading and over-the-counter (OTC) trading platform for global professional investors. HKbitEX is one of the first organizations in Asia Pacific to apply for a 'virtual asset trading platform license' from Hong Kong's Securities and Futures Commission (SFC).

Together with our affiliates, we provide an end-to-end security token offering services including token advisory, creation, custody, listing* and trading* services. We aim to empower issuers with a new innovative and regulated channel to tap capital markets.

*Regulated activities that will commence post licensing.

HKbitEX
香港數字資產交易所

Gao Han

Founder & CEO

Prior to establishing HKbitEX, Dr. Gao worked at Hong Kong Exchanges and Clearing Ltd (HKEX). As a core member of the China team, Dr. Gao participated in the design, implementation and promotion of strategic products of HKEX, such as Stock Connect, Bond Connect, corporate listings, various derivatives, and was involved in formulating HKEX's strategies and business plans, as well as specific project implementation plans in Greater China.

Dr. Gao is the author of Trading and Exchanges– ***Trader, Market Structure and Regulation*** (2018) and ***Algorithmic Trading–Trading System, Strategy and Execution*** (2019).

Ken Lo

Co-Founder & Chief Strategy Officer

Prior to joining HKbitEX, Ken was one of the early founding members of ZA International where he held the position of Head of Strategic Partnerships. ZA International obtained its Hong Kong Virtual Banking and Virtual Insurance licenses in March 2019 and May 2020, respectively, making them only one of eight Virtual Banks in Hong Kong.

Ken has more than 10 years of experience within the financial industry, with expertise in banking, consulting and Fintech.

Lau Chun-kong, JP
Managing Director
Valuation and Advisory Services, Asia
Colliers

Mr Lau Chun-kong is a Managing Director of Colliers and is responsible for the valuation and advisory business of the firm in Asia. He is a chartered valuation surveyor and a Past President and Fellow of the Hong Kong Institute of Surveyors. Mr Lau has a wide breath of experience in property valuation, real estate consultancy and investment sales market.

Mr Lau is a member of the Hong Kong Housing Authority including its Subsidised Housing Committee and Tender Committee, the Trade and Industry Advisory Board, the Lantau Development Advisory Committee. He is also an advisor to the Our Hong Kong Foundation and a member of the Tangible Assets Standards Board of the International Valuation Standards Council.

Colliers

Colliers

Colliers is a leading diversified professional services and investment management company. With operations in 67 countries, our more than 15,000 enterprising professionals work collaboratively to provide expert advice to real estate occupiers, owners and investors.

For more than 25 years, Colliers is at the forefront of the real estate industry, leading the way and backed by an exceptional record of success. We strive to build our business at a competitive pace by augmenting internal growth with smart strategic acquisitions that increase market share, expand service offerings and extend our geographic reach for the benefit of our clients and shareholders.

In Hong Kong, we have several major service lines ranging from Valuation & Advisory Services, to Capital Markets & Investment, Office, Retail and Industrial Services, that are all working on industry leading solutions related to some of the city's most iconic real estate. But what sets us apart is not what we do, but how we do it. You'll experience forward-looking expertise that elevates value every step of the way. We simply think differently and that produces innovative outcomes.

Whether you're a developer, investor, landlord or tenant, we are a partner who is invested in accelerating your success.

JOY LAM

Partner, Sidley Austin LLP

JOY LAM is a Partner of Sidley Austin LLP based in Hong Kong and leads the development of Sidley's Hong Kong practice focused on the intersection of FinTech and Blockchain with investment funds and asset management.

Joy's practice focuses on advising clients within the virtual assets ecosystem in Hong Kong. This includes advising on the structuring and offer of tokenised funds and non-fund tokenised offerings; advising on the complex and rapidly evolving regulatory requirements for issuing, and managing investments in, virtual assets; and advising on the regulatory requirements for operating exchanges for the secondary trading of virtual assets.

Joy acted on the first open-ended and closed-ended tokenised fund launches in Asia. She was named the May 2020 Lawyer of the month by IFLR1000 for her work on the first tokenised fund in Asia to feature cryptocurrencies as an asset class. She has also advised a leading virtual assets client on securing the first approval from the SFC of an actively managed virtual assets fund that permits subscriptions and redemptions to be effected in kind.

Joy is recognized in Chambers Global 2021 and Chambers Asia-Pacific 2021 as “Up and Coming” in investment funds. Joy has also been featured among the “Rising Stars – Investment Funds” by Expert Guides in 2020 and was previously named a “Rising Star” by Law360 in its 2018 annual report that recognizes the “top legal talent under 40” who are practicing at a level “usually seen from veteran attorneys.”

SIDLEY

Sidley

Sidley is a leading global, full-service law firm with 2,000 lawyers located in 20 offices worldwide assisting clients with a full range of transactional, regulatory, advisory and dispute resolution matters. Harnessing a multi-disciplinary approach, Sidley has been recognized as a blockchain/fintech trailblazer, advising on cutting edge virtual assets work globally, including in Hong Kong, the United States and Singapore.

Raymond Liu

Chairman and Group CEO of Edvance International

Raymond is the Founder, Chairman and CEO of Edvance International Holdings Limited (HKSE: 1410.HK), a successful entrepreneur with deep understanding of technology market.

Raymond established Edvance Technology when cybersecurity was still a nascent industry in 2002 and has grown the company to become a market leader and a listed company on the Hong Kong Stock Exchange. Under his visionary leadership, he has his sight set on building the next phase of the company's growth in the burgeoning fintech and digital asset space with the Axion Global Digits brand.

With over 28-years of experience in the technology industry, Raymond has previously worked in Hewlett-Packard focusing on technology consulting and business development in Hong Kong. He holds a Bachelor of Engineering degree in Information Engineering from University of Strathclyde in the United Kingdom.

Edvance International Holdings Limited

In our 20 years history, Edvance International has evolved from a cybersecurity solutions distributor to an innovative technology player with businesses spanning from cybersecurity products and services, to fintech ventures and digital asset management.

For our cybersecurity business, driving cybersecurity adoption represents a huge growth opportunity for the company as the move towards digitalization across different industries makes businesses more vulnerable to cyber attacks. The mission for Green Radar, our fast growing cloud-based email security-as-a-service business, is to make cybersecurity accessible to a broader audience, especially the small and medium enterprise segment.

To accelerate the mission for Green Radar, having an efficient means of access to capital is a crucial element in our long term expansion plan to increase investment in cloud infrastructure and artificial intelligence capabilities. As a result, we announced in May 2021 the preparation for a security token offering for Green Radar to be issued in Hong Kong. Being a listed company on the Hong Kong Stock Exchange, we have high compliance and governance standards and the fundraising needed to adhere to the requirements of the regulator and the stock exchange.

Anson Law
Market Outreach Division
Hong Kong Monetary Authority

Anson focuses on financial market outreach and promotion, covering the asset and wealth management sector, including traditional and alternative asset managers, family offices and institutional investors. Prior to taking up his current role, Anson spearheaded development of Hong Kong's private equity and venture capital fund market, including the mapping out of Hong Kong's Limited Partnership Fund regime, broadening of tax exemption to cover onshore funds, etc. Anson also worked at HKMA's Direct Investment team and Risk & Compliance Department, where he was responsible for Exchange Fund's PE and real estate investments and investment operational and business risk compliance matters respectively.

Before joining the HKMA, Anson was a member of the HKSARG Administrative Officer grade and served at various policy bureaux including Financial Services and the Treasury Bureau, where he closed the railway merger deal and advised on various public infrastructure financing projects; and Chief Secretary for Administration's Private Office, etc., where he acquired extensive experience in policy formulation.

Raymond Wong
Senior General Manager
Henderson Land Development Company Limited

Mr. Raymond Wong is the Senior General Manager of the Sales Department of Henderson Land Development Company Limited, a major real estate developer in Hong Kong. He also holds the professional qualification as a solicitor in Hong Kong and is presently sitting on a number of professional, government consultative and advisory committees. Mr. Wong has over 30 years' experience in the real estate industry and related works. Prior to his joining Henderson Land, he was a partner in the real estate practice of one of the largest international law firms in Hong Kong.

The views and comments of Mr. Raymond Wong in this paper are personal only and do not necessarily reflect those of Henderson Land Development Company Limited.

Richard Tsun

Principal of Tsun & Partners

Mr. Richard Tsun is the principal of Tsun and Partners, Solicitors and a partner of Fred Kan & Co, Solicitors. Mr. Tsun has over 25 years' experience in the corporate, commercial, corporate finance and securities areas. His recent focus is in the IT law areas with emphasis on issues arising from the use of new technologies and business models, such as big data, AI and machine learnings, management and marketing in the digital world, licensed virtual assets trading platforms.

Tsun & Partners

Tsun & Partners is a Hong Kong law firm with a wide range of practice areas, both domestically and internationally, focusing on companies law, securities, bonds, corporate finance, initial public offering (IPO), merger & acquisition, debt restructuring, project finance, international direct investment, private equity funds, venture capital funds and commercial litigation.

Eric Chan Sze-yuen

Chief Public Mission Officer

Ir. Eric Chan is the Chief Public Mission Officer of the Hong Kong Cyberport. Ir. Chan is in charge of building the ecosystem of nurturing start-ups from inspiring the next generation, through nurturing the entrepreneurial spirit, to empowering global ambition, by providing comprehensive entrepreneurship programmes and early stage funding.

Ir. Chan has over 30 years of experience in the ICT industry, a chartered engineer, a chartered marketer and a fellow of Institution of Engineering & Technology (UK). Prior to joining Cyberport, Chan held various senior positions in global telecom and IT services companies. Ir. Chan has been active in public services, especially in education and industrial training, professional bodies and charitable organisations. He also serves as advisor and mentor at the University of Hong Kong, the Chinese University of Hong Kong and the Hong Kong University of Science and Technology.

Ir. Chan holds a BSc. (Hon) degree in Engineering from University of London, a Master degree in Business Administration from Manchester Business School, and received Executive Education from INSEAD and IESE business schools.

