SECURITIES AND FUTURES COMMISSION
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Research Paper on Hong Kong ETF Market and Topical Issues in the ETF Space

16 January 2018

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Executive summary

Since their introduction to the financial market over two decades ago, exchange traded funds (ETFs) have experienced exponential growth globally and become an important subset of the investment product universe.

Not only have ETFs captured a substantial slice of the investment assets, but they have also evolved significantly in terms of their product features, asset classes and investment objectives. Apart from the traditional physical replication strategy, derivatives and futures have now been utilised to replicate the underlying indices tracked by ETFs. ETF asset classes have also expanded substantially from equities to fixed income and commodities. New ETF product types have also proliferated in recent years, such as leverage and inverse products, smart beta ETFs and active ETFs, with an aim to address specific needs of investors economically.

Assets under management (AUM) of passive funds are predicted to surpass active funds in 10 years' time, with ETFs being the greatest beneficiaries[1]. As ETFs continue to grow in popularity, issues and challenges relating to the ETF ecosystem begin to emerge. Issues such as ETF pricing, reliance on authorised participants and liquidity providers, liquidity of underlying assets, portfolio transparency of active ETFs, ETFs with listed and unlisted share class, as well as various macro issues relating to the growth of passive investing, have turned into topical issues in the ETF space where stakeholders around the world are continually examining the potential impact of these issues to ensure the ETF market continues to develop in a systemically-stable manner.

As one of the leading ETF markets in Asia, the Hong Kong ETF market has grown more than threefold by AUM over the past 10 years. ETFs tracking our local market and China A-share market have been the key drivers to the fund inflow, in tandem with the opening up of the Mainland's capital markets through initiatives such as RMB Qualified Foreign Institutional Investor (RQFII) scheme and Stock Connect[2] and the internationalisation of the renminbi (RMB).

We have prepared this research paper which examines the Hong Kong ETF market and some topical issues in the ETF space as well as their implications in the Hong Kong context. The discussions in this research paper are reflective of, and have taken into account, recent local and international developments of ETFs and are intended to set the scene in anticipation for more concrete policy discussions on the regulation of ETFs at the local and international level going forward.

[1] Ernst & Young, *Reshaping around investors - Global ETF Research Report 2017*
http://www.ey.com/Publication/vwLUAssets/ey-global-etf-survey-2017/$FILE/ey-global-etf-survey-2017.pdf
[2] "Stock Connect" in this paper refers to Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect collectively.

I. Introduction

Over the past decade, there has been a phenomenal growth of passive investments, particularly ETFs, offering exposures to a diversified range of asset classes and strategies. ETFs' exponential growth in AUM is evident globally. The total number of ETFs listed globally was 5,138 in August 2017, a growth of more than four times compared to the global ETF listings in 2007[3]. Global ETF AUM have correspondingly experienced outstanding growth, from approximately US$807 billion in 2007 to US$4.2 trillion as at the end of August 2017[3].

The pace of growth of ETFs in major markets varies. There were 1,776 ETFs in the US with an aggregate AUM of US$3.0 trillion as at end of August 2017, a compound annual growth rate (CAGR) of 18.4% over the past 10 years[3]. AUM in the European ETF industry has also grown steadily with a CAGR of 18.7%, from US$132 billion in 2007 to US$695 billion in August 2017[3]. In the Asia-Pacific region, the number of ETFs constituted 22% of the ETFs globally and their AUM stood at US$382 billion in August 2017, with a CAGR of 20% from 2007[3].

Hong Kong has successfully established itself as one of the leading ETF markets in Asia. It is the second largest ETF market in Asia in terms of market capitalisation and the fourth in terms of ETF turnover. In order to meet the evolving needs of investors and ETF stakeholders and retain this leading position, it is necessary to continually review and enhance our market infrastructure and regulatory regime.

The first part of this research paper sets out a general review of the ETF market in Hong Kong, followed by an analytical study on topical issues in the global ETF space and their potential implications for the Hong Kong ETF market.

[3] ETFGI data sourced from ETF/ETP sponsors, exchanges, regulatory filings, Thomson Reuters/Lipper, Bloomberg, public available sources, and data generated in-house: http://etfgi.com/index/home

