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Research Report

The inclusion of ETFs in Stock Connect — Implications and opportunities

CONTENTS

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Hong Kong Exchanges and Clearing Limited

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SUMMARY

Exchange traded funds (ETFs) can provide attractive opportunities for investment diversification. The global market for ETFs has been growing steadily in recent years with growth drivers including the relative low cost of investment, opportunities for accessible diversification, product liquidity, transparency and potential tax benefits.

In addition, the variety of ETFs available to the investor has also evolved quickly, ranging from broad-based equity ETFs tracking major stock indices, to a wide range of ETFs spanning asset classes, markets and investment themes. The attributes of ETFs and the choices available in the market give investors a wider range of portfolio diversification opportunities.

The Mainland Chinese ETF market on both the Shanghai Stock Exchange and the Shenzhen Stock Exchange has mirrored this global trend, growing rapidly. Mainland ETFs are classified into equity ETFs on A shares, bond ETFs on Mainland bonds, commodity ETFs, money market ETFs and cross-border ETFs on offshore equities. The turnover of Mainland ETFs has also been trending up in the past decade.

In Hong Kong, the ETF market is well established, providing a wide range of China and global exposures in multiple currencies and asset classes. Hong Kong ETFs include Mainland China A-share ETFs, Hong Kong equity ETFs, Asia-Pacific equity ETFs, other overseas equity ETFs, fixed income and currency ETFs and commodity ETFs.

Like the global ETF market, the investment strategies of these ETFs have evolved from broad-based, sector and smart beta, into more thematic investments, including those tracking environment, social and governance (ESG). Both the market size and turnover value of Hong Kong ETFs have grown in the past few years. The growth is partly attributable to the relatively low cost of investing in Hong Kong ETFs (exempt from stamp duty) and competitive tax advantages on dividends from the underlying Hong Kong, Mainland and Asia-Pacific equities.

Further to the launch of Stock Connect in 2014 and the Hong Kong-Mainland ETF Cross-Listing Scheme in 2020, the inclusion of eligible ETFs in Stock Connect commencing 4 July 2022 is another milestone for cross-border access between the Mainland and Hong Kong stock markets. Eligible ETFs must be equity ETFs investing mainly in eligible equity securities in their respective markets and these ETFs also need to fulfil certain ETF-specific requirements such as minimum fund size.

This development will give global and Mainland investors the opportunity to benefit from widened access to ETFs in the Mainland and Hong Kong markets and the investor bases of the two markets will be expanded as a result, which in turn will enhance liquidity provision and price discovery in each market.

At the initial stage, eligible ETFs included in Stock Connect will be limited to equity ETFs only. However, in time, this scope could be widened, supporting the growth of both markets. In Hong Kong, in addition to ETFs tracking major equity indices, thematic (including ESG) ETFs and ETFs on diversified overseas companies offer attractive future Southbound opportunities.

Looking further forward, as ETFs can represent a very broad range of asset classes and themes, e.g. ETFs on non-equity asset classes[1], the inclusion of ETFs in Stock Connect may offer possible diversification and investment opportunities for both global and Mainland investors in the longer term. This in turn would help facilitate global investors' allocation into Mainland and/or RMB assets and Mainland investors' portfolio diversification, further supporting the development of the Mainland and Hong Kong ETF markets.

[1] Subject to regulatory approval.

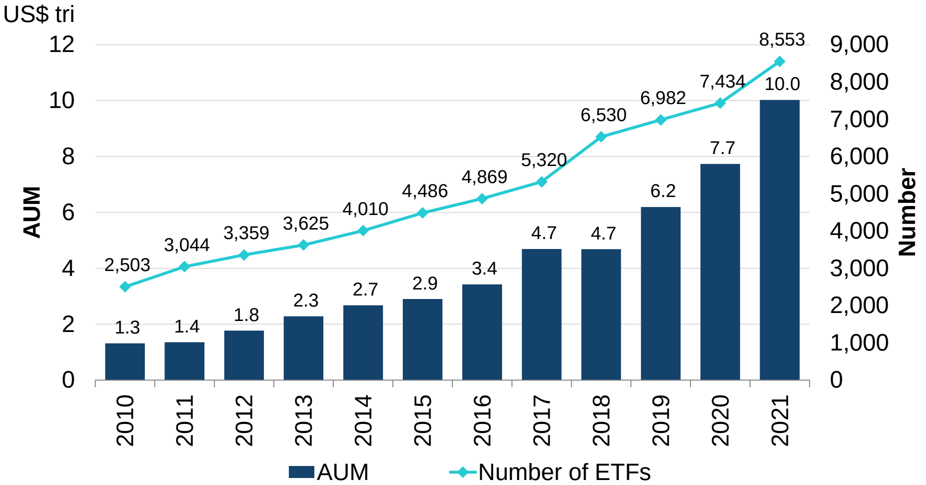
1. ETFS AS TOOLS FOR GLOBAL INVESTMENT

Exchange traded funds (ETFs) are a fast-growing investment product segment in the global market. An ETF is a special type of investment fund tracking the performance of a wide range of equities, fixed income, commodities or other asset classes and is traded on a stock exchange.

Being traded on exchanges, ETFs have high transparency with daily disclosure of information on price, turnover and portfolio holdings. In 2021, the asset-weighted average expense ratio of equity ETFs was 0.16%, compared to 0.47% for equity mutual funds[2]. According to the findings of a survey of global investors[3], the key drivers for the increasing popularity of ETFs include the relative low cost of investment, opportunities for accessible diversification, product liquidity, transparency and potential tax benefits.

The global ETF market has grown steadily over time — the number of ETFs rose from 2,503 in 2010 to 8,553 in 2021 with a compound annual growth rate (CAGR) of 12%; total assets under management (AUM) rose from US$1.3 trillion in 2010 to US$10.0 trillion in 2021, with a CAGR of 20% (see Figure 1). As of end-2021, the US had the largest ETF market with 2,628 ETFs and AUM of US$7.1 trillion, followed by Europe with 1,928 ETFs and AUM of US$1.5 trillion[4].

Figure 1. Total AUM and number of ETFs in the global market (2010 – 2021)



Note: The data covers only ETFs, but not other ETPs. With other ETPs included, the total asset size was US$10.27 trillion in 2021.

Source: "ETFGI reports global ETFs industry ended 2021 with a record US$10.27 trillion in assets and record net inflows of US$1.29 trillion", press release on ETFGI's website, 25 January 2022.

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2 Source: "Trends in the expenses and fees of funds, 2021", *ICI Research Perspective*, published on Investment Company Institute (ICI), March 2022.

3 Trackinsight, *Global ETF Survey 2021*, published on Trackinsight's website.

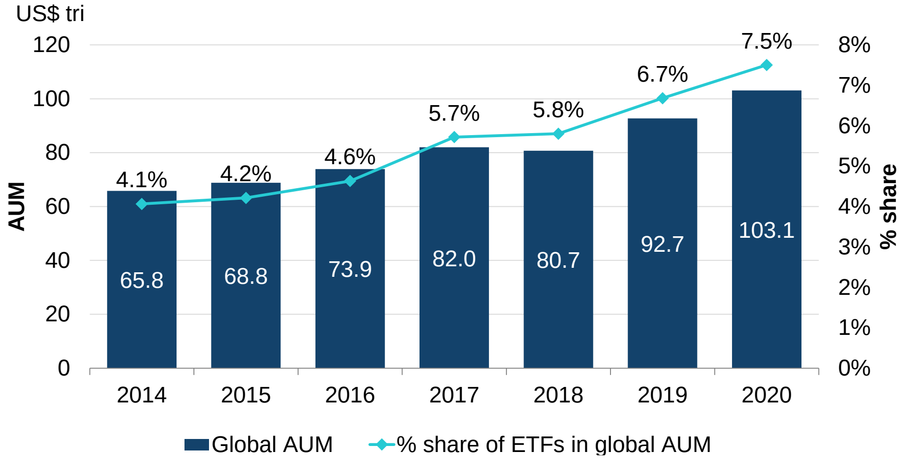
4 The data covers only ETFs, but not other exchange-traded products (ETPs). See "ETFGI reports the ETFs industry in the United States ended 2021 with record high assets of US$7.21 trillion and record net inflows of US$919.78 billion" and "ETFGI reports the ETFs industry in Europe ended 2021 with record net inflows of US$194 billion and record assets of US$1.60 trillion", press releases on ETFGI's website, 17 January 2022.

Investors' rising demand for diversification has helped fuel the growth of the ETF market. Amid a low-yield environment and ample market liquidity, the global asset management industry has been growing rapidly. Further growth in the global ETF market may come from China as Chinese financial markets grow and the "Big Bang of Finance" plays out[5].

Since 2000, the growth rate of investible assets owned by Chinese households has outperformed growth rates for other major economies[6]. Chinese investors are expected to allocate an increasing share of their assets to financial markets and this could potentially drive investment flows both in the Mainland and globally and support the growth of the global asset management industry.

More products and investment channels like ETFs will be required to meet this potential demand. In fact, the ETF market has benefited from the recent growth of the global asset management industry — the share of ETFs in global AUM for the asset management industry rose from 4.1% in 2014 to 7.5% in 2020 (see Figure 2).

Figure 2. Global AUM and the % share of ETFs (2014 – 2020)



Note: The share of ETFs in global AUM is calculated as the AUM of ETFs (excluding other ETPs) divided by global AUM.

Source: Data on AUM of ETFs from "ETFGI reports global ETFs industry ended 2021 with a record US$10.27 trillion in assets and record net inflows of US$1.29 trillion", press release on ETFGI's website, 25 January 2022; data on global AUM from *Global Asset Management 2021: The $100 Trillion Machine*, published on Boston Consulting Group's website, July 2021.

ETFs offer diversified investment choices to global investors owing to the variety of their underlying assets. These underlying assets span various asset classes including equity, fixed income, commodity, property or real estate, and even climate and weather, and ETFs are usually offered on indices tracking their price performances.

At the end of 2020, equity ETFs accounted for about 77% of global ETFs' total AUM, followed by 19% for fixed income, 3% for commodity and 1% for others[7]. In addition, the product variety of ETFs has evolved quickly from broad-based equity ETFs tracking major stock indices[8] to a wide range of ETFs spanning across multiple asset classes, markets and themes.

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5 See: Nicolas Aguzin, "Global capital markets and the Big Bang of Finance", *HKEX Insight*, published on HKEX's website, 19 January 2022.