Cyberport Academy

As the digital tech flagship and a key I&T incubator in Hong Kong, Cyberport is committed to cultivating tech talent and entrepreneurs while fostering industry development and accelerating digital transformation in the public and private sectors.

Cyberport Academy was established in 2020 to align with the city's development strategy and meet the growing demand for innovative tech talent. With the vision to enrich the city's digital talent pool, Cyberport Academy focuses in increasing development opportunities for start-ups and tech talent while upskilling Hong Kong's workforce, enhancing the city's overall competitiveness in support of its long-term economic development.

The Academy serves as an internship and employment platform to provide entrepreneurship and career support for young talent; as a capacity building platform to offer accredited training programmes with top institutions; and as a knowledge research institute and I&T industry think tank. In the past year, Cyberport Academy has provided cross cluster training to over 3,500 participants and internship opportunities to over 200 students.

At a glance:

This white paper focuses on the potential uses of security token offerings ("**STOs**") within the real estate sector. In the paper, we take a deeper look at the key challenges faced by capital markets participants when investing in real estate transactions and the limitations under the existing framework of traditional finance. We draw insights from the research and industry experience of a broad range of market players, including real estate developers, valuers, legal advisors, tax and audit advisors, and technology consultants, and analyse the advantages offered by STOs as compared to capital raising using traditional structures. We also share our views on how the benefits of STOs can be harnessed to capture existing and emerging opportunities in Hong Kong and the Greater Bay Area ("**GBA**"), catalysing a new wave of business innovation and enhancing social impact.

Future papers will examine in detail the end-to-end process of completing a real estate STO and offer examples of Hong Kong case studies that highlight the versatility of STOs for real estate in particular, an asset class which may carry multifaceted rights such as usage and access rights, in addition to ownership and economic rights. By highlighting ways in which STOs may be used to create innovative investment products and address structural issues under the traditional financial framework, we hope to encourage the adoption of STOs by existing real estate and capital market stakeholders to catapult growth of the STO ecosystem.

Real estate: a vibrant market valued at USD9.6 trillion

While the impact of the pandemic on the global economy has been severe and the world continues its slow recovery process, as compared to other sectors, real estate markets have remained buoyant. On a global scale, the real estate market continues to flourish, with the professional global real estate investment market growing by USD672 billion since 2018 to reach USD9.6 trillion in 2019[1]. Investors have flocked to the asset class because of the relatively high cash yields and lower correlation with the broader capital markets.

The APAC region has witnessed rapid growth of capital in both the private and public real estate sectors. According to Colliers, the forecast investment in income-producing real estate assets in APAC (excluding residential properties) will increase by approximately 15% in 2021 as compared to 2020, and the growth trend is expected to continue in the coming years.

Although there is enormous potential for significant continued growth in the real estate investment market, there are also structural challenges that continue to impede the ability of property developers and investors alike to capitalise on investment opportunities, particularly in relation to sourcing financing and access to investment opportunities. These are challenges that STOs are uniquely equipped to address to facilitate a broader, fairer and more transparent market for real estate investment opportunities.

ST offerings: a new fundraising channel

The possible applications for security tokens ("**STs**") are vast. The efficiency offered by STOs, as well as the broad potential investor base make STOs a viable additional capital raising channel for companies and asset owners of any size or scale.

Although the STO market currently remains nascent, it has grown steadily in recent years as technology has matured, supporting capital markets infrastructure has been introduced and regulatory clarity has increased in leading jurisdictions including the United States, the United Kingdom, Japan, Singapore and Hong Kong.

In Hong Kong, the Securities and Futures Commission ("**SFC**") issued a position paper in 2019[2] confirming that it will regulate virtual asset trading platforms ("**VATPs**") which trade virtual assets that are considered "securities" under Hong Kong law and setting out the standards that such SFC licensed VATPs must adhere to. The establishment of this regulatory framework for VATPs is an implicit recognition that STOs will be a feature of capital markets in the future and positions Hong Kong to be a leader in the APAC region for virtual assets activity.

With the introduction of clear regulatory frameworks for the key service lines that are required to support the STO ecosystem, coupled with increasing education and awareness amongst market participants of the advantages, the STO market is at an inflection point. We anticipate accelerated growth in the number and size of STO transactions over the next three years, with real estate financing participants being amongst the first to embrace STOs.

[1] MSCI: Real Estate Market Size 2019/20

[2] SFC: Position paper Regulation of virtual asset trading platforms

Real estate market landscape

Global real estate markets continue to thrive with rising capital inflows

The global real estate market is set to break new highs with the widespread vaccine rollout allowing a progressive easing of lockdowns and additional large-scale stimulus[3]. We have observed a synchronous soar in both the developed and emerging markets for the first time since 2017[4]. Investment in data centers and industrial and logistics properties has accelerated amidst the pandemic. Despite their relative underperformance, institutional investors are starting to invest more in bricks-and-mortar retail and hospitality properties due to the rising number of consumers and travelers[5]. Meanwhile, the aging demographic, particularly in developed nations, has continued to give rise to demand for housing catered specifically for the elderly.

Against the backdrop of a real estate market thriving in various sectors, STOs are poised as a new regulated fundraising channel with the potential to unlock a new base of investors to fuel continued growth.

Fundraising trends in the global real estate market

Overview

We see a prevailing need for capital in the real estate sector throughout its value chain, from land acquisition, through construction, to refinancing. The current fundraising avenues are largely categorized into private and public channels, and further broken down into fragmented sub-channels. While traditional borrowing from financial institutions is here to stay, we see increasing demand for private lending to meet the needs of specific project requirements.

Private lending: shifting from banks to non-bank participants

Real estate developers require intensive capital when undertaking a development project. Currently, real estate investments are largely sourced through bank loans and private debt funds. In 2020, the global private debt market was estimated to be worth USD190 billion[6]. Fundraising in the private markets therefore remains critical for real estate development.

[3] Aberdeen Standard Investments: Global Real Estate Market Outlook Q2 2021
[4] Aberdeen Standard Investments: Global Real Estate Market Outlook Q2 2021
[5] BlackRock: Impact of COVID-19 on the real estate sector
[6] Preqin: Private Real Estate Debt: The Pandemic's Impact and the Industry's Future

In recent years, we have seen a gradual shift in sources of private market funding away from traditional bank loans to alternative lenders, such as debt funds and private lenders. Looking at the US market, bank loans accounted for 42.7% of total loan volume in 2016, falling to 23.7% by 2020. By comparison, the proportion of loans funded by alternative lenders increased from 24% in 2016 to 36% in 2020, overtaking bank loans. Real estate fundraising in the private markets is also moving towards non-bank participants.

(US real estate market)	2016[7]	2020[8]
Bank loans	42.7%	23.7%
Alternative lenders *(e.g. debt funds, private lenders etc.)*	24.0%	36.0%

Figure 1: Shifts in real estate private lending origination

Public markets: potential growth of REIT investments in APAC

In the Asia Pacific region, REITs have demonstrated significant fundraising potential. In 2020, Singapore REITs raised over USD9 billion of equity – more than all new debt issued in the same year by S-REITs.[9] At the end of 2020, Japan had 57 J-REITS covering various sectors, including healthcare and logistics, with an aggregate market capitalisation of USD148 billion, crowning Japan as the second largest REIT market in the world[10].

Although there are currently only 13 (including two suspended) REITs listed in Hong Kong, the SFC has recently introduced enhancements to the Code on Real Estate Investment Trusts[11] which provide greater flexibility for making and managing investments, and the Hong Kong government has recently introduced a subsidy for establishment costs to encourage fund managers to establish REITs in Hong Kong.

Potential therefore exists for real estate fundraising needs to be increasingly sourced from the growing public markets, to supplement fundraising that is sourced from private markets.

[7] CBRE: U.S. Commercial Real Estate Loan Closings Surge in Q4

[8] CBRE: Higher Levels of Liquidity Improve Commercial Real Estate Lending Momentum at Year-End

[9] JLL Asia Pacific Capital Markets: 2021 Outlook

[10] ARES: https://j-reit.jp/en/market/

[11] Code on Real Estate Investment Trusts, December 2020. Hong Kong Securities and Futures Commission.