II. Hong Kong ETF market

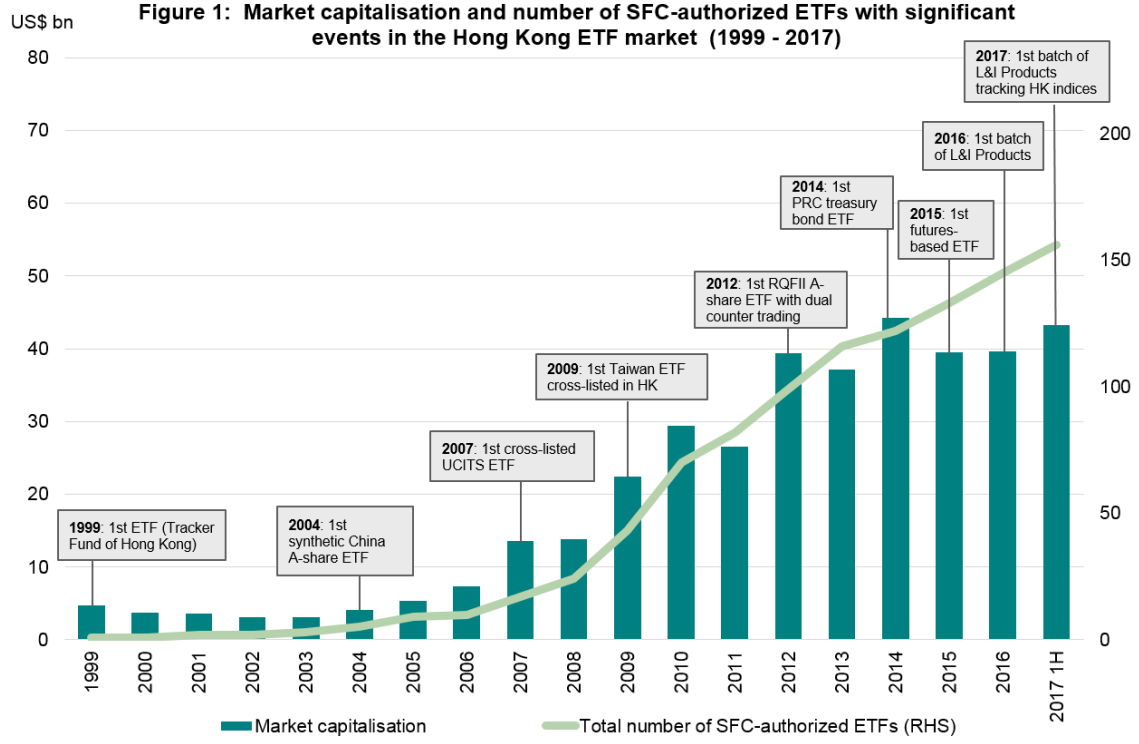
Overview

Since their first introduction to the Hong Kong market nearly two decades ago, ETFs have experienced a promising development over the years in Hong Kong and become an important subset of the investment product universe.

In the past 10 years, the market capitalisation of ETFs listed in Hong Kong has grown more than three times from US$13.6 billion in 2007 to US$43.3 billion in June 2017[4], while the annual turnover has increased more than 10 times, reaching a record high of US$280 billion in 2015[5]. During the same period, the contribution of ETFs to the Hong Kong cash market's turnover has also grown nine times from 0.9% in 2007 to 8.2% in the first half of 2017.

As at 30 June 2017, there was a total of 156 SFC-authorized ETFs[6] listed on The Stock Exchange of Hong Kong Limited (SEHK), of which 118 of them were domiciled in Hong Kong, representing 76% of the ETF population in Hong Kong. The remaining 24% were ETFs cross-listed from other jurisdictions.

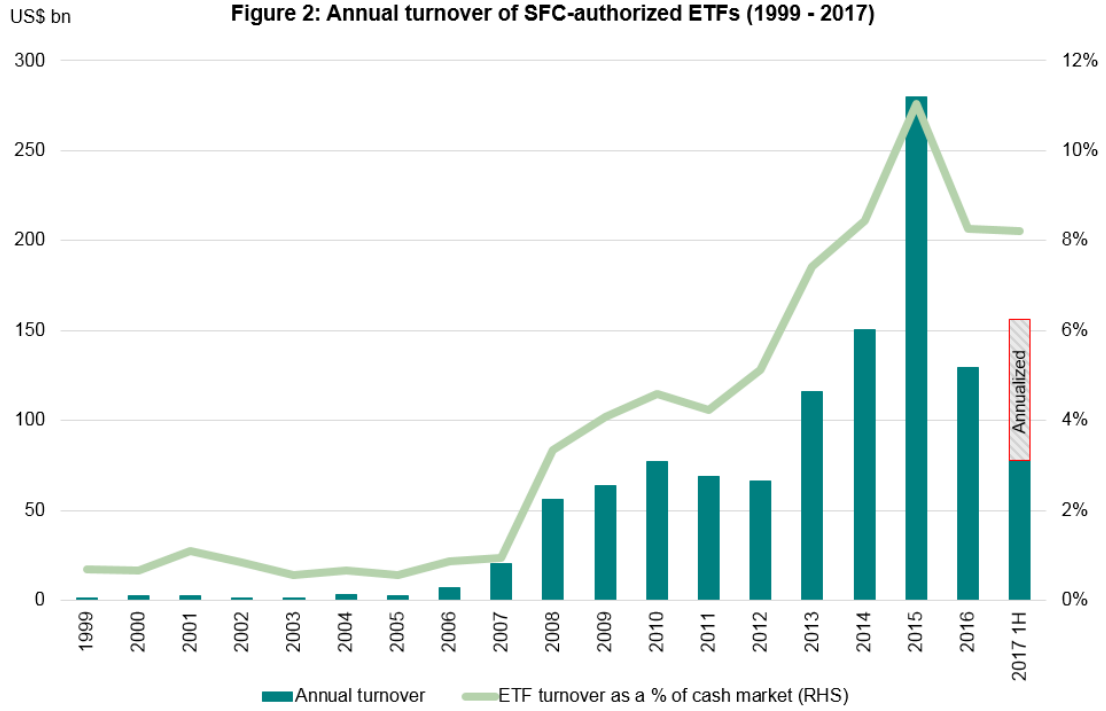
Figure 1: Market capitalisation and number of SFC-authorized ETFs with significant events in the Hong Kong ETF market (1999 - 2017)