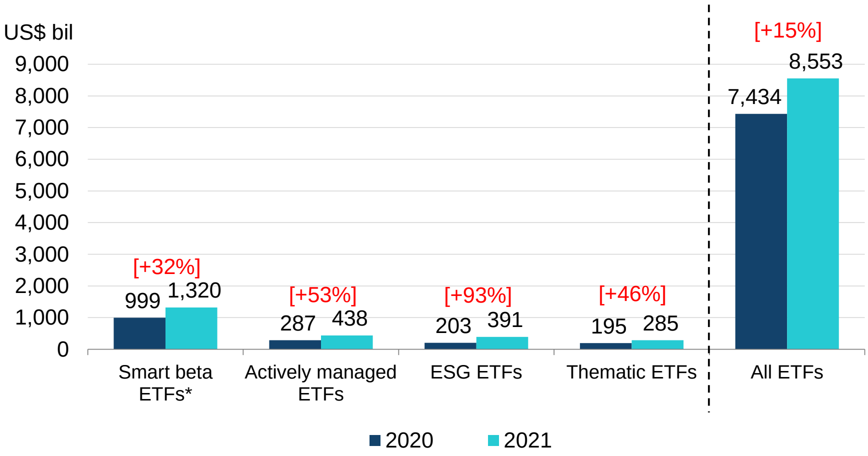
6 See "The rise and rise of the global balance sheet: How productively are we using our wealth?", published on McKinsey's website, November 2021.

7 Calculated based on the data of AUM for all ETFs, equity ETFs, fixed income ETFs and commodity ETFs from *Global ETF Survey 2021*, published on Trackinsight's website.

8 A broad-based index refers to an index whose constituent selection is not limited to a specific industry or investment theme but reflects the performance of a certain market or a certain size of stocks.

Moreover, ETFs have diverse investment strategies, including smart beta, active management, environment, social and governance (ESG) and other thematic investment. The growth of AUM of ETFs with these strategies ranged from 32% to 93% in 2021, which outpaced 15% for all ETFs (see Figure 3).

Figure 3. AUM of selected types of ETF in the world (2020 and 2021)



[ ] Year-on-year change

* Data on smart beta ETFs in 2021 is as of November 2021.

Source: "ETFGI reports thematic ETFs and ETPs listed globally gathered US$80.54 billion in net inflows in 2021" (21 January 2022), "ETFGI reports assets invested in actively managed ETFs listed globally reached a new record of 442 billion US dollars at the end of February 2022" (18 March 2022), "ETFGI reports ETFs focused on ESG strategies listed globally gathered net inflows of US$7.55 billion during February 2022" (17 March 2022), "ETFGI reports a record US$20.23 billion invested in crypto ETFs and ETPs listed globally at the end of November 2021" (30 December 2021) and "ETFGI reports record year to date net inflows of US$148.28 billion invested into smart beta ETFs and ETPs listed globally at the end of November" (30 December 2021), press releases on ETFGI's website.

To meet the rising demand for diversification, ETF product innovation has expanded into not only new investment strategies, but also new asset classes. This is evidenced by the growth of digital asset ETFs — the AUM of digital asset ETFs/ETPs rose by 433% from US$3 billion at the end of 2020 to US$16 billion at the end of March 2022[9]. In addition, allocations into bond ETFs have increased steadily in recent years and Chinese bond ETFs are one potential growth engine[10].

2. OPPORTUNITIES IN MAINLAND AND HONG KONG MARKETS

2.1 The growing Mainland ETF ecosystem

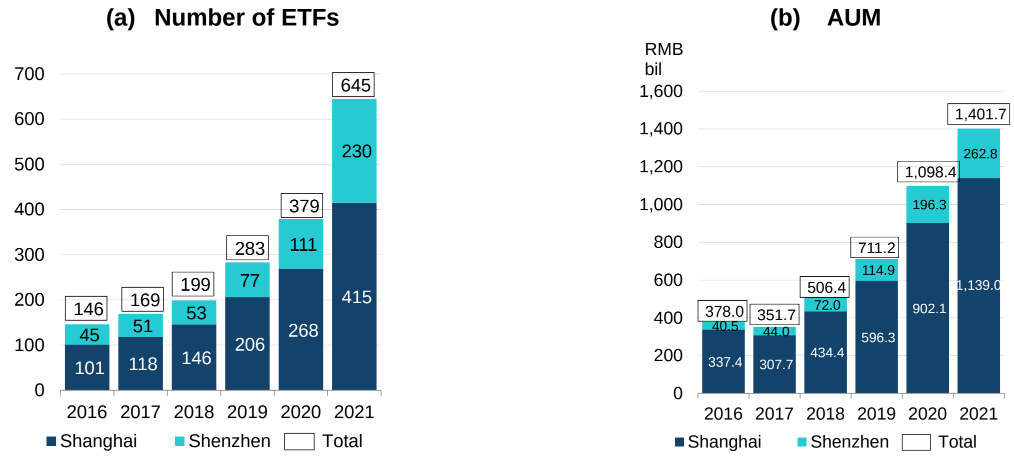
The Mainland ETF market has been growing rapidly in terms of both the number of ETFs and AUM. The number of Mainland ETFs rose from 146 at the end of 2016 to 645 at the end of 2021, with a CAGR of 35% — rising from 101 to 415 for the Shanghai Stock Exchange (SSE) and from 45 to 230 for the Shenzhen Stock Exchange (SZSE).

The AUM of Mainland ETFs rose from RMB 378.0 billion at the end of 2016 to RMB 1.4 trillion at the end of 2021, with a CAGR of 30% — rising from RMB 337.4 billion to RMB 1.1 trillion for the SSE and from RMB 40.5 billion to RMB 262.8 billion for the SZSE. (See Figure 4.)

9 Source: "ETFGI reports Crypto ETPs listed globally gathered net inflows of US$785 million during March 2022", press release on ETFGI's website, 29 April 2022.

10 HKEX research report, "Broadening international investor participation in the Mainland bond market", published on HKEX's website, 14 February 2022.

Figure 4. Total number of Mainland ETFs and total AUM by market (2016 – 2021)



Note: The time series data of number and AUM of ETFs are sourced from China Securities Depository and Clearing Corporation, which have small discrepancies from the official statistics of SSE and SZSE for the data of 2021.

Source: Wind.

Mainland ETFs are commonly classified into five types based on underlying assets — equity ETFs on A-shares, bond ETFs on Mainland bonds, commodity ETFs, money market (MM) ETFs and cross-border ETFs on offshore equities[11].

Equity ETFs dominate the AUM of Mainland ETFs on both the SSE and SZSE — as of end-2021, equity ETFs accounted for 64% of total AUM for ETFs listed on the SSE and 87% of total AUM for ETFs listed on the SZSE (see Figure 5). These ETFs track broad-based indices, thematic indices, sectoral indices and other indices with different strategies.

The second largest type of ETF was money market ETFs for the SSE and cross-border ETFs for the SZSE. In fact, cross-border ETFs accounted for a considerable share of total AUM (8%) for ETFs listed on both the SSE and SZSE.

The underlying indices of cross-border ETFs mainly cover Hong Kong equities — as of end-2021, 53 out of 64 cross-border ETFs covered Hong Kong listed equities[12]. In addition, cross-listing arrangements of ETFs between Mainland exchanges and foreign exchanges, including Japan Exchange Group (JPX)[13] and HKEX[14], have widened the investment choices to Mainland investors. It was reported that similar cross-listing arrangements will be expanded into exchanges in Korea and Singapore[15].

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[11] In the Mainland market, listed funds also include listed open-ended funds (LOFs) and structured funds covering Mainland equities and bonds and infrastructure real estate investment trusts (REITs).

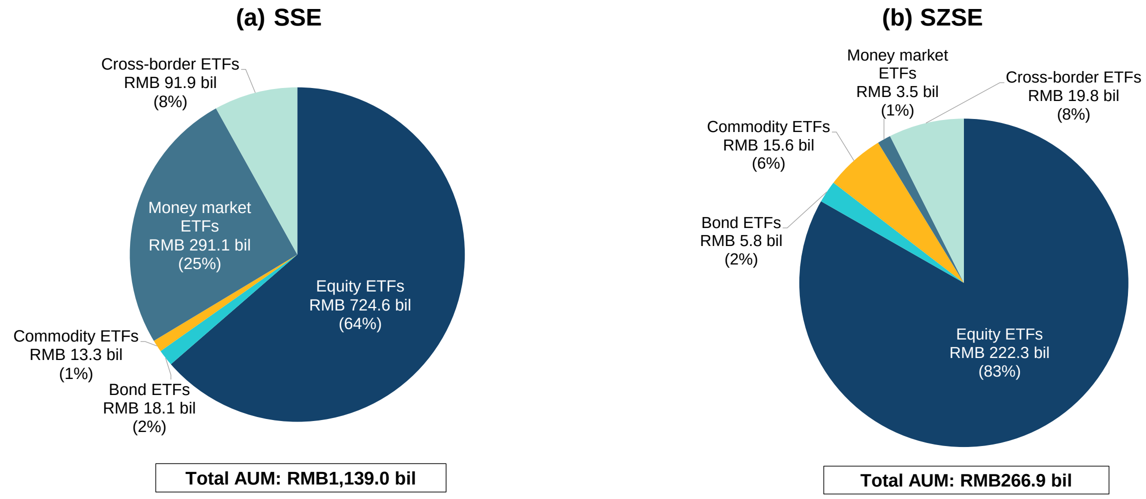
[12] Source: Wind.

[13] As at end-2021, there were 8 ETFs (4 ETFs in each other's market) covered by the connectivity scheme. See "Japan-China ETF Connectivity", webpage on JPX's website.

[14] As at end-2021, there were 6 ETFs (3 ETFs on each other's market) under the scheme. See "HKEX welcomes first Hong Kong/Mainland ETF cross-listing" (23 October 2020) and "HKEX welcomes first ETF cross-listings in Hong Kong and Shanghai" (1 June 2021), news releases published on HKEX's website.

[15] Source: "China-Singapore ETF connectivity plan is making good progress, regulator says", published on *Financial Times* website, 30 November 2021.