Challenges to developers and investors in real estate markets

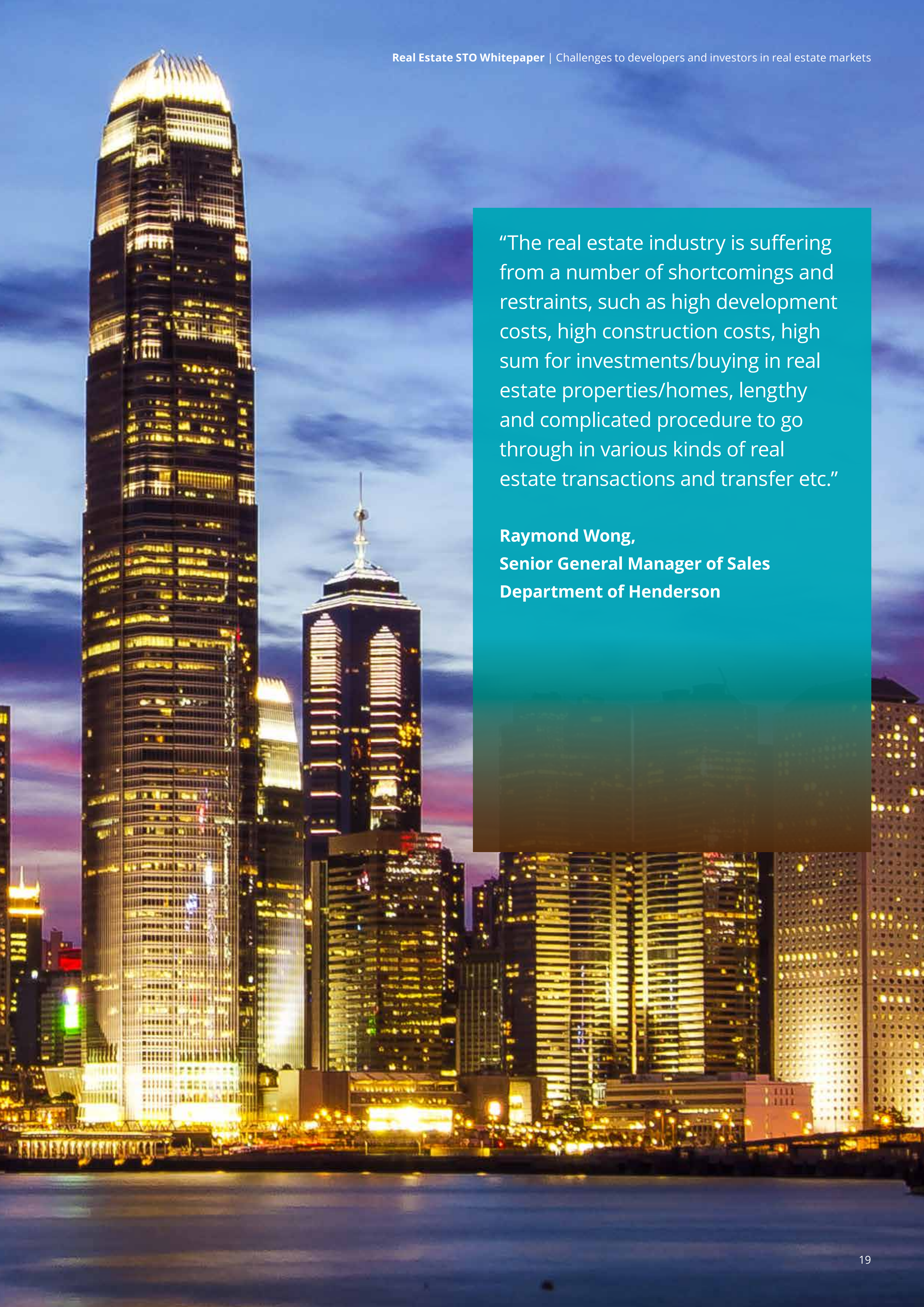
Despite the range of available fundraising channels, developers and investors alike face various challenges when trying to source funding or access investment opportunities.

Developers face challenges throughout different stages of the value chain

Developers have traditionally enjoyed healthy price premiums for completing end-to-end property development projects. These projects require expertise in a range of different areas, from the selection of estates and management of the bidding process, through to construction of the properties and onto future transactions and property management. However, developers face several challenges throughout the lifecycle of a development project, including intensive capital outlays, complex transaction structures and high project risk, as described below.

#	Stage of value chain	Key challenges
1	Land acquisition and development	• Capital intensive and relatively high commercial risks, particularly in a large-scale project • Difficult to maintain healthy gearing ratio with significant leverage • Complex JV formation process to consolidate multiple capital providers
2	Construction	• Valuation/ credit ratings typically constructed on a corporate-level basis rather than project-basis, potentially resulting in good quality projects being negatively impacted by lower quality projects in the same portfolio
3	Sales	• Investor base is mostly limited to the geographic location of the real estate • High transaction costs and several layers of intermediaries reduce profit margins
4	Management	• Tedious procedure for transfer of ownership

Figure 2: A summary of the various challenges faced by property developers at each stage of the property value chain



"The real estate industry is suffering from a number of shortcomings and restraints, such as high development costs, high construction costs, high sum for investments/buying in real estate properties/homes, lengthy and complicated procedure to go through in various kinds of real estate transactions and transfer etc."

Raymond Wong,
Senior General Manager of Sales
Department of Henderson

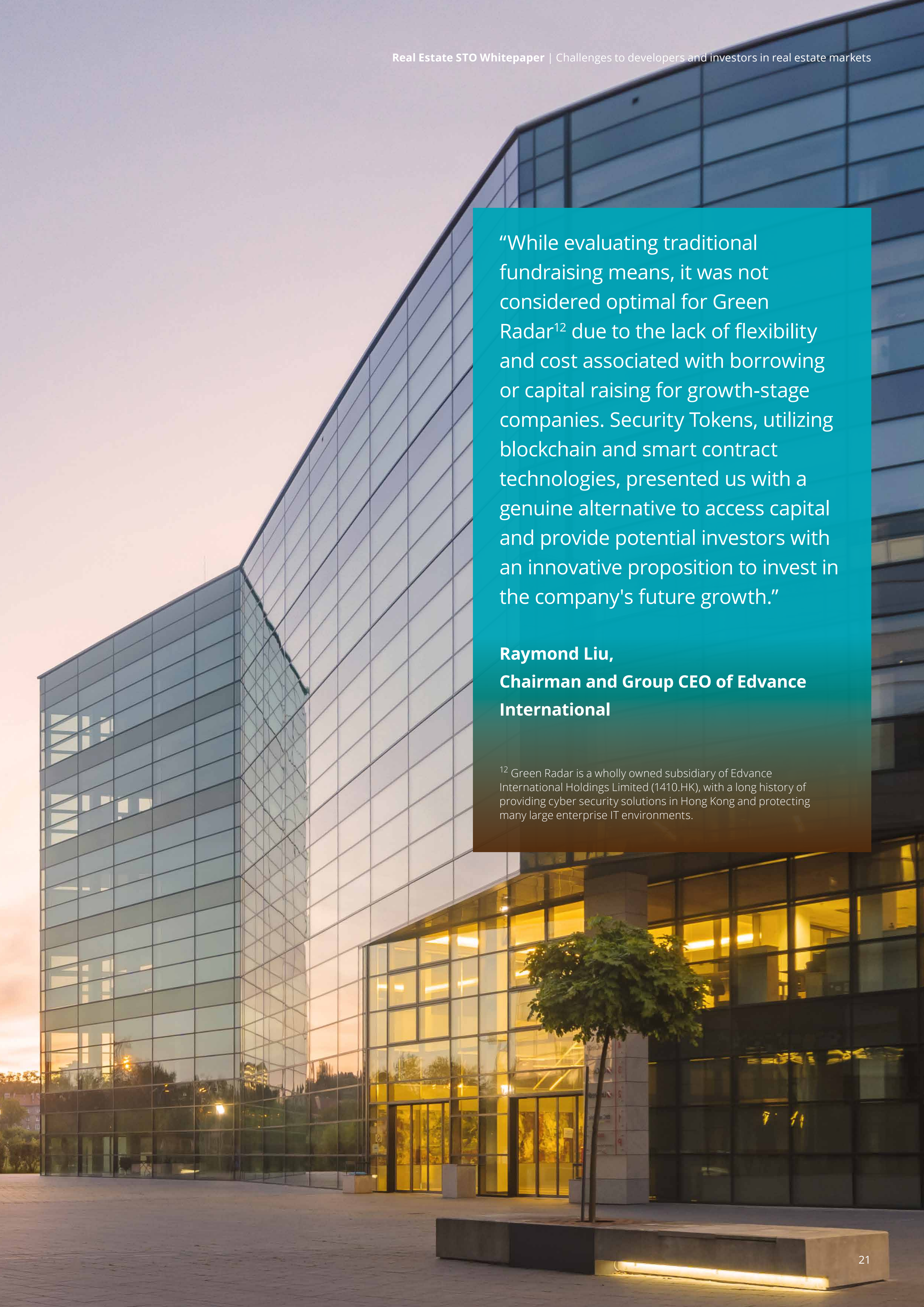
Investors bear high liquidity risks, with limited access to investment opportunities

Currently, access to real estate development opportunities is generally limited to the developers themselves, or a select investment community which typically comprises institutions and ultra-high net worth investors only. This barrier to entry is exacerbated by the fact that investors in real estate development may be locked up in a project for 7 to 10 years or longer, making development assets extremely illiquid when compared to other types of investments. In addition, the scope of investable projects is typically narrow and may be unsuitable for investors' portfolio management purposes.

#	Stage of value chain	Key financial challenges
1	Primary markets	• Limited access to investment opportunities which typically have a high minimum investment threshold making them suitable only for institutions and ultra-high net worth individuals • Exposure usually limited primarily to office, mall and residential assets and often does not include high-growth industrial, data centre and healthcare real estate assets
2	Secondary markets	• Low liquidity and high transaction costs • For private market vehicles, the process of secondary transfers is onerous and drawn out with heavily negotiated customized deals, side letters and exclusive rights

Figure 3: A summary of the various challenges faced by real estate investors at each stage of the property value chain

As the need for capital to facilitate real estate projects continues to grow steadily, there is a clear need for a progressive fundraising channel that addresses the structural challenges that exist under the framework of traditional finance. In the following sections, we explore how STOs can enhance the efficacy of fundraising for the real estate sector and democratise access to investment opportunities for a broader investor base.



"While evaluating traditional fundraising means, it was not considered optimal for Green Radar[12] due to the lack of flexibility and cost associated with borrowing or capital raising for growth-stage companies. Security Tokens, utilizing blockchain and smart contract technologies, presented us with a genuine alternative to access capital and provide potential investors with an innovative proposition to invest in the company's future growth."

Raymond Liu,
Chairman and Group CEO of Edvance International

[12] Green Radar is a wholly owned subsidiary of Edvance International Holdings Limited (1410.HK), with a long history of providing cyber security solutions in Hong Kong and protecting many large enterprise IT environments.

STOs: a new fundraising channel

Digital assets: a new asset class

In the short history of digital assets, more attention has been focused on cryptocurrencies, of which Bitcoin and Ethereum are the most notable examples. Cryptocurrencies were initially developed to facilitate decentralized, peer to peer payments and are generally accepted as being non-securities from a regulatory perspective.

However, in recent years, STs have attracted increasing attention. The term "security token" refers generally to any digital asset or token that is characterized as a security from a regulatory perspective. Whether or not a particular token is a security for legal purposes will depend on the rights and features that are attached to the token and the regulatory regime in the relevant jurisdiction, however generally speaking a token that represents an ownership interest in, or carries an entitlement to receive income, dividends or revenue from, a real estate asset will likely be considered a security.