Source: Bloomberg, SFC IP Research

[4] SPDR Gold Trust is excluded from the calculation of market capitalisation of the Hong Kong ETF market unless otherwise specified.
[5] SPDR Gold Trust is excluded from the calculation of turnover and average daily turnover (ADT) of the Hong Kong ETF market unless otherwise specified.
[6] References to "SFC-authorized ETFs" in this paper generally include SFC-authorized index tracking ETFs as well as SFC-authorized leveraged and inverse products (L&I Products) unless otherwise specified.

Figure 2: Annual turnover of SFC-authorized ETFs (1999 - 2017)

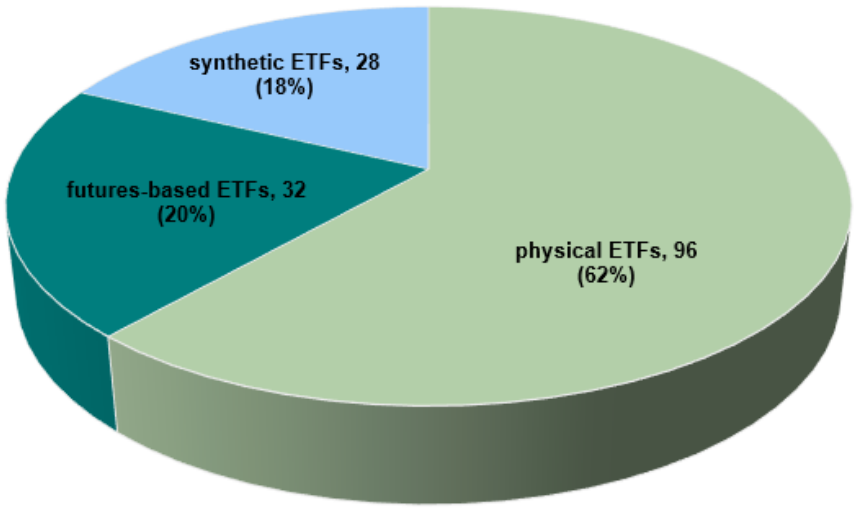


Source: Bloomberg, HKEX, SFC IP Research

Market concentration

A majority (62%) of the ETFs listed in Hong Kong are physical ETFs. Set out in Figure 3 below is a breakdown of the SFC-authorized ETFs by replication strategy.

Figure 3: Breakdown of SFC-authorized ETFs by replication strategy as at 30 June 2017



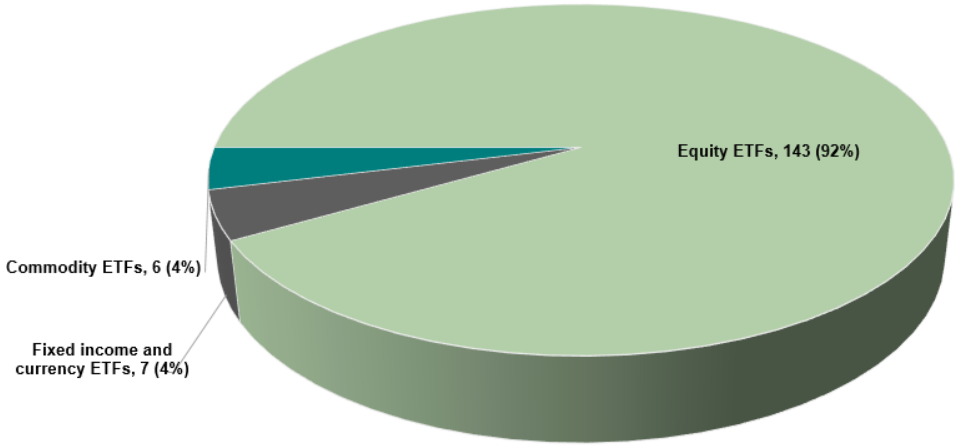
Source: SFC IP Research

Physical ETFs currently dominate the ETF market in Hong Kong. The number of SFC-authorized synthetic ETFs has experienced a decrease of 33% (in number) compared to one year ago. This is largely due to the recent introduction of initiatives such as the RQFII scheme and Stock Connect allowing ETF managers to launch physical ETFs by investing directly in the Mainland securities market. As a result, a number of synthetic ETFs were either deauthorized and delisted or transformed into physical ETFs.