Figure 5. AUM of Mainland ETFs by type on the SSE and SZSE (end of 2021)

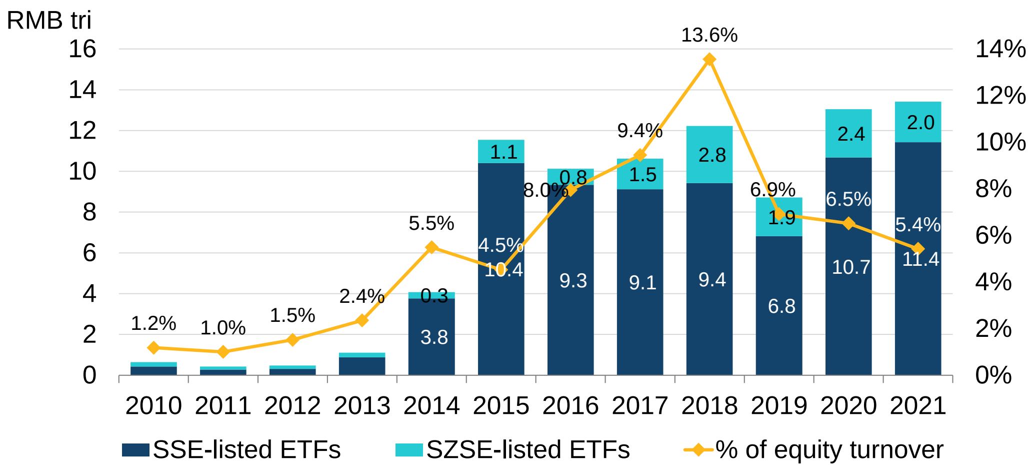


Source: Data for the SSE from *Shanghai Stock Exchange ETF Industry Development Report (2022)* (《上海證券交易所 ETF 行業發展報告（2022）》), published on the SSE's website, 22 February 2022; data for the SZSE from *Shenzhen Stock Exchange ETF Industry Development Report (2022)* (《深圳證券交易所 ETF 行業發展報告（2021）》), published on the SZSE's website, 10 April 2022.

The turnover value of Mainland ETFs has been trending up during the past decade (see Figure 6). Liquidity has been supported by continued market enhancements, including market making. It was reported that the number of SSE-listed ETFs with market makers increased from 214 in 2020 to 372 in 2021, resulting in 90% coverage of the total number of SSE-listed ETFs at the end of 2021[16].

However, the ratio of ETF turnover to equity turnover in value terms declined to 5.4% in 2021 after reaching a peak of 13.6% in 2018. This implies that the growth in ETF turnover has not been as fast as that in equity turnover in recent years after the inclusion of A-shares into global equity indices.

Figure 6. Total turnover value of Mainland ETFs by market (2010 – 2021)



Note: Data on the turnover value of MM ETFs before 2019 was obtained by summing up the turnover values of individual money market ETFs from Wind (as such data is not available from the SSE) for inclusion in the SSE figures.

Source: SSE, SZSE and Wind.

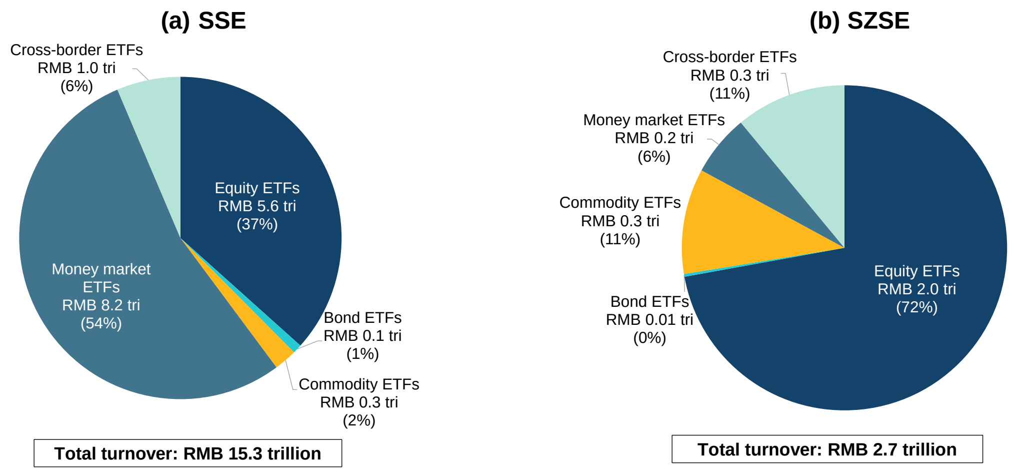
16 Source: "SSE report on market makers of funds in 2021"(〈2021 年度上海證券交易所基金做市商報告〉), *SSE ETFs' Home* (《上交所 ETF 之家》) on Weixin, 27 January 2022.

The composition of ETF turnover was different for the SSE and SZSE (see Figure 7).

On the SSE, the most actively traded type of ETFs in 2021 was MM ETFs (constituting 54% of total ETF turnover value on the SSE), followed by equity ETFs (37%) and cross-border ETFs (6%).

On the SZSE, equity ETFs were the most active (constituting 72% of total ETF turnover value on the SZSE), followed by cross-border ETFs and commodity ETFs (11% for both). It is worth noting that commodity ETFs on the SZSE cover a wide range of commodities (gold, non-ferrous metals, soybean and energy chemicals) while those on the SSE are gold ETFs only.

Figure 7. Total turnover of Mainland ETFs by ETF type for SSE and SZSE (2021)



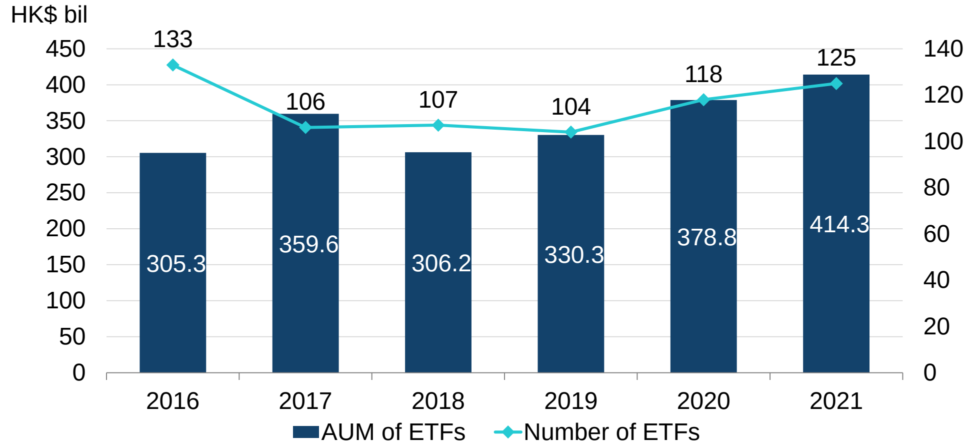
Source: Data on the SSE from *Shanghai Stock Exchange ETF Industry Development Report (2022)* (《上海證券交易所 ETF 行業發展報告（2022）》), published on SSE's website, 22 February 2022; data on the SZSE from SZSE's monthly statistics.

2.2 Hong Kong's role as an ETF hub offering China and global exposures

Driven by the growth in the global and Mainland asset management industries, the Hong Kong ETF market has seen an overall uptrend over the years. At the end of 2021, the AUM of Hong Kong-listed ETFs rose to a 6-year high at HK$414.3 billion and the number of ETFs rose to a 5-year high at 125 (see Figure 8)[17].

[17] The number of ETFs includes a large gold ETF, SPDR Gold Trust, which had an AUM of HK$451.8 billion as at end-2021, much larger than those of other ETFs. To analyse the AUM growth trend of the overall market, the AUM of this ETF is excluded.

Figure 8. Number and AUM of ETFs in Hong Kong (2016 – 2021)



Note: Excluding ETFs which had ceased trading but were not yet delisted by the end of the year.

Source: "ETF Perspective", published on HKEX's website, monthly issues during 2016 to 2021.

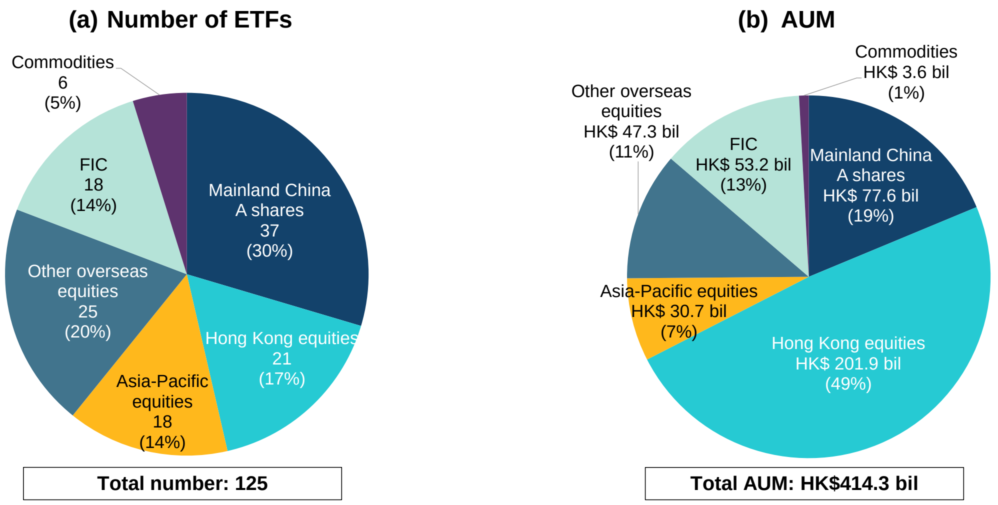
The Hong Kong ETF market offers a one-stop investment platform that provides a wide range of exposures in multiple currencies, markets and asset classes to global investors for diversification (see Figure 9). The investment strategies of these ETFs have evolved from broad-based, sector and smart beta into thematic (including ESG) investments (see Section 4). As of end-2021, the types of underlying exposure offered by Hong Kong ETFs, possibly with multiple currency counters[18], include:

- **Mainland China A-share ETFs**: Covering A-share indices compiled by global, Mainland and local index providers and adopting a wide range of investment strategies (e.g. broad-based, sector and thematic).
- **Hong Kong equity ETFs**: Covering indices on Hong Kong-listed equities, which include the Hang Seng Index and its key sectoral indices (e.g. Hang Seng Tech Index and Hang Seng Biotech Index) as well as indices adopting different smart beta factors.
- **Asia-Pacific equity ETFs**: Covering various exposures to Asia-Pacific equities, which include broad-based regional and local market indices, tech-related indices, high-dividend index, real estate investment trust (REIT) indices (one with active management).
- **Other overseas equity ETFs**: Covering US equity indices and a number of equity indices on innovative sectors (some with active management).
- **Fixed income and currency (FIC) ETFs**: Covering the US dollar (USD) money market and treasury bond market, as well as a wide range of Chinese bond exposures denominated in Renminbi[19].
- **Commodity ETFs**: Including the world's first iron ore ETF and ETF on gold, crude oil and carbon credit.

[18] A Hong Kong ETF can have trading counters in different currencies (Hong Kong dollar, Renminbi and/or US dollar) at the decision of the issuer.