STs are typically an asset-backed digital representation of ownership or other economic rights in an underlying asset and are regulated as "securities" in leading jurisdictions including the United States, the United Kingdom, Japan, Singapore and Hong Kong.

STs can include tokenised securities, which are traditional regulated securities (as exist in the traditional world of finance outside of the blockchain) with a digital wrapper. For tokenised securities, the token is a digital indicia of ownership of the underlying security. STs can also include native tokens, which do not exist outside of the blockchain and may replicate some of the features of traditional securities.

There are several features distinguishing STs from cryptocurrencies, some of which are summarized in the table below.

Feature	Cryptocurrencies	STs
Asset-backed	**No**	**Yes** Backed by assets which may include securities (equity, bond, etc.) or real assets (real estate, collectibles, IP, etc.)
Examples	Bitcoin (BTC), Ethereum (ETH)	AspenCoin
Nature	Currencies – initially created to facilitate peer-to-peer transactions	Digital representations of ownership or economic interests in the underlying assets
Fundraising methodology	Unregulated Initial Coin Offering	Regulated Security Token Offering
Offering process	Usually not subject to regulation	Must be offered in accordance with the rules for offering securities. Typically, involves licensed professionals including financial advisors, brokers, auditors, lawyers, valuers, etc.

Figure 4: Key differences between cryptocurrencies and STs.

The rise of STOs

Initial Coin Offerings ("**ICOs**"), pioneered the application of blockchain in the capital markets, peaking in 2017. ICOs garnered considerable attention from investors and regulators alike and gained notoriety for being unregulated, highly speculative and involving significant risk which ultimately resulted in public warnings and enforcement action by regulators. Despite the demise of ICOs, as a fundraising channel, market participants have nevertheless clung to the promise of blockchain revolutionizing traditional fund-raising.

In contrast to ICOs, STOs are positioned as a regulated means of unlocking the investment potential of a vast array of real-world asset classes, including real estate, for the benefit of both issuers and investors. For issuers, STOs provide an alternative fundraising channel that offers greater efficiency, lower costs, and a broader base of potential investors. For investors, STOs offer access to a new world of previously inaccessible investment opportunities by offering fractionalized interests, secondary market liquidity and information transparency.

We see significant tailwinds in the development of the STO market, echoing the World Economic Forum's positive outlook on the use of the blockchain in the capital markets[13]. On the one hand, institutions appear poised to buy into the innovation offered by STOs due to recent developments within the marketplace, policy and technology which are mutually reinforcing[14]. On the other hand, blockchain technology is uniquely positioned to address the high costs and barriers to entry associated with existing capital raising channels.

[13] World Economic Forum: Digital Assets, Distributed Ledger Technology, and the Future of Capital Markets

[14] Ibid.

Hong Kong's regulatory framework for STOs

The SFC has made several public statements about its approach to regulating the virtual assets ecosystem, including in relation to STs. The key points of these statements are summarized in the table below.

	Primary Issuance of Security Tokens	Secondary Trading of Security Tokens
Statement	**Statement on STOs[15]**	**SFC Position Paper[17]**
	• Security Tokens are likely "securities" and subject to existing securities laws. • Security Tokens are complex financial products. • Security Tokens can be offered to "professional investors" only.[16]	• VATPs that trade one or more "securities" require licenses from the SFC to conduct Type 1 (dealing in securities) and Type 7 (providing automated trading services) regulated activities. • Access to VATPs is limited to "professional investors" only. • Each virtual asset included for trading on the VATP must be approved by the SFC.

Figure 5: A summary of key policy statements and announcements by the SFC relevant to STOs.

The issue, distribution and secondary trading of STs will therefore be subject to regulation under the existing securities framework, which in Hong Kong comprises the Securities and Futures Ordinance[18] (SFO) and oversight by the SFC. This means that:

- an issuer seeking to issue STs to investors in Hong Kong will likely want to rely on the private placement regime and to fall within the scope of an applicable exemption from the need for SFC authorization of the STO; and
- SFC licensing requirements will apply to marketing and distribution activities that are conducted in, or directed at investors in, Hong Kong for both the STO primary issuance and any secondary trading of STs.

The offer, issue and trading of STs in Hong Kong is therefore subject to the same regulatory framework, and the same checks and balances, investor protections and regulatory oversight, that apply to traditional securities.

[15] SFC: Statement on Security Token Offerings, 28 Mar 2019

[16] Securities and Futures Ordinance, Cap. 571D Securities and Futures (Professional Investor) Rules

[17] SFC: Position paper Regulation of virtual asset trading platforms, 6 Nov 2019

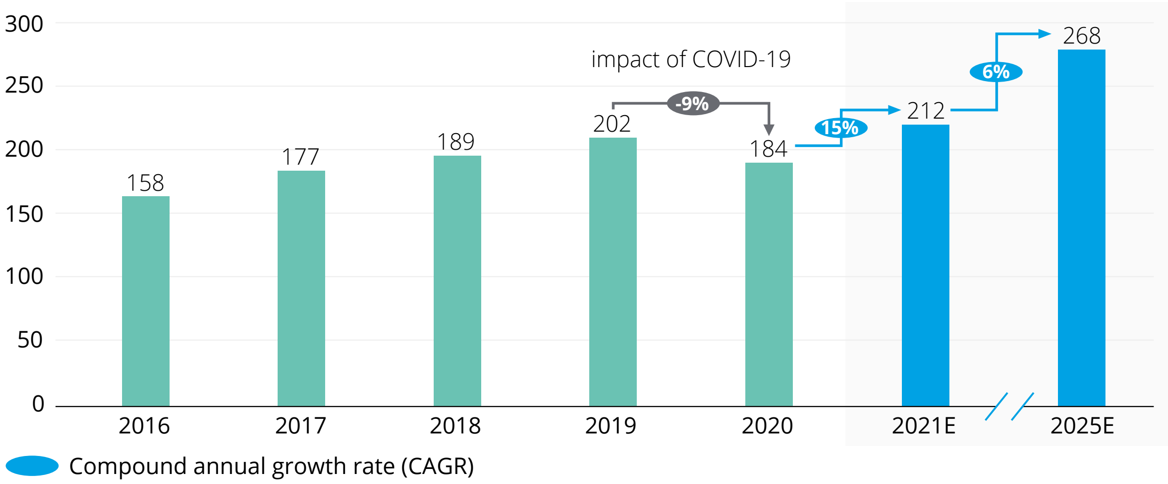
[18] Securities and Futures Ordinance, Cap. 571 of the Laws of Hong Kong.

Real estate STs: USD270 billion total addressable market in APAC by 2025

As of the end of 2020, the total value of institutionally invested real estate in APAC reached USD3.3 trillion. Looking into the annual investment property transaction volumes, an aggregate of USD184 billion was recorded in 2020, representing a 9% decline from the 2019 figure due to Covid 19. Given the large-scale vaccine rollout and economic recovery, real estate transactions are expected to bounce back by about 15% in 2021 and to grow at a 6% compound annual growth rate (CAGR) thereafter, reaching the USD268 billion mark by 2025. (See Figure 6 below.)

STOs can serve a total addressable market of USD268 billion by 2025

Annual transaction volume, USD billion



Growth to come from 3 key estate types

Industrial & logistics
Strong demand from 5G, e-commerce and logistic parks

Retail
Steady recovery of tourism and travel from COVID-19

Apartment
Heightened demand for multi-family apartment blocks (Japan, China and Australia)

Abundant dry powder yet to be deployed...

USD 46 billion
of undeployed capital in PE alone (signaling an additional c. USD90 bn investment at typical leverage)

Source: Real Capital Analysis, Colliers Analysis

Figure 6: Illustration of the total addressable market size by real estate STOs.

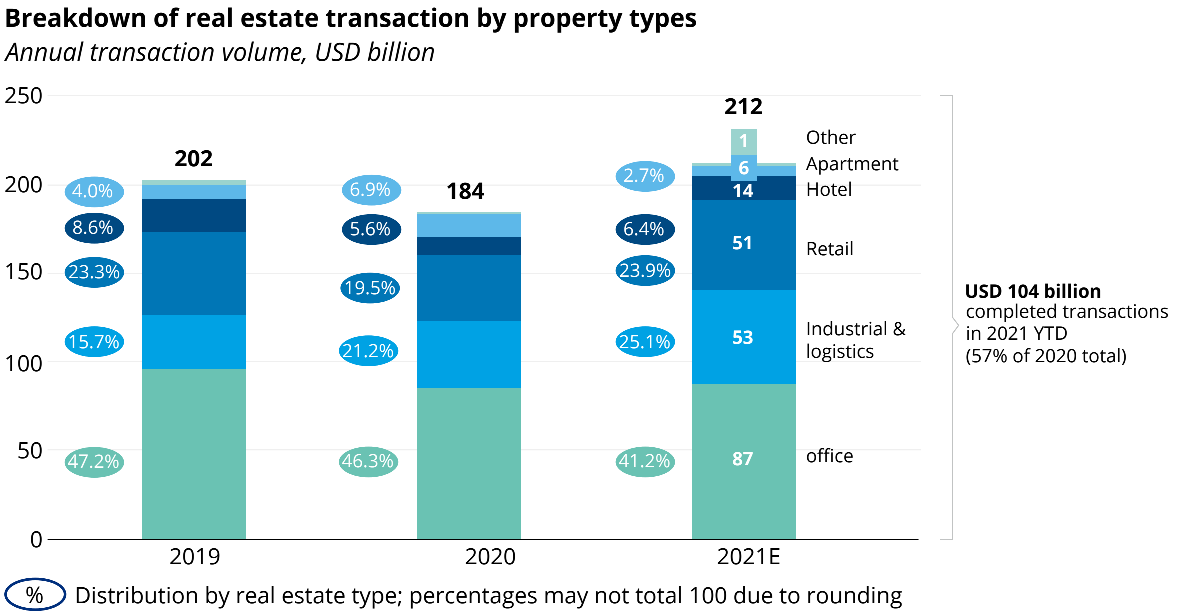
Note: For full derivation of real estate STOs market size, please see Appendix 1.