A further breakdown of the SFC-authorized ETFs by asset class is set out in Figure 4. A vast majority (92%) of the ETFs listed in Hong Kong are equities ETFs. In terms of investment region, the Hong Kong equities market is the major underlying market tracked by these ETFs. ETFs tracking the Hong Kong equities market represented 24% of the ETF population and accounted for 57% of the total market capitalisation of the Hong Kong ETF market.

The concentration of the Hong Kong ETF market is also evident from the fact that Tracker Fund of Hong Kong alone consistently accounted for around 25% of the total market capitalisation and over 35% of the average daily turnover (ADT) of all Hong Kong listed ETFs.

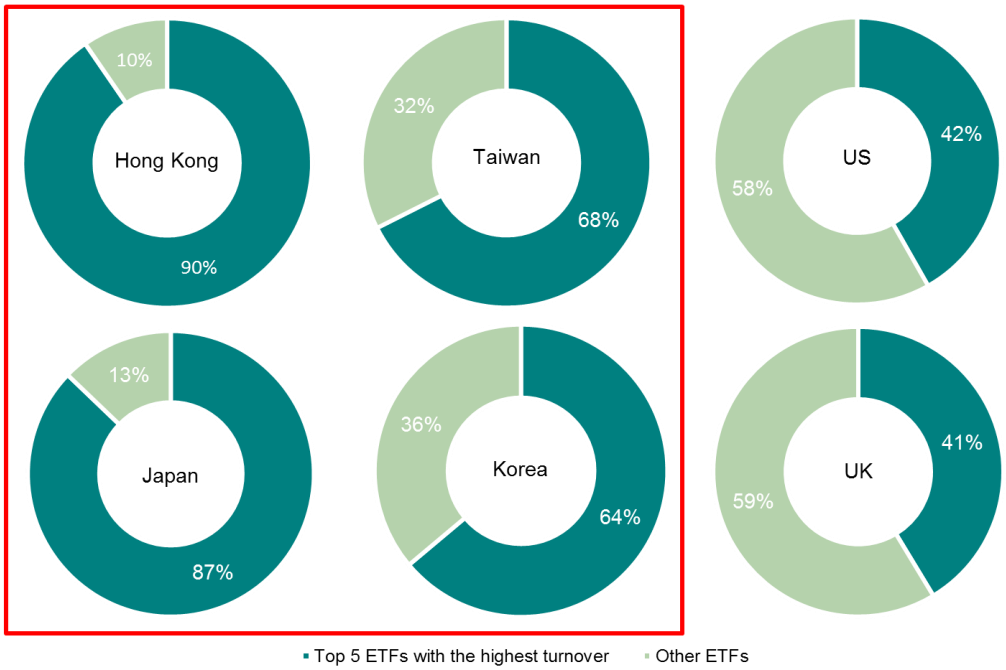
Figure 4: Breakdown of SFC-authorized ETFs by asset class as at 30 June 2017



Source: SFC IP Research

Similar to other Asian ETF markets, turnover of ETFs listed in Hong Kong is concentrated in the five ETFs with the highest turnover.

Figure 5: Overseas ETFs turnover breakdown (2017 1H)



Source: Bloomberg, SFC IP Research

Market behaviour

Holding period by investors

Hong Kong investors appear to be less speculative when investing in ETFs than those from other regions. Based on Figure 6 below on the turnover velocity of major markets, ETFs in Hong Kong are traded approximately four times on average per year, denoting an average holding period of three to four months. By way of comparison, the average holding period of ETF investments by investors in the Mainland, Korea and the US is 1.6, 1.4 and 2 months respectively.

Figure 6: Turnover velocity of major ETF markets (2013 - 2017 1H)

Turnover velocity (X)*						
	Hong Kong	China	Taiwan	Japan	Korea	US
2013	3.0	5.8	1.9	3.8	11.1	7.3
2014	3.7	7.2	2.9	3.7	8.1	6.6
2015	6.7	20.3	9.2	4.6	8.4	6.6
2016	3.3	7.4	7.3	3.8	8.7	8.1
2017 1H	3.8	7.6	3.7	1.6	8.4	6.0