[19] See HKEX research report, "Broadening international participation in the Mainland bond market", published on HKEX's website, 14 February 2022.

Figure 9. Number and AUM of Hong Kong ETFs by type of underlying asset (end of 2021)



Notes:

(1) Excluding ETFs which had ceased trading but were not yet delisted by the end of the year.

(2) The number of commodity ETFs includes a large gold ETF, SPDR Gold Trust, which had an AUM of HK$451.8 billion as at end-2021, much larger than those of other ETFs. To analyse the AUM distribution by type of underlying asset in more detail, the AUM of this ETF is excluded.

Source: "ETF Perspective", published on HKEX's website, December 2021.

The liquidity of the Hong Kong ETF market continues to grow. The average daily turnover (ADT) of Hong Kong-listed ETFs rose to a 6-year high of HK$6.6 billion in 2021 from HK$4.1 billion in 2016 (see Figure 10).

In addition to rising diversification demand, the growth of ADT is also attributable to the enhancements to market making arrangement and new spread table for ETFs[20].

Since June 2020, a "continuous quoting" market making regime has been adopted to ensure continuous two-side quotes at a prescribed size depth and spread width for 80% of trading hours on a trading day, which improves the stability of liquidity as compared to the previous "wide spread" regime[21].

In addition, the new spread table for the respective Hong Kong dollar (HKD), Renminbi (RMB) and USD currency counters of ETFs reduced spreads by at least 10% for over 70% of all Hong Kong-listed ETFs[22].

Increased secondary market liquidity has contributed to cushioning market volatility shocks and supported the liquidity provision and price discovery functions of ETFs[23].

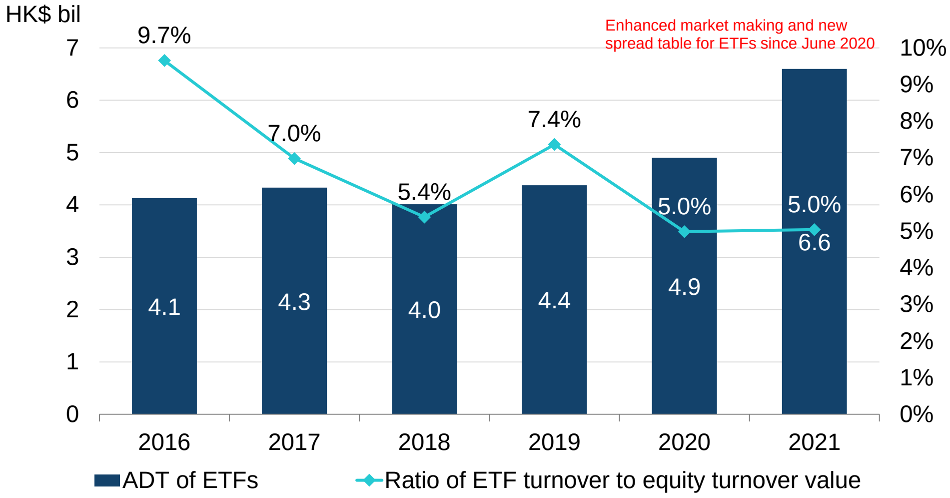
[20] See "Assessing the impact of HKEX's liquidity enhancements", whitepaper published on HKEX's website, December 2020.

[21] Previously, under the "wide spread" regime, market makers were only required to provide two-sided quotes at a prescribed size depth and spread width for a specified period when an ETF entered a so-called "wide spread" state.

[22] Source: "Assessing the impact of HKEX's liquidity enhancements", whitepaper published on HKEX's website, December 2020.

[23] See HKEX research report, "The functioning of market products during the 2020 market turmoil — Are ETFs volatility absorbers or amplifiers?", published on HKEX's website, 22 December 2020.

Figure 10. ADT of ETFs and the ratio of ETF turnover to equity turnover value in Hong Kong (2016 – 2021)



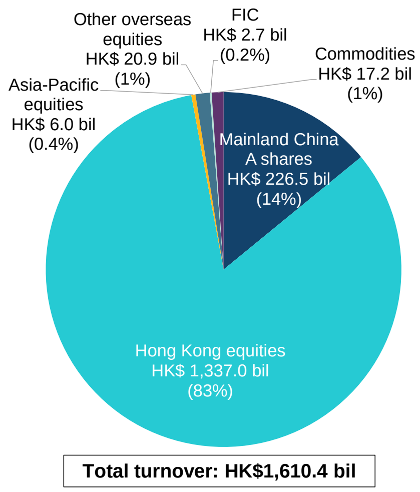
Source: *HKEX Fact Book*, published on HKEX's website, annual issues.

However, in value terms, the ratio of ETF turnover to equity turnover fell from 9.7% in 2016 to 5.0% in 2021, which implies the growth of equity turnover was higher than that of ETF turnover during the period.

One of the reasons for the difference in growth was the rapid growth in Southbound trading of Hong Kong-listed equities by Mainland investors through Stock Connect since the launch of the Shenzhen-Hong Kong Stock Connect on 5 December 2016[24] — during that time period, Southbound trading for Hong Kong-listed ETFs had yet to be opened.

Among ETFs of different asset types, Hong Kong equity ETFs dominated by turnover value (83% in 2021), followed by Mainland A-share ETFs, reflecting global investors' strong interest in Mainland China exposure through offshore ETFs alongside their Northbound trading of A-shares through Stock Connect. (See Figure 11.)

Figure 11. Total turnover value of ETFs in Hong Kong by type of underlying asset (2021)



Source: Calculated from monthly data obtained from "ETF Perspective", monthly issues during January to December 2021 published on HKEX's website.

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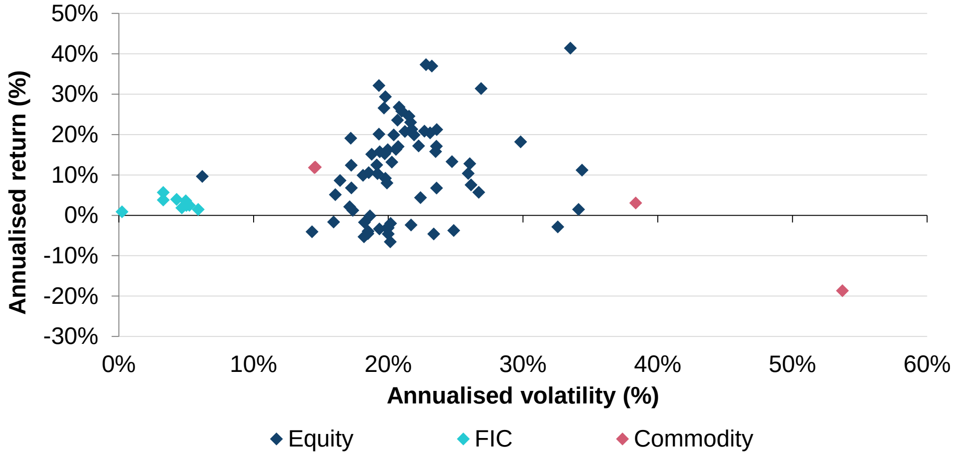
[24] The annual ADT of total Southbound trading from 2016 to 2021 achieved a CAGR of 63%, with the share of Southbound trading of Mainboard total turnover value in terms of ADT rose from 2.8% in 2016 to 12.5% in 2021. Apart from the direct contribution of Southbound trading in the Hong Kong equity market turnover, the additional liquidity provided by Mainland investors through Southbound trading would also contribute to increased liquidity from domestic and international investors in the market.

The range of exposures offered by Hong Kong-listed ETFs cover equities, FIC and commodities and have a wide range of risk-return profiles (see Figure 12). Access to ETFs on different asset classes may address global and Mainland investors' different appetites for portfolio management and diversification.

Figure 12. Risk-return profiles of ETFs in Hong Kong for different asset classes (2019 – 2021)



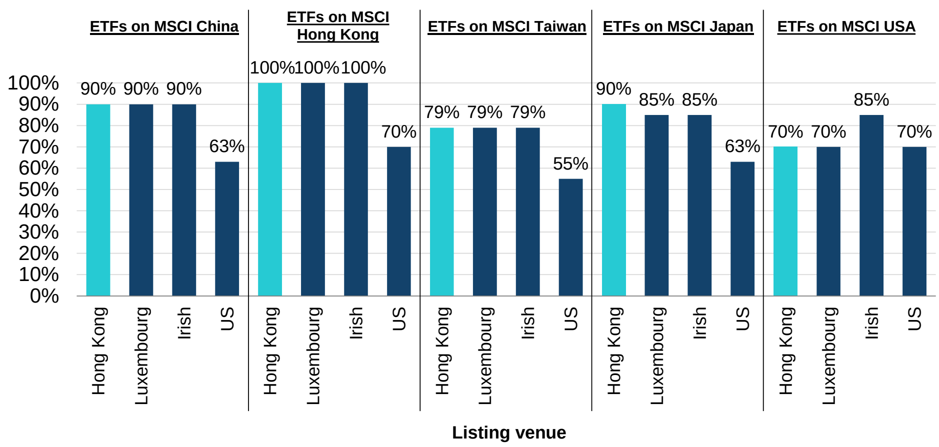
Note: Annualised volatility is calculated as the standard deviation of daily price returns multiplied by the squared root of 252 (assuming the total number of trading days in a year is 252).

Source: Calculated based on the daily closing prices of individual ETFs from Wind.

Different from equity transactions in Hong Kong, no stamp duty will be levied on the transactions of Hong Kong ETFs. In addition, fee waivers were introduced for FIC ETFs in Hong Kong — the trading tariff and minimum stock settlement fee for the transactions of these ETFs are exempted[25].

Under Hong Kong's current taxation arrangement for dividends at different levels, a study found that the impact of tax on the investment return for Hong Kong ETFs is the smallest (i.e. giving the highest after-tax returns) for investment in Hong Kong, China (including Chinese stocks listed in Hong Kong) and Asia-Pacific equities, compared with ETFs listed in other major markets (see Figure 13).

Figure 13. Comparison of after-tax return of ETFs on selected major equity indices by listing venue of ETFs (% of index return)



Source: Ernst and Young (commissioned by HKEX), "ETF taxation report for investors", published on HKEX's website, March 2022.

25 See "HKEX introduces new initiatives to facilitate development of fixed income ETFs in Hong Kong", news release on HKEX's website, 31 May 2021.

The Hong Kong ETF market's third advantage is the ability to "trade Asia in Asia". In Hong Kong, investors can trade ETFs covering Asia-Pacific indices during the Asian time zone — the daily returns of these ETFs could track the underlying indices more closely as price-sensitive information of the underlying assets can be instantly reflected in the pricing of the ETFs in Hong Kong.