"Security Token Offerings (STOs) offer issuers greater efficiency, lower costs and access to a broader investor base. For investors, they promise a new world of opportunities by offering fractionalised interests in property assets, far greater liquidity over secondary exchanges, and enhanced information transparency.

Investment property transaction volumes across Asia Pacific should rebound strongly in 2021. We expect usage of STs to rise rapidly and boost liquidity in the investment property market."

Lau Chun-kong, JP,
Managing Director
Valuation and Advisory Services, Asia
Colliers

The robust growth in the real estate sector is underpinned by a stable office market, strong investment demand in industrial & logistics assets, a recovering retail sector and growing interest in multifamily apartment blocks in Japan, China and Australia. The distribution of annual transaction volumes is illustrated below (see Figure 7):



Source: Real Capital Analysis, Preqin, Colliers Analysis
Figure 7: Breakdown of annual real estate transaction by property types.

What value do STOs bring to the real estate markets?

General benefits of STOs

STOs present a highly flexible capital raising avenue with enhanced operational efficiency and lower costs. Five immediate benefits can be harnessed by issuers and investors through adoption of an STO as a fundraising channel:

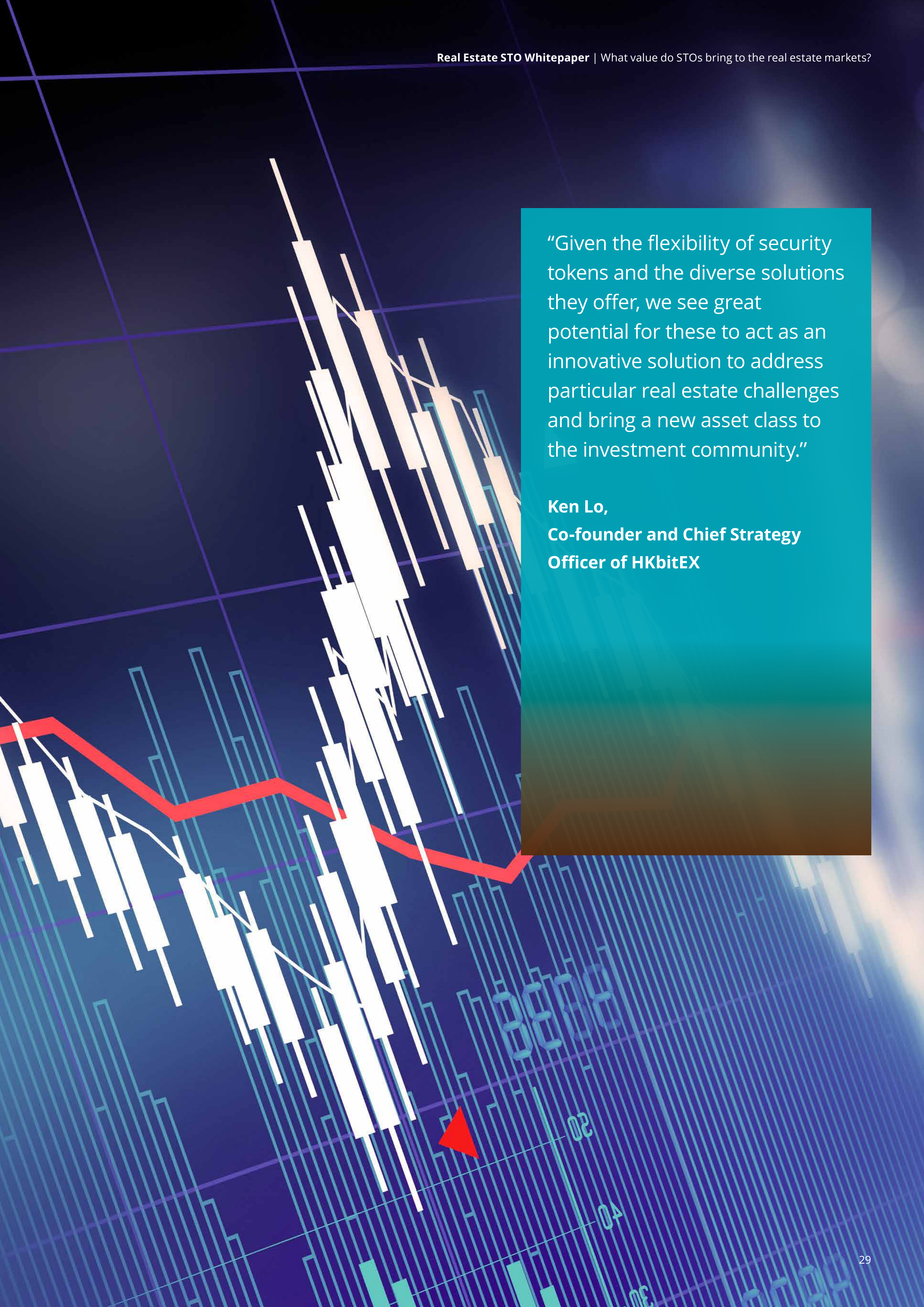
1. **An additional fundraising channel for private investments.** With fractionalization, STOs can effectively lower the high minimum investment thresholds for private investments. Access to investment opportunities that previously have been available to institutions only can be democratised and made available to a much larger investor base.

2. **More customisation and creativity in product structuring.** A token is flexible in design, and can therefore represent customised utility features, such as property access or usage rights, or a combination of different asset classes in a single product which allows an issuer to mobilise intangible or off-the-book assets. For example, a data centre developer can securitise the future cash flow of a project and the profit from expansion to complement the steady yield structure as a means of attracting investors.

3. **Enhanced liquidity through secondary exchanges.** An exchange-listed token has greater liquidity as compared to unlisted tokens and unlisted interests. The establishment of licensed, regulated exchanges for STs has developed quickly in several leading jurisdictions including the United States, Singapore and Hong Kong. This is critical for secondary market liquidity and enabling STs to be traded on a 24/7 basis and settled within hours. The establishment of regulated secondary exchanges with global reach will also provide issuers with streamlined access to a more global investor base.

4. **Higher operational efficiencies and lower transaction costs.** With the smart contract(s) embedded within the ST, issuers can automate corporate actions such as dividend payments, thereby increasing efficiency and reducing costs. Blockchain technology also makes the use of certain intermediaries (such as securities registrars and central securities depositories) redundant, thereby eliminating the costs of those services.

5. **Trustworthy security and transparency powered by blockchain.** The records on the blockchain system are secure, transparent and immutable. The increased transparency will give investors in STs more information on a more-timely basis.



"Given the flexibility of security tokens and the diverse solutions they offer, we see great potential for these to act as an innovative solution to address particular real estate challenges and bring a new asset class to the investment community."

Ken Lo,
Co-founder and Chief Strategy Officer of HKbitEX

How do STOs compare to traditional fundraising methods?

Flexibility and efficiency compared to REITs

REITs are vehicles that own income-producing real estate assets[19]. The combined market capitalisation of REITS listed in Hong Kong, Singapore and Japan was USD 256 billion in 2020. While listed REITs currently offer enhanced liquidity when compared to the nascent STs market, real estate STOs offer advantages over REITs in several respects, including lower costs for issuers and greater investment flexibility for investors and issuers.

A summary of the key metrics for comparing real estate STOs with REITs is set out below.

	REITs	Real estate STOs
Structuring cost and complexity	High.	Lower.
Restrictions on investments	Yes, REITs are regulated and subject to significant limitations on investment scope. For example, for Hong Kong listed REITs the combined value of minority-owned properties, property developments, financial instruments and other ancillary investments shall not exceed 25% of gross asset value. (75% of gross asset value should generate recurrent rental income.)	No, real estate STOs are not subject to any statutory limitations on investment scope. The underlying asset may include traditional equity (e.g., in a joint venture company or limited partnership), rights to use real estate properties, loans and streams of income (e.g., rental, profit from a business operation, sales proceeds in property disposal etc.).
Typical portfolio components	Mostly commercial (office, mall), residential (multi-family).	Can involve any type of real estate, from traditional commercial real estate to higher return projects, infrastructure, development, construction loans, elderly home centres.
Nature of underlying asset	Issuers typically require a portfolio comprising multiple real estate assets.	Can cater to a pool of assets or a single asset.
Dividend distribution	Administratively burdensome, requires corporate service providers.	Programmed distribution through smart contract enhances operational efficiency.

Figure 8: Key benefits provided by real estate STOs as compared to REITs.

[19] Nareit: What's a REIT (Real Estate Investment Trust)

Flexibility and accessibility compared to private funds

Real estate STOs offer several advantages over traditional private real estate funds, including greater accessibility, operational efficiencies and enhanced liquidity for investors and issuers. A summary of the key metrics for comparing real estate STOs with private real estate funds is set out below.

	Real estate private funds	Real estate STOs
Strategy	Core, core plus, value-add and opportunistic.	All strategies of private real estate funds, and property development projects (as early as land bidding).
Investment ticket size	High.	Can be significantly lower due to fractionalization.
Investor lock-up period	7–10 years.	Investors can exit early through the secondary market
Investor base	Suitable only for institutions and ultra-high net worth individuals due to high minimum investment size and long period of illiquidity.	Accessible by a broader range of prospective investors due to lower minimum investment size and secondary market liquidity.
Distribution	Administratively burdensome, requires corporate service providers.	Programmed distribution through smart contract enhances operational efficiency.
Ease of secondary transfer	Low. Administratively burdensome, slow and costly to transfer Fund interest.	High. Tokens can be traded easily and efficiently OTC or on an exchange.

Figure 9: Key benefits provided by real estate STOs as compared to traditional private real estate funds.