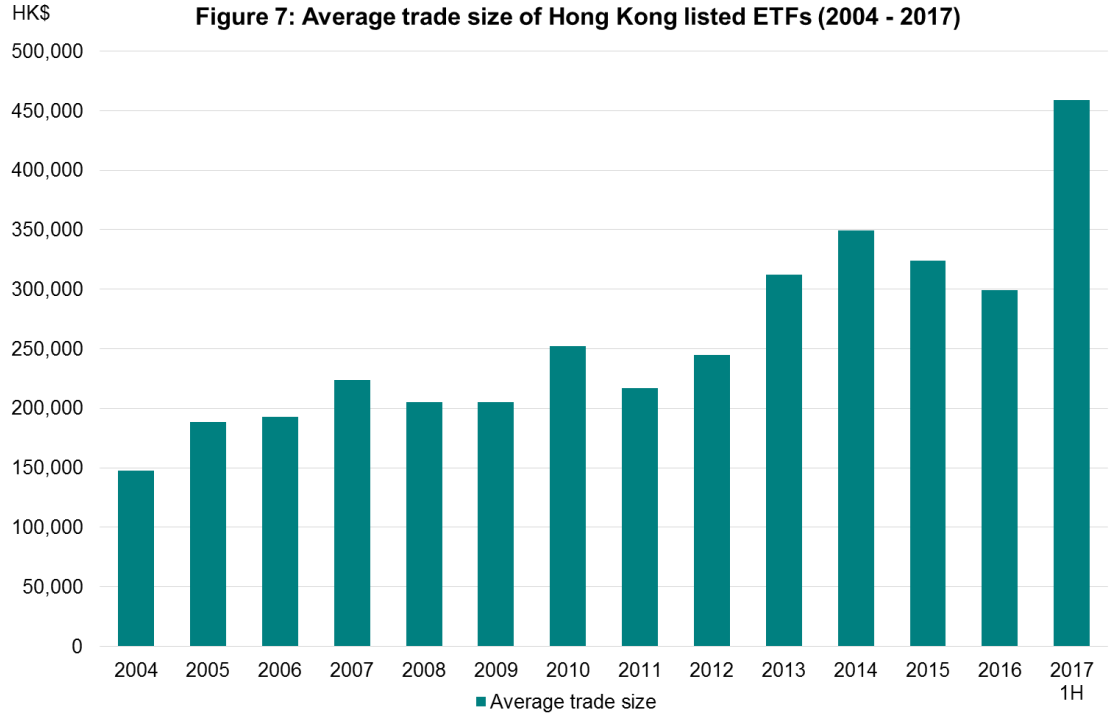
** Turnover velocity = Annual turnover / average market capitalisation. It measures how frequently the securities are traded with respect to their market capitalisation. For example, an annualised turnover velocity of 10 indicates that each share of the security is traded approximately 10 times each year.*

Source: Bloomberg, ETFGI, SFC IP Research

Adoption by institutional investors

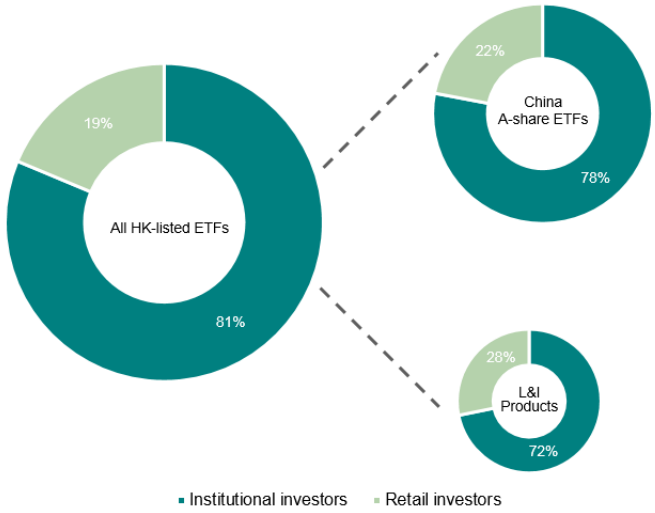
There is an increasing trend of ETF adoption by institutional investors in the Hong Kong market. The average trade size of ETFs listed in Hong Kong has doubled in the past 10 years from $224,000 in 2007 to $459,000 in the first half of 2017 and institutional investors have in recent years accounted for over 80% of the turnover of the ETF market in Hong Kong.

Figure 7: Average trade size of Hong Kong listed ETFs (2004 - 2017)



Source: HKEX, SFC IP Research

Figure 8: Hong Kong listed ETFs turnover breakdown by investor type (2016 - 2017 1H)