Investors can find a wide range of risk management tools offered in Hong Kong. The liquid futures market for major indices, which include Hang Seng Index, Hang Seng China Enterprises Index, Hang Seng Tech Index and MSCI A50 Connect Index can hedge ETF exposures of Mainland and Hong Kong equities. In addition, a wide range of currency futures covering major currencies versus the Renminbi may be useful risk management tools for hedging currency risks in China and global exposures offered by ETFs.

Given these advantages, the Hong Kong ETF market offers strong support for the growth of asset management in the global and Mainland markets.

3. THE INCLUSION OF ETFS IN STOCK CONNECT — BROADENING CROSS-BORDER INVESTMENT CHOICES

Riding on the "Big Bang of Finance", global and Mainland investors' demand for asset management services is expected to grow further.

To capture potential growth opportunities in the Mainland, global investors will likely seek to increase their allocations to Mainland-related and RMB-denominated assets while Mainland investors will likely increase their allocations to overseas markets for portfolio diversification.

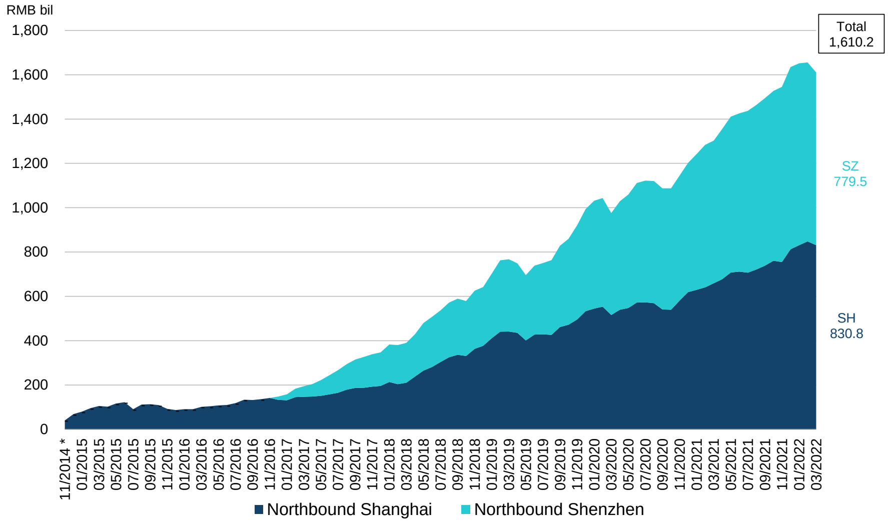
As such, prospects look strong for the Hong Kong market to expand its role and serve bigger two-way investment flows into and out of the Mainland market and facilitate the expansion of the onshore and offshore market liquidity pools, through the well-established and successful Mainland-Hong Kong Mutual Market Access programmes, in particular the Stock Connect schemes.

The Stock Connect schemes, comprising the Shanghai-Hong Kong Stock Connect and the Shenzhen-Hong Kong Stock Connect, facilitate global investors' investments into Mainland A shares and Mainland investors' investments into Hong Kong-listed equities.

Up to end-March 2022, the cumulative investment value into Mainland A-shares through Northbound Stock Connect reached RMB 1,610.2 billion — with approximately half flowing into Shanghai-listed A-shares (RMB 830.8 billion) and the other half into Shenzhen A-shares (RMB 779.5 billion) (see Figure 14). These Northbound funds together held 3.1% of all A-shares listed and traded in the Mainland[26].

[26] Source: HKEX.

Figure 14. Cumulative investment value under Stock Connect — Northbound (Nov 2014 – Mar 2022)

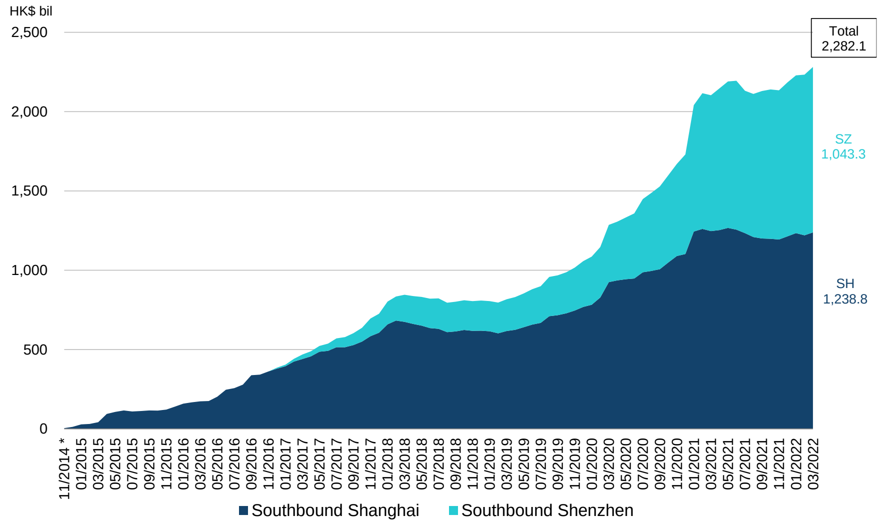


* Starting from 17 November 2014 when Shanghai-Hong Kong Stock Connect was launched.

Source: HKEX.

Up to the end of March 2022, the cumulative investment value of Hong Kong-listed equities through Southbound Stock Connect reached HK$2,282.1 billion (about RMB 1,848.6 billion) (see Figure 15) — HK$1,238.8 billion (about RMB 1,003.4 billion) from Shanghai (54%) and HK$1,043.3 billion (about RMB 845.1 billion) from Shenzhen (46%). These Southbound funds together held 5.3% of all equities listed on the Hong Kong Main Board[27].

Figure 15. Cumulative investment value under Stock Connect — Southbound (Nov 2014 – Mar 2022)



* Starting from 17 November 2014 when Shanghai-Hong Kong Stock Connect was launched.

Source: HKEX.

The Stock Connect programmes have also supported the product development of ETFs in the Mainland and Hong Kong markets. With access to the market for the underlying assets, ETF issuers are able to launch ETF products as purchase and sale of the underlying assets are facilitated and at lower costs for the creation and redemption of ETF units. These ETFs facilitate cross-border investments. Mainland-listed cross-border ETFs can invest in Hong

[27] Source: HKEX.

Kong-listed equities through Southbound Stock Connect. At the same time, Hong Kong-listed ETFs can invest in A-shares through Northbound Stock Connect.

As an alternative channel for cross-border investments through ETFs, the Hong Kong-Mainland ETF Cross-Listing Scheme was introduced in 2020. The first batch of two pairs of ETFs under the scheme between the SZSE and HKEX were listed in October 2020, while the first pair of ETFs under the scheme between the SSE and HKEX were listed in June 2021[28]. These ETFs are feeder funds which invest at least 90% in the each other's market through Renminbi Qualified Foreign Institutional Investor (RQFII) and Qualified Domestic Institutional Investor (QDII) schemes respectively.

As at end-March 2022, the total AUM of these cross-listed ETFs amounted to RMB 4.8 billion (about 4.3% of total AUM of cross-border ETFs) on the SSE, RMB 302.5 million (about 1.2% of total AUM of cross-border ETFs) on the SZSE and HK$207.7 million (about 0.3% of total AUM of Mainland China A-share ETFs) on HKEX respectively[29].

In December 2021, HKEX announced the agreement with the SSE, the SZSE and China Securities Depository and Clearing Corporation (CSDC) to add ETFs into Stock Connect schemes. This expansion of market connectivity into ETFs will further broaden cross-border investment choices for the Mainland and Hong Kong markets. Compared to cross-listed ETFs, the inclusion of ETFs into Stock Connect allows investors in one market to directly trade ETFs listed on the other market. One difference is that while investors can also participate in the primary market of cross-listed ETFs, primary market transactions in ETFs included for trading under Stock Connect (i.e. creation and redemption of fund units) are not covered in Stock Connect.

Eligible ETFs under the scheme must be ETFs investing mainly in eligible equity securities for Stock Connect in the respective markets. The thresholds for the share of these equity securities held by an eligible ETF varies across index types (e.g. broad-based indices versus non-broad-based indices).

In addition, there are also ETF-specific eligibility requirements for the inclusion. These include: the ETF must be a physical ETF[30]; it has to be listed for a specific minimum period; the underlying index can be an equity index with diversified constituents and a large majority of which must be listed on the domestic exchange(s) of the corresponding market of the index and eligible for Stock Connect; its AUM must reach a specific minimum level. Table 1 summarises the requirements that an ETF must meet for its inclusion into Stock Connect. As of 28 June 2022, there are 83 eligible ETFs with a total AUM of RMB 2,010.7 billion (about 32% of total AUM of Mainland ETFs) for Northbound trading and four eligible ETFs with a total AUM of HK$529.1 billion (about 33% of total AUM of Hong Kong ETFs) for Southbound trading.

[28] These are Huatai-PineBridge CSOP Hang Seng TECH Index ETF QDII (stock code: 513130) listed on the SSE, Harvest Hang Seng China Enterprises Index ETF (QDII) (Stock code: 159823) and Yinhua ICBC CSOP S&P New China Sectors ETF (QDII) (Stock code: 159822) listed on the SZSE; and CSOP Yinhua CSI 5G Communications Theme ETF (stock code: 3193), Hang Seng Harvest CSI 300 Index ETF (stock code: 3130 / 83130) and CSOP Huatai-PineBridge CSI Photovoltaic Industry ETF (stock code: 3134) listed on HKEX. See "HKEX welcomes first Hong Kong/Mainland ETF cross-listing", news release on HKEX's website, 23 October 2020; "HKEX welcomes first ETF cross-listing in Hong Kong and Shanghai", news release on HKEX's website, 1 June 2021.

[29] Calculated based on the AUM of individual ETFs from Wind.

[30] Applicable to Southbound only.