Global real estate STO case studies

Although STOs are a relatively new fundraising channel, several STOs have been successfully executed, including the following two examples which feature premium, institutional grade real estate assets.

Example	Regulated Jurisdiction	Securities type
Aspencoin (ASPD)[20] Underlying real estate: St. Regis Aspen Resort *ASPD Tokens represent an indirect ownership interest in a company that owns the St Regis Aspen Resort.*	United States (SEC)	REIT
Mapletree Europe Income Trust (MP)[21] Underlying real estate: Office assets in European growth cities *MP Tokens represent an indirect ownership interest in Mapletree Europe Income Trust, which holds interests in the office assets.*	Singapore (MAS)	Fund (Private)

Figure 10: Selected case studies of global real estate STOs.

STO ecosystem in its infancy

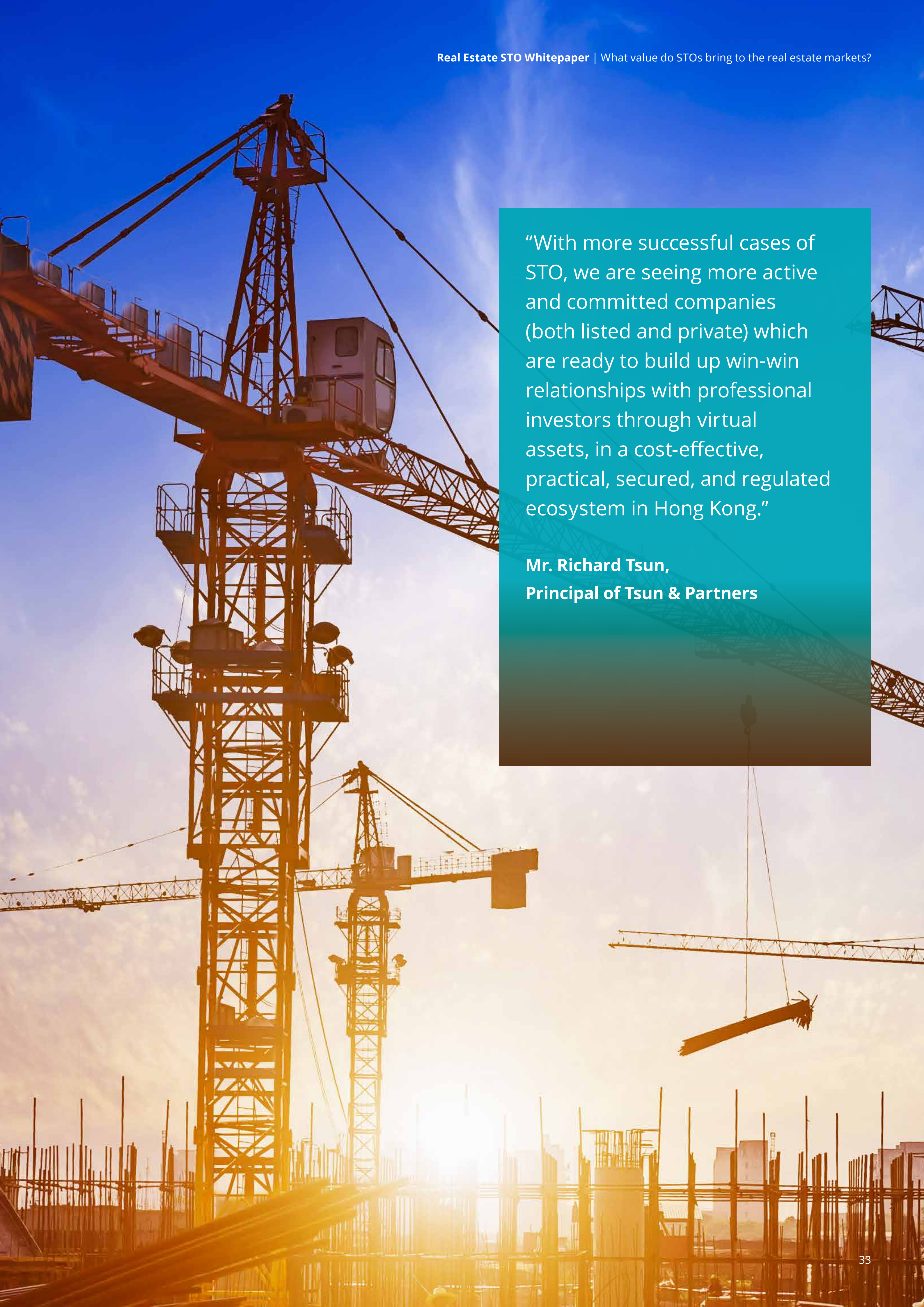
The STO market currently remains nascent. This means that several challenges exist which need to be addressed as the market matures and the development of an ecosystem that supports the structuring and execution of STOs is critical to growth of the STO market. We set out below a summary of some of the key challenges for executing a real estate STO and the implications for stakeholders.

	Description	Implications for stakeholders
Technology	Cybertheft leading to loss of ST Lack of industry standards for blockchain protocols Potential smart contract failure	Robust IT auditing capability is one key criteria investors and issuers consider when selecting their technology service providers
Innovation	Most existing ST use cases are concentrated in single traditional securities only e.g. digital equities, bonds.	To attract investors, issuers should leverage an ST's flexibility to represent/ combine multiple asset classes to design more innovative product structure.
Distribution	Lack of broker-dealers with relevant licenses to distribute virtual assets	Licensed broker-dealers enjoy a first mover advantage in an untapped market and are able to better-establish their network
Regulation	Uncertain and evolving regulatory framework	Ecosystem participants should keep up to date with the rapidly developing regulatory landscape globally

Figure 11: Ecosystem development needed for STOs.

[20] The Aspen Digital ST https://www.aspencoin.io/

[21] ADDX: Mapletree-MERIT Fund https://addx.co/en/investments/mapletree/



"With more successful cases of STO, we are seeing more active and committed companies (both listed and private) which are ready to build up win-win relationships with professional investors through virtual assets, in a cost-effective, practical, secured, and regulated ecosystem in Hong Kong."

Mr. Richard Tsun,
Principal of Tsun & Partners

STO opportunities in Hong Kong and the Greater Bay Area

We believe the outlook for the application of STOs to the real estate sector in Hong Kong and the GBA is immense. The confluence of market-driven and government-driven developments is creating more project opportunities while at the same time building an ecosystem that can effectively foster the development of STOs as a new wave of financial innovation over the next five years.

More project opportunities

Affordable housing & housing for the elderly: heightened capital needs call for STOs

The chronic shortage of affordable housing has been one of the most pressing issues faced by Hong Kong. A recent report by Our Hong Kong Foundation[22], a Hong Kong think tank, highlighted the statistics of falling housing supply and declining average unit size, which exacerbates the worsening quality of living. On the bright side, the continuous rollouts of development plans including "New Development Areas" and "Lantau Tomorrow Vision", and the higher land delivery from Tung Chung, Kwu Tung North and Fanling North will provide a solid base for public housing projects in the next five years.

Driven by an aging population, we see an increasing number of property projects catering to the needs of this segment of society. In particular, newly constructed smart buildings, housing for the elderly and renovation projects of existing complexes, as well as the surrounding infrastructure such as healthcare facilities are creating additional demand for capital raising.

Proptech: rich with structural data points to attract investors with STOs

It has been more than a decade since real estate players began their embrace of innovative technological solutions. With maturing enabling technological solutions such as IoT, artificial intelligence and AR/VR, the adoption of Proptech amongst real estate developers is increasing with a view to enhancing customer experience, reducing pollution, saving energy and boosting construction safety. In particular, we anticipate the development of smart and green buildings to increase as awareness grows of sustainability and the Government's Smart City Blueprint for Hong Kong.

Real estate developers who embrace Proptech solutions will also be better positioned to take advantage of STOs as they will likely have acquired the capability to harness structured data points throughout the life-cycle of property development, which can then be documented on the blockchain, giving investors transparent disclosure.

[22] Our Hong Kong Foundation: Land and Housing Policy Research Report: Decisive Moment - Can Hong Kong Save Itself from the Land and Housing Supply Crisis? Apr 2021

"As the largest FinTech hub of Hong Kong, Cyberport is committed to fostering the development of FinTech to reinforce Hong Kong's position as an international finance center and a premiere asset management center. We believe the unique capabilities of STOs can bring liquidity to real estate investments and can enhance the efficiency, transparency and reliability of transactions. These developments will further the digital transformation of the finance services industry and the real estate investment market for the benefit of all stakeholders."

Mr. Eric Chan,
Chief Public Mission Officer of Cyberport

Favourable policy alignment

Government's support for 'new infrastructure' prompts issuers to explore STOs

While the REIT regime in Hong Kong has traditionally been a less exciting sector, with investments tending to centre on traditional property types, recent times have witnessed continued efforts to revitalise the markets. In addition to the SFC's recent reforms of the REIT Code and the Hong Kong government's subsidy to incentivize the establishment of REITs in Hong Kong, the Hong Kong Financial Services Development Council also issued a working paper recently[23] recommending new policies to further develop Hong Kong's REIT market and highlighting several high growth property types as suitable for REITs, including, logistic parks and data centres.

With government support from a policy perspective of the development of 'new infrastructure', we anticipate developers will explore STOs as a means of raising capital to fund the development of these assets. The stable and long-term income streams generated by new infrastructure assets will be attractive to investors as a means of enhancing portfolio returns, while the flexibility offered by STs to seamlessly integrate different types of rights and interests for investors will appeal to issuers who are open to innovation and unlocking new investor bases.