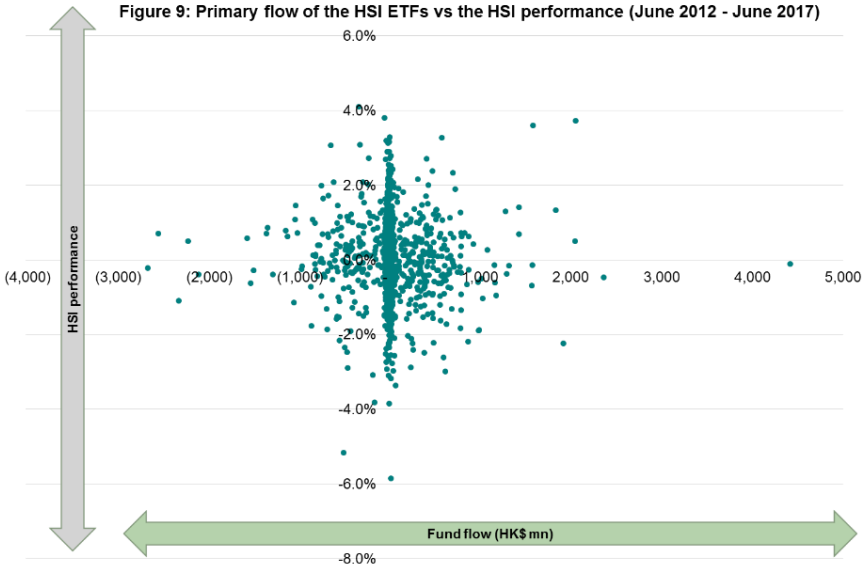
Source: HKEX, SFC IP Research

Market impact of primary flows

In view of the concerns expressed by regulators and academia that ETF's primary flows may have a material impact on the underlying market, we analysed, for a period of the past five years, the daily primary flow data (ie, net creation and redemption data) of the two largest (by AUM) Hong Kong-listed ETFs tracking Hang Seng Index (HSI ETFs)[7] against (i) daily Hang Seng Index (HSI) performance and (ii) the day-end turnover of the HSI. The HSI ETFs together constituted around 90% of AUM of global ETFs tracking the HSI and are used as a proxy for all ETFs tracking the HSI.

A scatterplot of the HSI ETFs' primary flow data versus daily HSI performance is displayed in Figure 9. The distribution appears to be random, suggesting that the HSI ETFs' primary flows do not have a strong relationship with the performance of the HSI.

Figure 9: Primary flow of the HSI ETFs vs the HSI performance (June 2012 - June 2017)



Source: Bloomberg, SFC IP Research

[7] Tracker Fund of Hong Kong (2800 HK) and Hang Seng Index ETF (2833 HK).

We also compared these primary flow data with the day-end turnover[8] of the HSI constituents to see whether or not the turnover towards the end of the trading session is heavily influenced by ETFs' creation or redemption activities. The estimated take-up rate of the HSI's day-end turnover for creation or redemption[9] has not been stretched as shown in Figure 10, especially in view of the fact that we have assumed all the creations and redemptions were conducted in cash.

Figure 10: Primary flow of the HSI ETFs as a % of day-end HSI turnover

	Percentile				
Jun 2012-Jun 2017	**50th**	**75th**	**90th**	**95th**	**99th**
Primary flow of HSI ETFs as a % of day-end HSI turnover	1%	7%	13%	17%	34%

Source: Bloomberg, SFC IP Research

While we are aware of the limitations of the above simple analysis due to data availability, our interpretation of the results are generally in line with industry feedback. Both analysis, which complements each other, do not yield strong evidence that the primary flows of these ETFs had materially impacted our local market.

[8] Day-end turnover refers to the value traded from 3:30 p.m. to 4:10 p.m. Hong Kong Time.
[9] Net creation and redemption of HSI ETFs divided by the day-end turnover of HSI constituents.