Table 1. Product eligible requirements for the inclusion of ETFs into Stock Connect

Feature	Northbound (NB)	Southbound (SB)
Type of ETF	—	Not a synthetic ETF or Leveraged and Inverse Product
Listing duration	Listed for at least **6 months**	
History of benchmark index	Launched for at least **1 year**	
AUM	**Average daily AUM for the past 6 months of at least RMB 1.5 billion**[1] (An ETF will become a sell-only security if its average daily AUM over the past 6 months drops below RMB 1 billion)	**Average daily AUM for the past 6 months of at least HKD 1.7 billion**[2] (An ETF will become a sell-only security if its average daily AUM over the past 6 months drops below HK$1.2 billion)
Weighting of stocks listed on respective stock exchanges in benchmark index	SSE-listed and SZSE-listed stocks: **90% or above** (The ETF will become a sell-only security if the total weighting of SSE-listed and SZSE-listed stocks in the underlying index drops below 85%)	SEHK-listed stocks, including secondary-listed stocks on SEHK: **90% or above** (The ETF will become a sell-only security if the weighting of SEHK-listed stocks in the underlying index drops below 85%)
Weighting of Stock Connect eligible constituents in benchmark index	**80% or above** (The ETF will become a sell-only security if the weighting drops below 70%)	For HSI, HSCEI, HSTECH and HSHKBIO indices: **70% or above** (The ETF will become a sell-only security if the weighting drops below 65%) For other indices: **80% or above** (The ETF will become a sell-only security if the weighting drops below 70%)
Weighting of a constituent in benchmark index	Broad-based indices[3]: • **No more than 30%** for a constituent stock (The ETF will become a sell-only security if the upper limit is exceeded) Non-broad-based indices: • **At least 30** index constituent stocks (The ETF will become a sell-only security if the number of constituent stocks falls below the lower limit) • **No more than 15%** for a constituent and **no more than 60%** for the top 5 weighted constituents (The ETF will become a sell-only security if either of the above upper limits is exceeded) • **At least 90%** of index weighting should be in constituent stocks that are within the **top 80%** shares by ADT ranking in the relevant stock exchange in the past 12 months (The ETF will become a sell-only security if the weighting falls below the lower limit)	

[1] Must be traded in RMB.

[2] Must be traded in HKD.

[3] Broad-based index refers to an index whose constituent selection is not limited to a specific industry or investment theme but reflects the performance of a certain market or a certain size of stocks.

Abbreviations:

HSI — Hang Seng Index

HSCEI — Hang Seng China Enterprises Index

HSTECH — Hang Seng Tech Index

HSHKBIO — Hang Seng Hong Kong-Listed Biotech Index

Source: HKEX.

The trading arrangements of eligible ETFs under Stock Connect will largely follow the existing arrangements for eligible stocks[31]. The closed-loop design of Stock Connect schemes will avoid speculative fund flows into other asset classes. These ETFs will be traded in RMB for

[31] See HKEX circular, *Update on inclusion of ETFs in Stock Connect*, published on HKEX's website, 22 April 2022.

Northbound and HKD for Southbound. While cross-border trading of ETFs under Stock Connect shall follow the trading arrangements of the domestic listed market of the ETFs, there are certain differences in trading arrangements applied to ETFs and stocks, in both Northbound and Southbound trading.

- For Northbound, differences exist in trading spread, daily price limit, dynamic price limit, time for closing call auction, and fees and levies (see Table 2).

Table 2. Key differences of trading arrangements of Mainland ETFs and A shares under Northbound Stock Connect

Feature	Mainland ETFs	Mainland A shares
Spread	RMB 0.001	RMB 0.01
Daily price limit	±10% (±20% for certain ETFs specified by SSE/ SZSE), based on the previous closing price	Main Board: ±10%, based on the previous closing price (±5% for stocks under special treatment [1]) SSE STAR Market and SZSE ChiNext: ±20% for all stocks, based on the previous closing price
Dynamic price limit imposed by SSE/ SZSE	Not applicable	SSE STAR Market and SZSE ChiNext: ±2%
Closing Call Auction Session	SSE-listed ETFs: No SZSE-listed ETFs: 14:57-15:00	14:57-15:00
Applicable fees	Different fees and levies for ETFs and A shares	
Stock codes for clearing purpose	Each eligible ETF will be assigned with a 5-digit CCASS[2] stock code at HKEX from a designated range (31000-31299 for SSE-listed ETFs and 31300-31599 for SZSE-listed ETFs)	CCASS stock codes of A-shares bear the same last digits as their SSE and SZSE stock codes

(1) Stocks under special treatment comprise “ST stocks”, the companies of which have suffered losses for two or more consecutive years, and “ST* stocks” which have entered delisting procedure.

(2) CCASS represents Central Clearing and Settlement System at HKEX for securities clearing and settlement.

Source: HKEX circular, *Update on inclusion of ETFs in Stock Connect*, published on HKEX’s website, 22 April 2022.

- For Southbound, eligible ETFs are traded with a specific spread table and the tick sizes of which are smaller than stocks in comparable price range (see Section 2). In addition, the transactions of ETFs will be exempted for stamp duty, which reduce the trading costs.

The inclusion of ETFs into Stock Connect schemes has the potential to widen not only the range of products accessible by global and Mainland investors, but also the investor base of the Mainland and Hong Kong ETF markets and support the liquidity provision and price discovery functions offered by the ETF markets. This will support the further utilisation of ETFs as an investment tool by global and Mainland investors:

- For global investors, since the inclusion of A-shares into global indices started in 2018, the demand for Mainland securities has been growing rapidly. Both passive and active investment funds in the global markets tend to increase their allocation into A-shares. In Hong Kong, among ETFs on non-Hong Kong-listed equities, ETFs on A shares constituted the largest share in number (43.5% as at end-2022Q1) and in turnover value (88.7% in 2022Q1). In addition, the RMB has become increasingly important in the financial market as evidenced by the increase in its weight in the special drawing right (SDR) currency basket of the International Monetary Fund from 10.92% in 2016 to 12.28% in 2022. Central bank reserves and potentially other long-term capital are expected to further increase their allocations to RMB-denominated assets. Therefore, the global demand for

Mainland assets, particularly those denominated in RMB, is expected to increase significantly over the long-run. The access to Mainland-listed ETFs will be a plus to meet global investors' growing demand.

- For Mainland investors, ETFs offer cross-border investments to meet their portfolio diversification needs. In the Mainland, ETFs on Hong Kong-listed equities dominated cross-border ETFs — about 75% by period-end number and 65% by turnover value in 2022Q1. The inclusion of Hong Kong-listed ETFs into Stock Connect further widens investment choices, and the increase of Southbound investment flows would in turn incentivise ETF product innovations in Hong Kong to meet the growing diversification demand from Mainland investors.

Upon the inclusion of ETFs, Stock Connect schemes are expected to drive two-way investment flows by broadening cross-border investment choices for global and Mainland investors.

4. ETF INCLUSION IN STOCK CONNECT

At the initial stage, eligible ETFs included in Stock Connect are limited to equity ETFs only. However, ETF instruments offer an unlimited scope of asset exposure. If the eligibility scope of ETFs in Stock Connect can be expanded, global and Mainland investors may benefit from more choices of investment.

Even for the equity asset class alone, evolving investor demand could be met by innovation of ETF products of various investment styles and strategies for access by Mainland and global investors through Stock Connect.

With product innovation and the potential of scope expansion, it is expected that the inclusion of ETFs into Stock Connect has opened up a window for unique China and international exposures for global and Mainland investors.

The following sub-sections present examples of opportunities from the rise of thematic (including ESG) ETFs and the Mainland investors' demand for diversified exposures to overseas markets and different asset classes.

4.1 Thematic (including ESG) ETFs

The global ETF market saw a rising trend of thematic ETFs (including ESG) ETFs in recent years. This is more or less driven by increasing investor interest in exposure to innovative sectors that are new engines for economic growth and also in exposure to support the transition to low-carbon and sustainable development.

Thematic ETFs have become increasingly popular as these can cater for investors' different investment objectives. Investment themes can be classified by geography, industrial sector or specific investment preferences, like ESG.

These themes are often driven by megatrends that impact the real economy, which include rapid urbanisation, rising economic wealth, climate change and demographic shifts[32]. These give rise to investment interest in clean energy, electric vehicles, biotechnology, artificial intelligence (AI) and robotics, and e-commerce, etc.

[32] See *Transformative forces in ETF investment*, Megatrend Whitepaper published on HKEX's website, November 2021.

Thematic ETFs provide exposure to these potential new drivers for economic growth and development. In particular, ESG ETFs provide exposure to the low-carbon transition and sustainable development.

However, the price performance of thematic ETFs may not always outperform broad-based ETFs[33]. In the US, the average return of thematic ETFs was about 2%-3% in 2021, compared to about 29% for the S&P 500 Index, and returns varied largely across different themes[34].

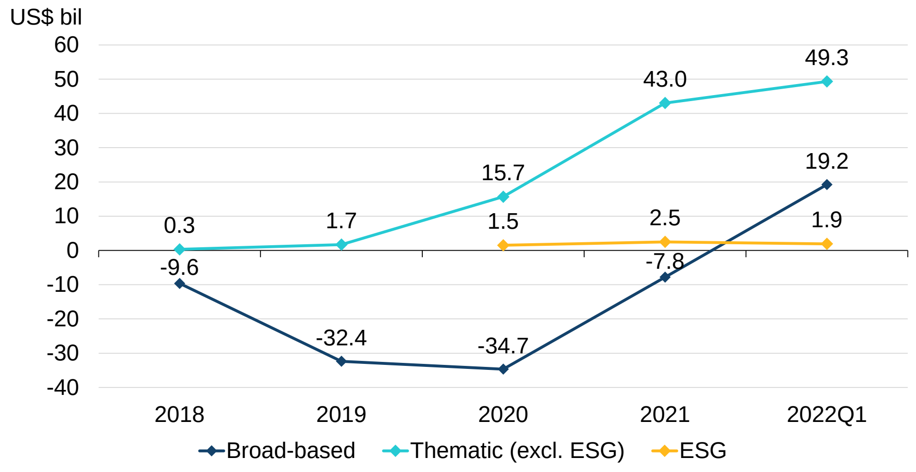
It was reported[35] that the underlying innovations of thematic ETFs are usually at the early stage of development with highly volatile valuations and a number of the thematic ETFs may be closed before these innovations become "matured".

The price performance of ESG ETFs told a slightly different story. Empirical studies[36] show that, in many cases, ESG indices tended to have similar, if not better, risk-return performances than their parent indices. In 2021, ESG equity indices in the US, though their constituents exclude oil companies which had been the best performers in the year, outperformed their parent indices[37].

In addition, ESG ETF types also evolve quickly. For example, ETFs on carbon credit futures have been launched in the US, Korea, Ireland, Canada and Hong Kong. ESG ETFs were among the best performers in the global ETF market in 2021, against the global commitments toward the goal of net-zero emissions[38].

In the Hong Kong ETF market, ESG and other thematic ETFs have attracted investment flows. Since 2018, the cumulative net fund flows for ESG and other thematic ETFs in Hong Kong stayed positive (net inflows), compared to net outflows for most of the time before a recovery in 2022Q1 for broad-based ETFs (see Figure 16).