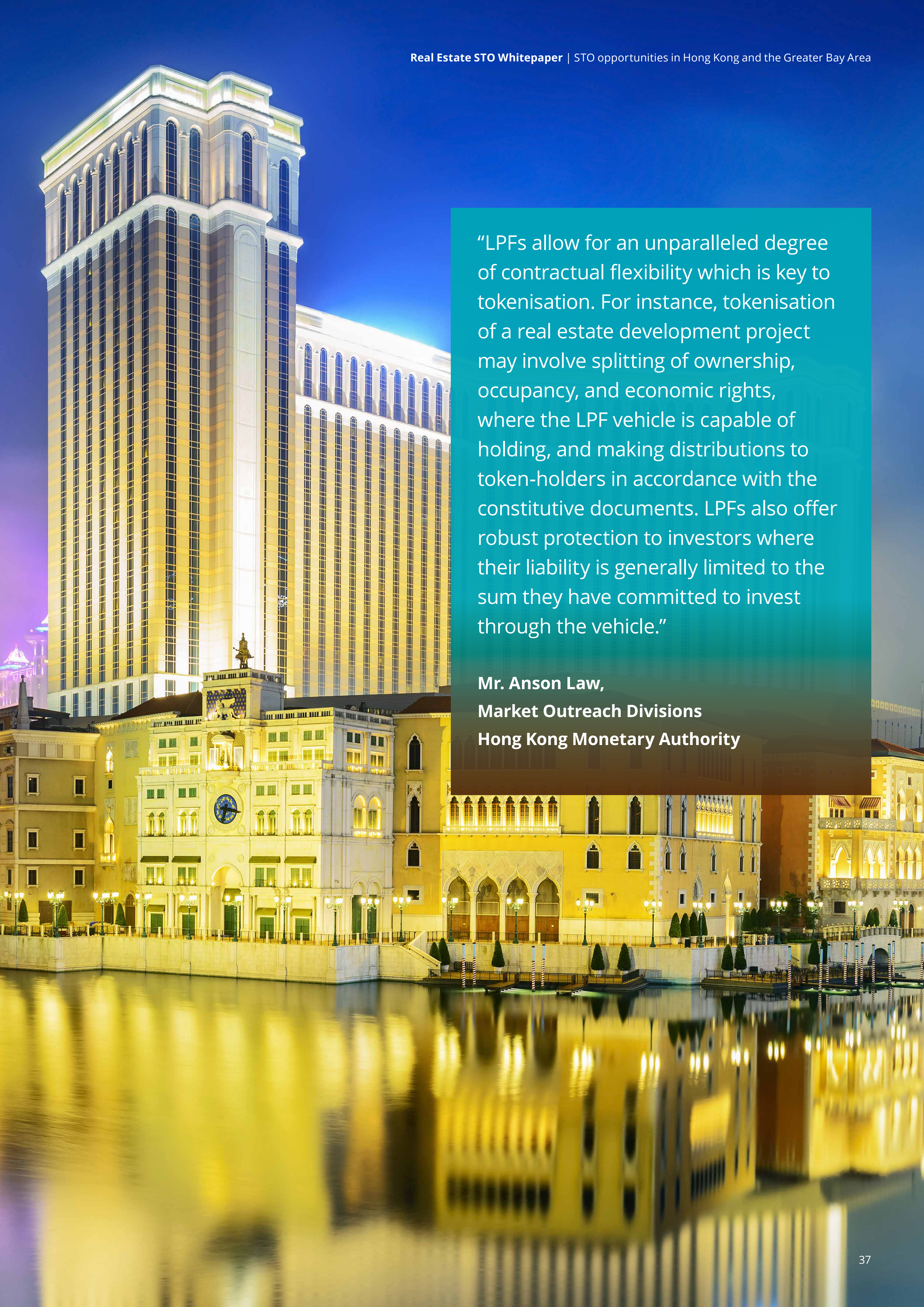
Hong Kong Limited Partnership Fund (LPF) regime: a streamlined, flexible and efficient structure

In August 2020, Hong Kong launched the Limited Partnership Fund ("LPF") regime which is tailored to cater specifically for the needs of private investment funds. The LPF regime was designed to address the global tax and regulatory challenges that traditional offshore investment fund structures have faced in recent years. The LPF regime was also designed to be market friendly by offering a locally domiciled vehicle that is streamlined, efficient and low cost to establish and maintain.

Since its introduction 11 months ago, the LPF regime has been embraced by the market with more than 300 LPFs being established by local, PRC and international asset managers focusing on various investment strategies and asset classes.

The broad contractual freedom offered by LPFs coupled with the simple, streamlined and efficient establishment requirements make LPFs an ideal vehicle for the tokenisation of real estate assets and real estate funds of all sizes. In addition, because no stamp duty is payable on the transfer of interests in an LPF, it is ideally suited to cater for active secondary market trading that will be enabled by tokenisation.

[23] Hong Kong government aims to revitalise HK-REITs by providing tax incentives and implementing regulatory enhancements. Financial Services Development Council: Revitalisation of Hong Kong's real estate investment trusts market–Promoting liquidity



"LPFs allow for an unparalleled degree of contractual flexibility which is key to tokenisation. For instance, tokenisation of a real estate development project may involve splitting of ownership, occupancy, and economic rights, where the LPF vehicle is capable of holding, and making distributions to token-holders in accordance with the constitutive documents. LPFs also offer robust protection to investors where their liability is generally limited to the sum they have committed to invest through the vehicle."

Mr. Anson Law,
Market Outreach Divisions
Hong Kong Monetary Authority

Conclusion

The real estate sector is set for continued growth. Strong demand and policy alignment are lifting the sector to new heights as investors continue to lean heavily into real estate investments, hoping to share in real estate's sustained outperformance of other sectors of the global economy as they gradually recover from the pandemic-induced downturn. The combined effect of these forces is an unprecedented and imminent demand for capital to meet the needs of the fast-growing real estate sector.

In this paper we have explored how STOs are uniquely poised to be an innovative new fundraising channel that addresses many of the challenges existing under the traditional finance framework. With the promise of liquidity, innovative investment structures and enhanced operational efficiencies, there is significant potential for forward thinking issuers to democratise investment access and tap into a new pool of real estate investors.

While much work remains to develop an ecosystem that facilitates and can support mainstream adoption, the future of STOs is exceedingly bright as regulators and market participants continue to build the foundations that are required for a stable, regulated and trusted market for security token offerings. As with any other innovative technological application, the limitations are being tackled on a daily basis, and we believe endorsement by capital markets stakeholders will forge a positive feedback loop to increase adoption over time.

Our next paper will provide an insider's view of real estate STOs, illustrating the end-to-end process with contributions from pioneers in the ecosystem.

Appendix 1: Deriving the total addressable market ("TAM") for STs

Introduction

In this section, we look at the potential market size in the APAC region that may be served by STs. In our view, the value of institutionally invested real estate represents a theoretical upper limit on the addressable market for STs. However, the annual volume of transactions of income-producing properties provides a more realistic indication of the level of ST use which could conceivably be reached over the next few years. Below, we provide data for transaction volumes for both APAC as a whole and Hong Kong SAR, and estimate how APAC transaction volumes may grow over the next few years.

Upper limit of the addressable market for STs

It could be argued that the upper limit on the addressable market for STs is the aggregate value of the investable real estate market itself. We define the investable market as the aggregate value of all income-producing real estate market segments: office, retail, industrial and logistics, hotels, rented residential properties, other categories. Importantly, this definition excludes owner-occupied homes.

However, globally over 80% of income-producing real estate assets are held for the very long term by large corporate or wealthy family owners and are rarely traded. The value of real estate assets owned by institutional investors is therefore a more meaningful measure of the size of the income-producing real estate market. As of end-2020, the aggregate value of income-producing real estate and the aggregate value of institutionally invested real estate in APAC were, respectively, USD19.3 trillion and USD3.3 trillion.[24] In our opinion, this latter figure of USD3.3 trillion represents the theoretical upper limit on the addressable market for STs.

Property transaction volumes as a practical guide to better market sizing

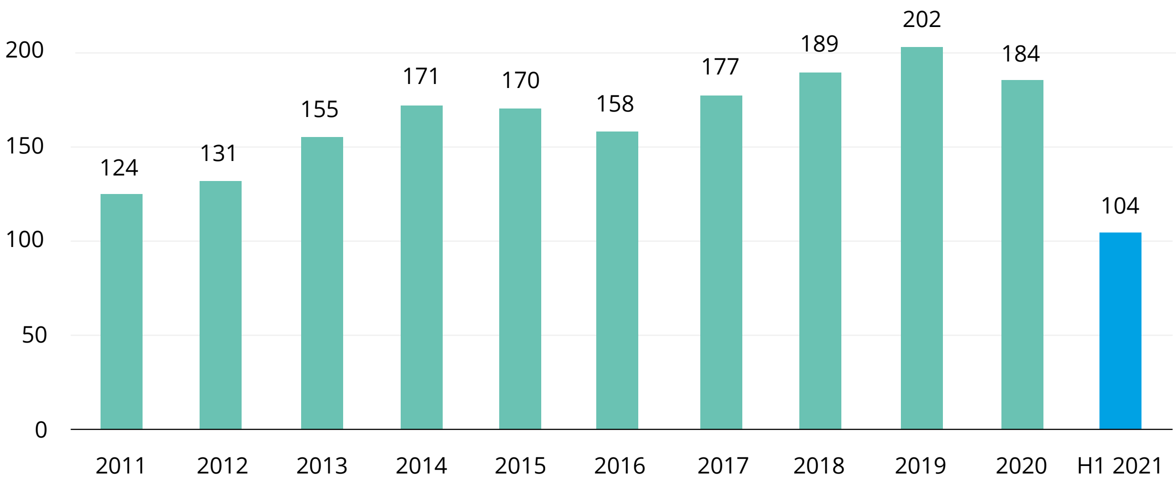
Naturally, typical annual transaction volumes of income-producing properties are far below aggregate institutionally invested real estate stock–though still very substantial. Aggregate transactions of income-producing properties in APAC totalled USD202 billion[25] in 2019–a figure equivalent to just over 6% of the region's institutionally invested real estate. This total was an all-time high and reflected average growth of 5.6% p.a. from USD124 billion in 2011. Despite the COVID-19 recession, total APAC transaction volume fell by only 9% in 2020, to USD184 billion.[26]