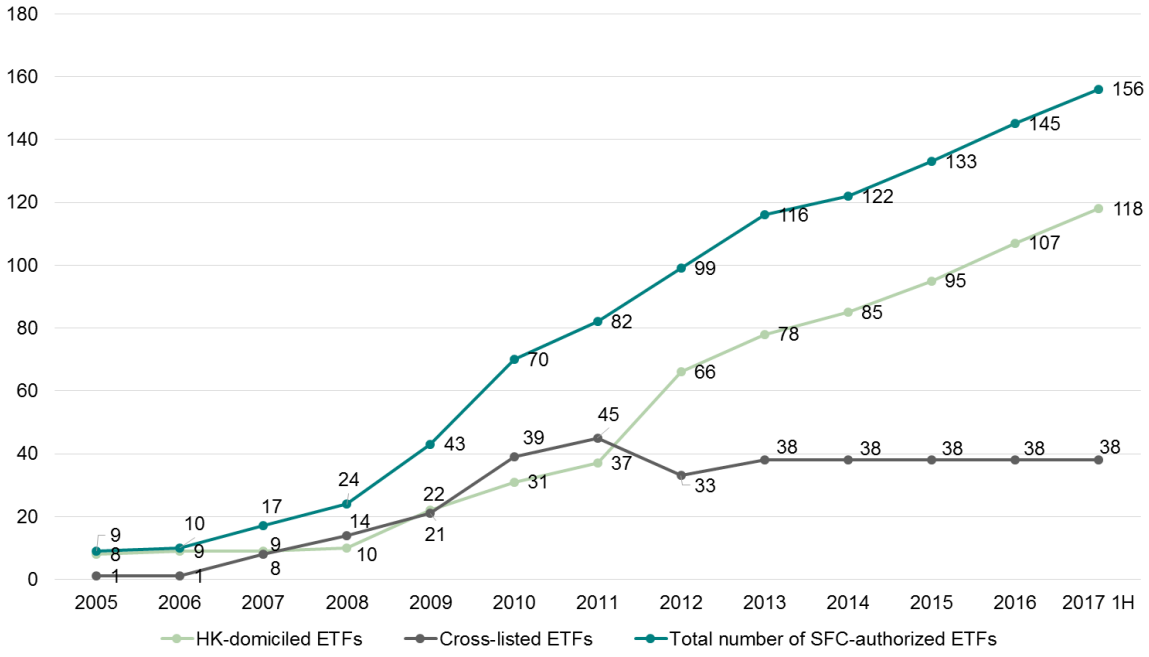
Key drivers

The key drivers for the growth of the Hong Kong ETF market in the past decade are largely attributable to the growth of ETFs domiciled in Hong Kong (HK-domiciled ETFs), ETFs that invest primarily in the Mainland securities market through the RQFII quota, Stock Connect and the China Interbank Bond Market (RQFII ETFs) as well as the recent introduction of leveraged & inverse products (L&I Products) to the Hong Kong market.

HK-domiciled and RQFII ETFs

In recent years, the number of HK-domiciled ETFs has been increasing steadily as ETF managers strive to seize the opportunity presented by various Mainland initiatives, including the RQFII scheme and Stock Connect, to invest primarily in the Mainland securities market.

Figure 11: Number of SFC-authorized ETFs (2005 - 2017)



Source: SFC IP Research

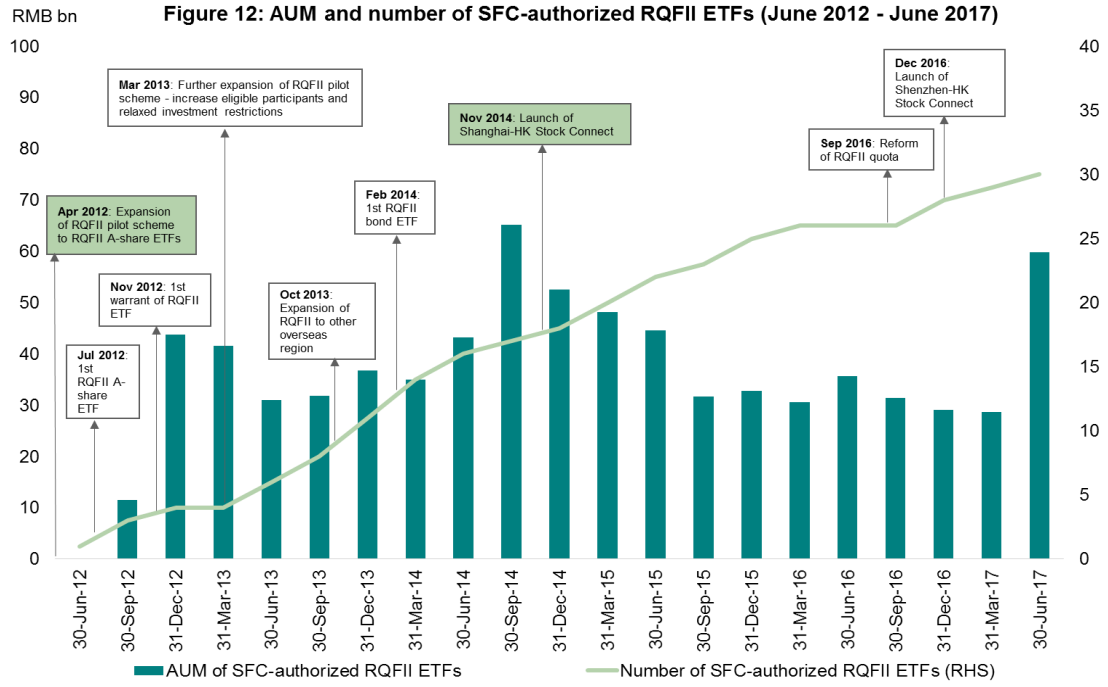
HK-domiciled ETFs have increased by more than 78% since 2012, with an average annual growth of around 12% year-on-year.

Hong Kong's financial market has been a beneficiary of its unique position as a testing ground for Mainland financial reforms. With the internationalisation of RMB, the growth of the Mainland's capital market and the introduction of initiatives such as the RQFII scheme and Stock Connect allowing direct investments in the Mainland securities market by fund managers, a new ETF product type, often referred to as "*RQFII ETFs*", emerged in Hong Kong since 2012.

For the first time, offshore ETFs tracking the China A-share market can be structured as physical ETFs rather than the synthetic structure previously. In addition, a handful of well-established SFC-authorized synthetic China A-share ETFs have transformed to become RQFII physical ETFs.

Figure 12 shows the trend and development of SFC-authorized RQFII ETFs in Hong Kong over the past 5 years.

Figure 12: AUM and number of SFC-authorized RQFII ETFs (June 2012 - June 2017)



Source: SFC IP Research

As at 30 June 2017, there was a total of 30 SFC-authorized RQFII ETFs listed in Hong Kong, which accounted for 19% of the Hong Kong ETF market by number and 20% by market capitalisation. In addition, their turnover accounted for about 30% of the ADT of the Hong Kong ETF market. Two RQFII A-share ETFs established at the inception of the RQFII scheme have been among the five most actively traded ETFs in Hong Kong since January 2014[10].