Figure 16. Cumulative net fund flows of equity ETFs in Hong Kong by type (US$ billions) (2018 – 2022Q1)



Note: Thematic and ESG ETFs (including different currency counters) are classified as such by HKEX.
Source: Calculated based data on individual ETFs from Wind.

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33 Broad-based ETFs refer to ETFs tracking broad-based indices, which exclude smart beta, sectoral and thematic ETFs.

34 Source: "Thematic next-generation trends ETF dashboard", published on State Street Global Advisors' website, viewed on 25 January 2022.

35 See "Thematic ETFs tend to launch just before a steep fall in returns", published on *Financial Times* website, 7 March 2022.

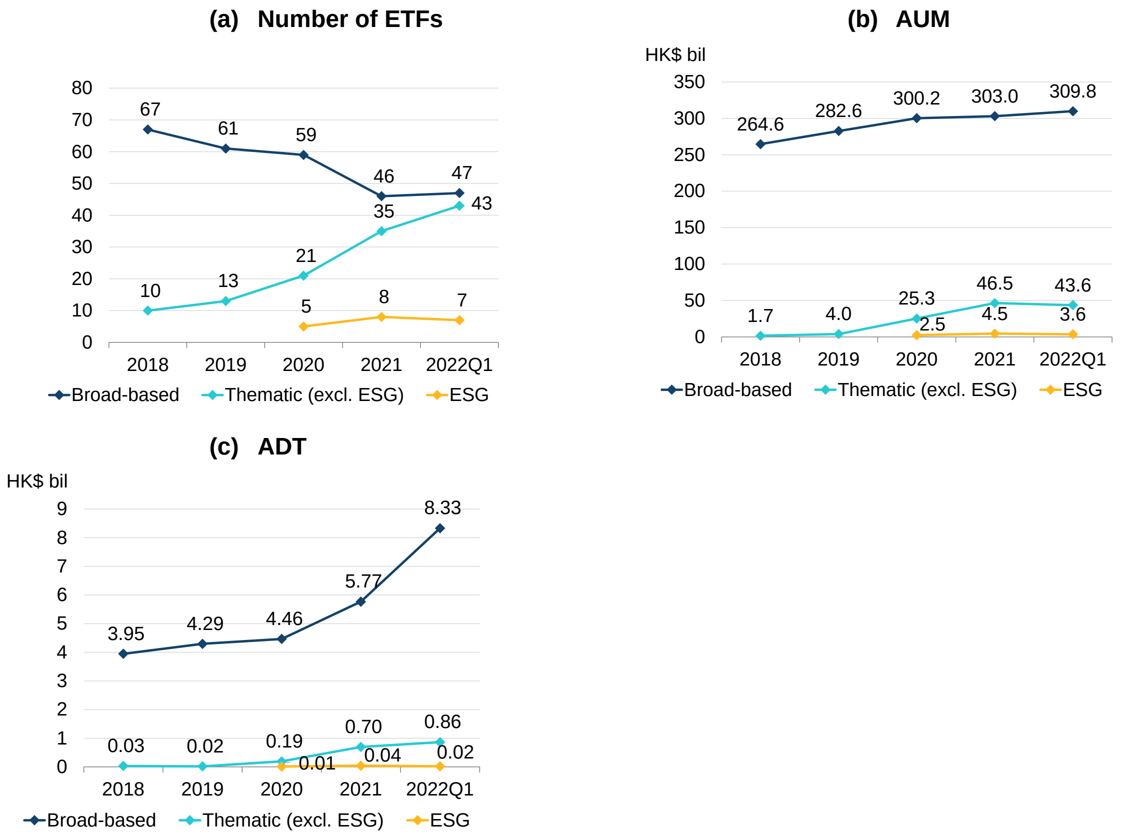
36 See HKEX research paper, "Performance of ESG equity indices versus traditional equity indices", published on HKEX's website, 26 November 2020.

37 See "Why sustainable strategies outperformed in 2021", published on Morningstar's website, 19 January 2022.

38 See "China's first exchange-traded fund for carbon credit futures debuts on Hong Kong's stock exchange", *South China Morning Post*, 23 March 2022; "Carbon credit ETFs soared in 2021", published on NASDAQ's website, 20 January 2020.

In terms of number, ESG and other thematic ETFs listed in Hong Kong rose by four times during the period from 2018 to 2022Q1, compared to a decline of 30% for broad-based ETFs. In terms of size, the AUM of these ETFs rose by 27 times during the same period, compared to the growth of 17% for broad-based ETFs. In terms of trading value, the ADT of these ETFs rose by about 28 times during the same period, compared to the growth of 111% for broad-based ETFs. (See Figure 17.)

Figure 17. Number, AUM and ADT of equity ETFs in Hong Kong by type (2018 – 2022Q1)



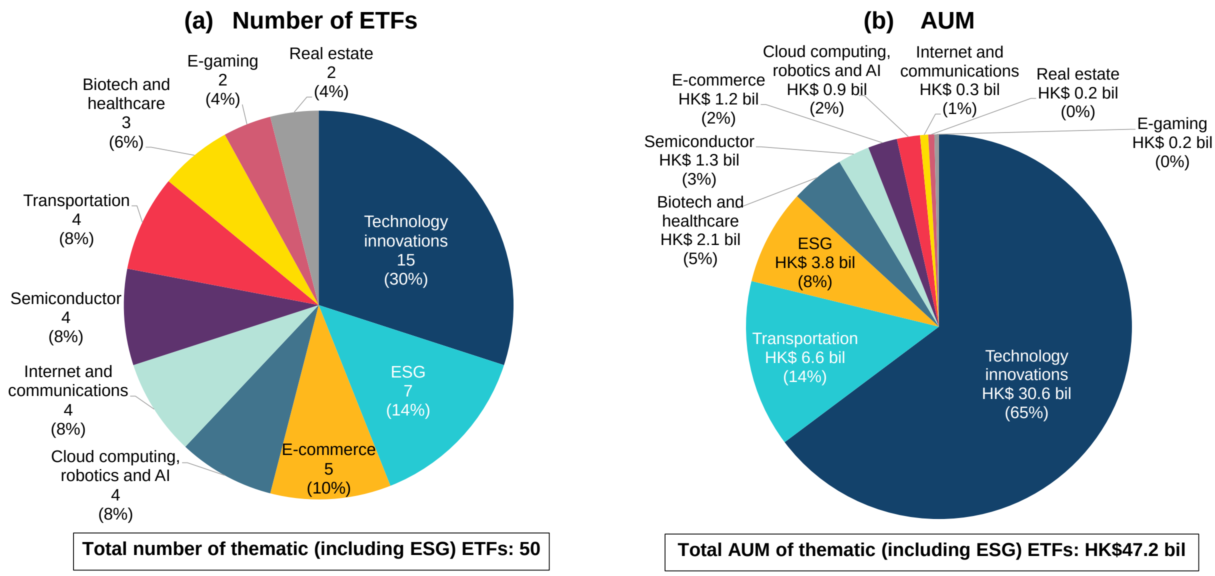
Note: Thematic and ESG ETFs are classified as such by HKEX. The ADT figures include trading of different currency counters.

Source: Calculated based on data of individual ETFs from Wind.

In Hong Kong, the exposures of thematic ETFs include technology innovations, ESG, e-commerce, Internet and communications, cloud computing, robotics and AI, biotech and healthcare, semiconductor, transportation (e.g. electric vehicles), e-gaming and entertainment and real estate (e.g. real estate investment trusts, REITs).

As at end-March 2022, in terms of number, technology innovations accounted for the largest share of thematic ETFs (30% of total), followed by ESG (14% of total) and e-commerce (10% of total); in terms of AUM, technology innovation dominated (65% of total), followed by transportation (14% of total) and ESG (18% of total). (See Figure 18.)

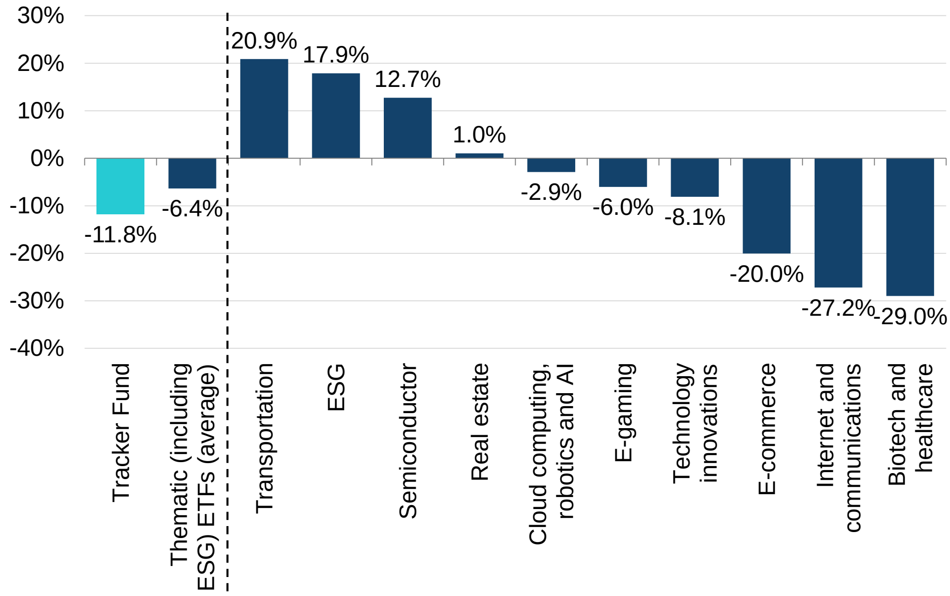
Figure 18. Number and AUM of thematic (including ESG) ETFs in Hong Kong by theme (end-March 2022)



Note: Thematic ETFs are classified as such by HKEX.
Source: Calculated based on data of individual ETFs from Wind.

In 2021 when the overall market in Hong Kong suffered a downturn, Hong Kong-listed thematic ETFs on average showed more resilient performance than Tracker Funds, the broad-based ETF on the Hang Seng Index. The average return of thematic ETFs was -6.4%, compared to -11.8% for Tracker Fund (see Figure 19). In fact, certain thematic ETFs, e.g. ESG ETFs, recorded strong positive returns.

Figure 19. Annual average return (%) of thematic (including ESG) ETFs in Hong Kong by theme (2021)



Note: Thematic ETFs are classified as such by HKEX.
Source: Calculated based on data of individual ETFs from Wind.

The differential performance of thematic ETFs in Hong Kong presents diverse investment choices for investors of different investment interests and preferences. These ETFs have been made available for global investors to gain exposure to innovative companies.