[24] LaSalle: Accessing the Real Estate Investment Universe in 2021

[25] Real Capital Analysis

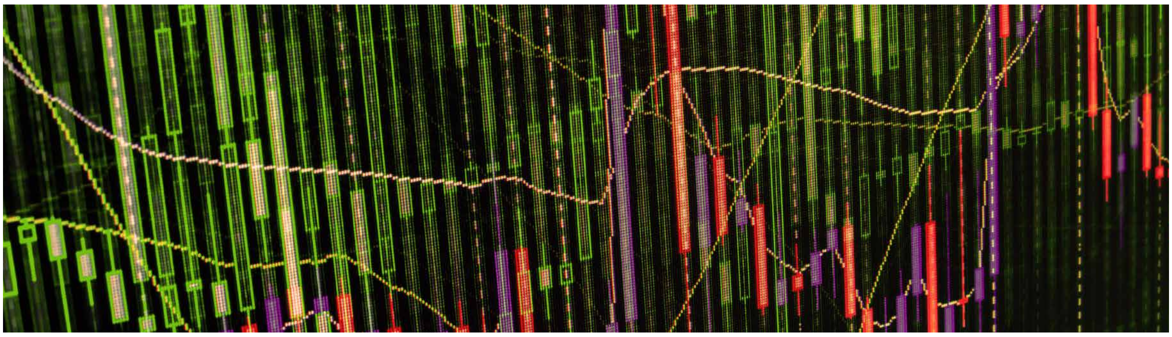
[26] The aggregate value of all categories of property transaction in APAC in 2020 was far higher, at over USD800 billion. However, this figure includes huge transactions of undeveloped land, especially in China. This category of transaction would be harder to tokenise.

Aggreg. APAC property transaction volumes, 2011-H1 2021 (USD billions)



Source: RCA

As shown in the above chart, property investment in APAC has been very active so far in 2021, with total transaction volume reaching USD104 billion, or 57% of last year's total. While office deal volumes have been broadly stable, transactions of industrial and logistics assets have maintained their robust growth of recent years. This is shown by the increase in the proportion of total transactions made up by industrial and logistics assets from 15.7% in 2019 to 25.1% in the first half of 2021. Furthermore, the retail segment – which has been under pressure due to structural market changes and the impact of COVID-19 on travel and tourism – appears to be recovering, rising as a proportion of total transactions from 19.5% in 2020 to 23.5% in the first half of 2021. In the light of these trends, we now predict that total property transaction volume in APAC will rise by 15% in 2021, to USD212 billion, surpassing the 2019 record.



Projected total property transaction to be USD 268 billion by 2025

Looking beyond 2021, we assume that aggregate transaction volumes across APAC will increase by 6.0% p.a., i.e. just above the rate over the past decade, over the period 2022-2025. This would raise total property transaction volume to USD268 billion by 2025. Three key factors underlie this projection:

1. Led by China, the APAC region is enjoying a strong recovery from the COVID-19 recession, although the rate of pick-up should moderate from 2022.

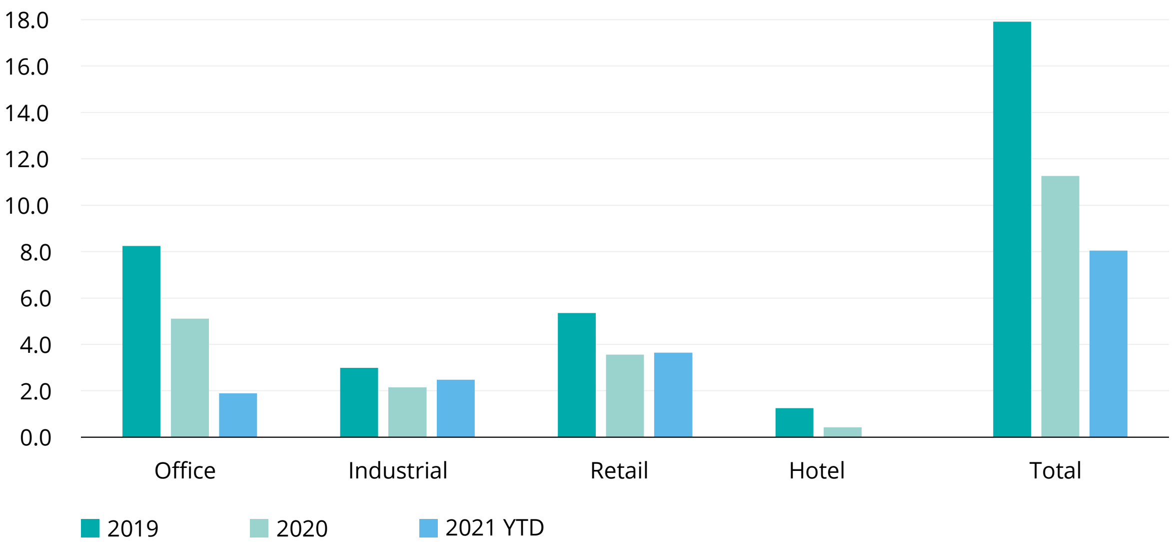
2. Investment demand for industrial and logistics assets in particular should remain strong, while transaction volumes in the apartment or residential sector should be boosted by growing investor demand for multifamily apartment blocks – a property category which is most developed in Japan, but is spreading to China and Australia.

3. Undeployed capital presently stands at about USD46 billion[27] in APAC in the private equity sector alone; and this level implies around USD90 billion of additional investment demand taking account of typical fund leverage.

Taking a close look at Hong Kong…

We may also consider the value of aggregate transactions of income-producing properties in the Hong Kong SAR market. Aggregate transactions in Hong Kong amounted to USD17.9 billion in 2019, to USD11.3 billion in 2020, and to USD8.1 billion for the first half of 2021[28]. Average annual transactions over the ten years from 2011 to 2020 amounted to USD18.0 billion – a level very similar to the outcome in 2019. Simply annualising the outcome for the first half of 2021 suggests a 43% recovery in transaction volumes for the full year. Investment activity has picked up strongly in all major property market segments except hotels, suggesting that the recovery is sustainable.

Hong Kong: transaction volumes by sector, 2019-2021 (USD billions)



Note: Industrial includes Logistics. Source: RCA

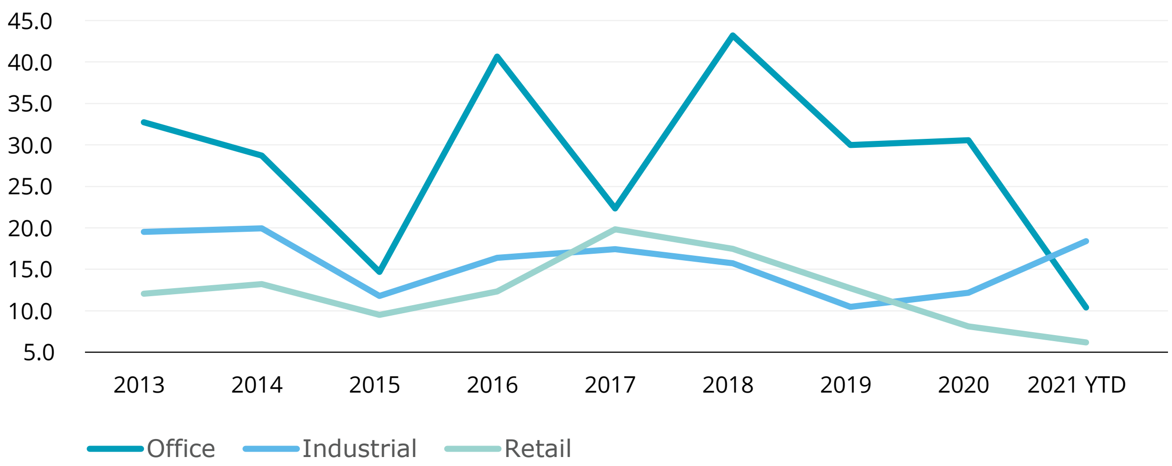
[27] Preqin
[28] Real Capital Analysis

Growing tokenised transaction in APAC

Our prediction of a 15% increase in APAC investment volumes in 2021, followed by a 6% p.a. increase on average over 2022-2025, should provide confidence that prospects for real estate transaction activity are favourable. We cannot be sure how quickly these transactions will be tokenised, or what proportion of total annual investment volume of over USD200 billion tokens will eventually make up. However, it seems reasonable to expect tokenised transactions to increase rapidly in relation to the total from a small base. Further, tokenisation may offer additional impetus to total transaction growth by boosting liquidity in the real estate market.

Returning to Hong Kong, it is worthwhile to note that, in 2020, average transaction sizes were USD30.6 million for offices, USD12.2 million for industrial and logistics, and USD8.1 million for retail. These average sizes may look small: we suspect that they reflect a high number of strata-title transactions, especially in the office and retail segments. Since 2013, average transaction sizes in these three key market segments have varied between USD6.2 million and USD43.2 million; we have excluded hotels, for which transactions are larger and less frequent. These average transaction sizes offer an indication of the potential average size of token-based transactions in the Hong Kong market and the APAC real estate market overall.

Hong Kong: average transaction sizes by market segment (USD millions)



Note: Industrial includes Logistics. We have excluded hotels and other market segments.
Source: RCA

Summary

To sum up, institutionally invested real estate of USD3.3 trillion may be taken as a theoretical upper limit on the addressable market for STs in APAC. However, **aggregate transactions of income-producing properties in APAC, which we expect to grow by 15% to USD212 billion in 2021 and thereafter by 6% p.a. to USD268 billion in 2025,** provide a more realistic indication of the level of ST use which could conceivably be reached over the next few years. While we cannot be sure how fast ST use will rise, we believe that it will increase rapidly and boost overall property market liquidity. Average transaction sizes (pushed down by strata-title deals) of between USD6.2 million and USD43.2 million in the Hong Kong market since 2013 offer an indication of the potential average size of token-based dealings.

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