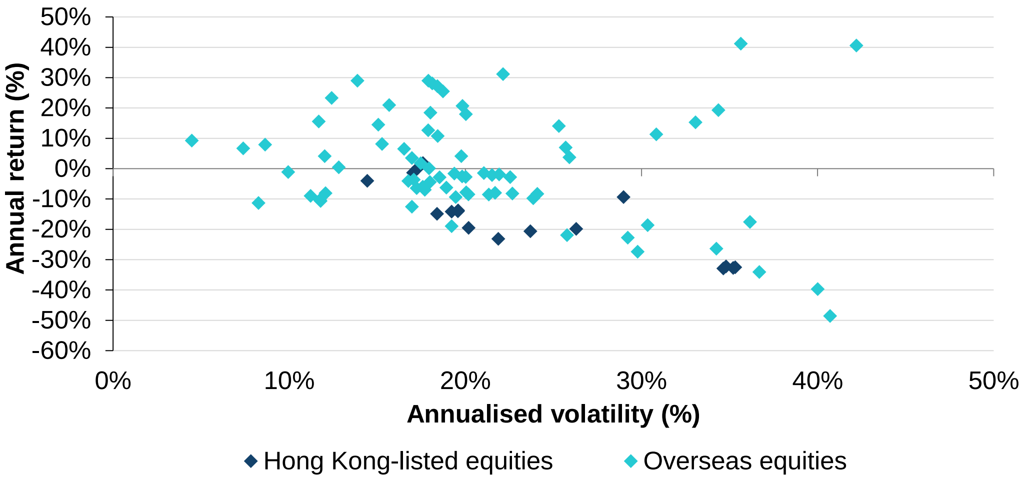
After the inclusion of ETFs into Stock Connect, certain thematic (including ESG) ETFs will be made available to Mainland investors. These comprise HKD counters of ETFs on Hong Kong-listed equities. On the commencement date of 4 July 2022, eligible ETFs include two thematic (including ESG) ETFs, with AUM of HK$31.9 billion (as of 28 June 2022). The number of thematic (including ESG) ETFs on Hong Kong-listed equities are expected to increase, supported by the rising number of innovative companies listed in Hong Kong and the growing interest from global and Mainland investors.

4.2 ETFs with diversified geographical market exposures

A considerable proportion of equity ETFs listed in Hong Kong (34% by number and 18% by AUM, see Section 2) offer exposure to overseas markets. These may offer expanded diversification opportunities to Mainland investors if the eligible scope of ETFs included in Stock Connect could be expanded to cover these.

Moreover, ETFs offering diversified geographical market exposure could help investors capture potentially positive returns from the differential performances among the world markets. For example, in 2021, when Hong Kong equities were in a downturn, Hong Kong-listed ETFs on overseas equities could provide better risk-return profiles than ETFs on Hong Kong equities (see Figure 20). This further supports the diversification opportunity offered to Mainland investors under different market conditions if the Mainland-Hong Kong market connectivity can be expanded into ETFs on a wider scope of equities beyond Hong Kong-listed equities.

Figure 20. Risk-return profiles of equity ETFs in Hong Kong by geography of underlying equities (2021)



Source: Wind.

Currently, Hong Kong ETFs on overseas equities usually track indices on equities listed in overseas markets. Therefore, these ETFs are not yet included into Stock Connect at the initial stage since one eligibility criterion for inclusion of an ETF is that the underlying equities of the ETF have to be listed in Hong Kong.

To further broaden the investment scope for Mainland investors through Stock Connect, introducing more ETFs on Hong Kong-listed overseas companies which are eligible equity securities for Southbound Stock Connect would be beneficial. The potential investment from Mainland investors through Stock Connect would incentivise the launch of these ETFs.

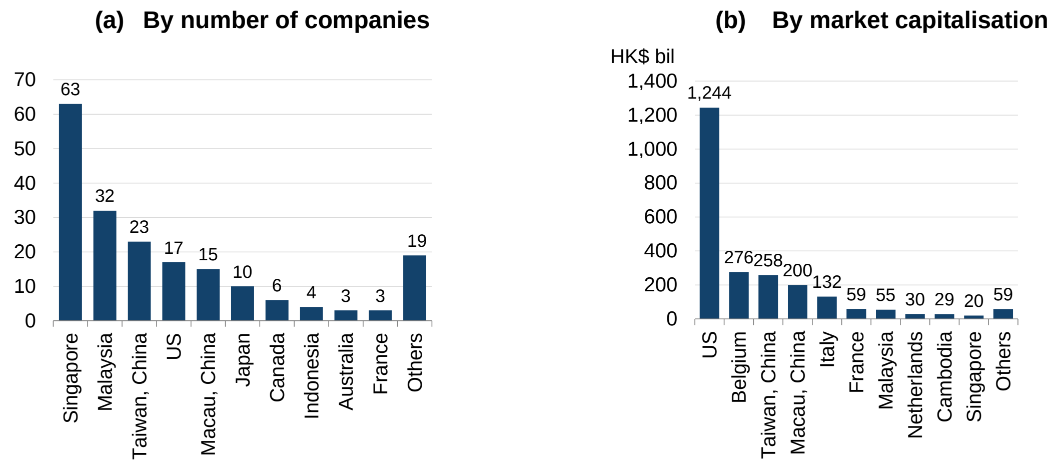
The Hong Kong equity market is dominated by companies domiciled in Hong Kong and Mainland China. At the end of May 2022, out of a total of 2,565 listed companies in Hong Kong (Main Board and GEM) there were only 195 overseas companies domiciled outside

Hong Kong and Mainland China (7.6% by number), with a total market capitalisation of HK$2.4 trillion (6.2% of total market capitalisation in Hong Kong)[39].

Of the total number of overseas companies listed in Hong Kong, companies of Asian origin (e.g. Singapore and Malaysia) were the largest group, while companies from the US (mostly US-listed China-concept companies) were the largest group by market capitalisation (see Figure 21).

Overseas companies listed in Hong Kong may fit into different investment strategies for ETF product development. They can widen the range of Hong Kong-listed equities and add more exposure to overseas equities. If such ETFs fulfil the eligibility requirements for inclusion into Southbound Stock Connect (e.g. underlying stocks are also eligible Southbound securities), then these ETFs may also be accessible to Mainland investors.

Figure 21. Hong Kong-listed companies (excluding Mainland China and Hong Kong) and their origin (end-May 2022)



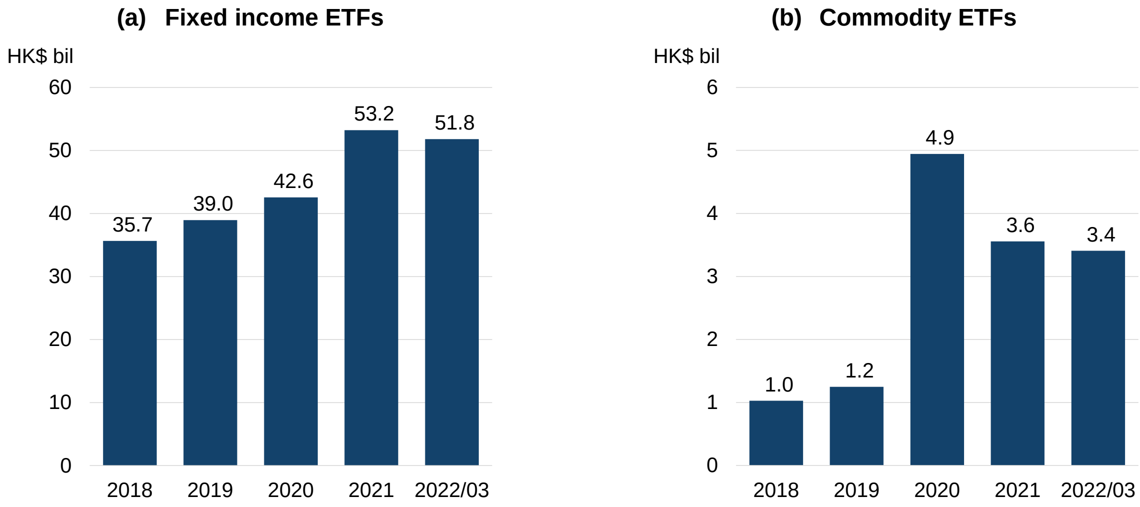
Source: HKEX.

4.3 ETFs on non-equity asset classes

ETFs on non-equity asset classes provide alternative risk-return profile choices to investors (see Section 2.2). These include fixed income ETFs and commodity ETFs. The AUM of these ETFs in Hong Kong has been trending up in recent years (see Figure 22).

[39] Source: HKEX.

Figure 22. AUM of fixed income ETFs and commodity ETFs in Hong Kong (2018 – 2022Q1)



Source: "ETF Perspective", published on HKEX's website, monthly issues during 2018 to 2021.

In Hong Kong, fixed income ETFs not only cover RMB bonds in the Mainland, but also USD bonds in the US and those issued by Mainland issuers and other Asian issuers. Similarly, commodity ETFs in Hong Kong cover commodity exposures in the Mainland and global markets and also carbon futures. Access to these ETFs can diversify Mainland investors' portfolios. On the other hand, global investors may be interested in further increasing their asset allocation to Mainland assets. Mainland-listed fixed income ETFs and commodity ETFs may also be good choices for them. However, these ETFs are not yet eligible for the inclusion into Stock Connect.

In the long run, if the market connectivity can be expanded into ETFs on multiple asset classes including bonds and commodities[40], global and Mainland investors can benefit from the full range of investment exposure and have more investment diversification choices.

5. CONCLUSION

ETFs offer investors a wide range of choices for investment diversification and this factor has helped drive the rapid growth in the global ETF market during recent years.

The ETF market has also been growing in Mainland China, covering an increasing range of domestic and cross-border assets. In Hong Kong, ETFs offer exposure to multiple markets, asset classes and currencies. In line with trends in the global ETF market, the Hong Kong ETF market continues to evolve with an increasing range of investment themes and strategies.

Riding on the success of market connectivity, ETFs have now been added to the eligible scope of securities under Stock Connect to widen global and Mainland China investors' access to cross-border investments. This opens up opportunities for investors across the border and will also enhance liquidity provision and price discovery in both markets.

To unleash the potential of the inclusion of ETFs into Stock Connect, the issuance of ETFs on different types of Hong Kong-listed equities should be encouraged, which include companies covering innovative themes and ESG and overseas companies.

[40] These are subject to regulatory approval.

In the long run, it is worth considering the expansion of market connectivity into ETFs on non-equity asset classes to facilitate global investors' allocation into Mainland/RMB assets and Mainland investors' portfolio diversification, thereby further supporting the development of ETF markets in both Mainland China and Hong Kong.

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