The success of RQFII ETFs is well noted in the Hong Kong Exchanges and Clearing Limited (HKEX) Research Report, *HKEX Towards an Offshore RMB Product Trading and Risk Management Centre*[11], stating that "*RMB ETFs (predominantly SFC-authorized RMB RQFII A-share ETFs) are by far the most well-received offshore RMB securities product*".

The RQFII scheme also provided a good opportunity for Mainland background asset managers to expand their local presence, brand awareness, and distribution network in Hong Kong. Seven Mainland background asset managers entered into the Hong Kong ETF market for the first time as a result of launching RQFII A-share ETFs following the expansion of the RQFII scheme in 2012 to allow RQFII licence holders to develop and launch ETFs tracking China A-share indices.

Since then, these Mainland background asset managers have steadily built a good track record in Hong Kong. They currently manage over 100 SFC-authorized funds. Furthermore, five out of the 10 most actively traded ETFs are managed by these Mainland background asset managers.

[10] HKEX, *ETF and L&I Product Market Perspective* (January 2014 -June 2017)
http://www.hkex.com.hk/Products/Securities/Exchange-Traded-Products/Overview?sc_lang=en
[11] *HKEX Research Report - HKEX towards an offshore RMB product trading and risk management centre* (April 2017)
http://www.hkex.com.hk/-/media/HKEX-Market/News/Research-Reports/HKEx-Research-Papers/2017/CCEO_Rpt(RMBpdt)_201704.pdf?la=en

L&I Products

Although L&I Products were introduced in Hong Kong later than some major markets, L&I Products in Hong Kong achieved some noteworthy growth in merely one year and prove to be a promising catalyst in stimulating the Hong Kong ETF market.

As at 30 June 2017, there was a total of 30 L&I Products listed in Hong Kong, with 17 of which tracking Hong Kong indices first listed in March 2017. These L&I Products tracking Hong Kong indices have already accounted for approximately 10% of the ADT of the Hong Kong ETF market and around 1.2% of the total market capitalisation.

Five out of the 10 most actively traded ETFs in Hong Kong in 2017 Q2 were L&I Products tracking Hong Kong indices. This suggests that Hong Kong investors are highly receptive towards this new ETF product, despite the relatively short timeframe since L&I Products were introduced in Hong Kong.

Systemic risk of L&I Products

One major concern of L&I Products that is widely discussed is the systemic risk they may pose to the financial market. Theoretically, the daily rebalancing activities of L&I Products are pro-cyclical (ie, adding long exposure in an up-market and reducing long exposure in a down-market). Some have hence asserted that this pro-cyclical feature may exacerbate market volatility, particularly when such rebalancing activities are typically concentrated near market close. In view of this, we have studied carefully the potential systemic implications of L&I Products to the Hong Kong market before the introduction of this new product in 2016.

Our study, which was conducted back in 2015, assumed that the size of L&I Products would be similar to that of the listed structured products[12] in the Hong Kong market and we estimated the impact of daily rebalancing activities based on various scenarios of HSI movements on a single day. The results showed that the market impact of L&I Products, quantified by the number of HSI futures contract needed in each rebalancing, would unlikely be significant under normal market circumstances if they are of similar sizes as the then listed structured products in the Hong Kong market.

Hypothetical analysis aside, ongoing monitoring has also been established by HKEX and the SFC to regularly assess the actual impact of L&I Products' rebalancing activities to the Hong Kong market since their inception. Latest data in November 2017 shows that the daily rebalancing size of L&I Products tracking the HSI and the Hang Seng China Enterprises Index (HSCEI) was only 1% of the trading of the respective futures in the last 20 minutes prior to market close. No adverse impact has been observed since the launch of L&I Products. In any case, prudent risk management is expected from product issuers. Furthermore, we note the suspension of creation of the mega-sized Next Funds Nikkei 225 Leveraged Index ETF in 2015 due to liquidity concerns of its underlying futures contract. In view of this, L&I Products issuers are required to disclose in the offering documents the risk of potential creation halt, which may result in divergence between the trading price and the net asset value (NAV) per unit as there may be insufficient futures contract available in the market to satisfy creation requests.

In summary, L&I Products do not appear to bring any immediate threat to the financial market in Hong Kong. That said, we will keep in view international discussions around systemic concerns on L&I Products and regularly monitor the trading and growth of such products.

[12] Namely derivative warrants (DWs) and callable bull/bear contracts (CBBCs).

III. Topical issues in the ETF space and discussions in the Hong Kong context

As ETFs continue to grow in its popularity, issues and challenges relating to the ETF ecosystem begin to emerge. In this section, we will look at some topical issues in the ETF space which are examined and widely discussed by stakeholders locally and globally.

A. ETF pricing

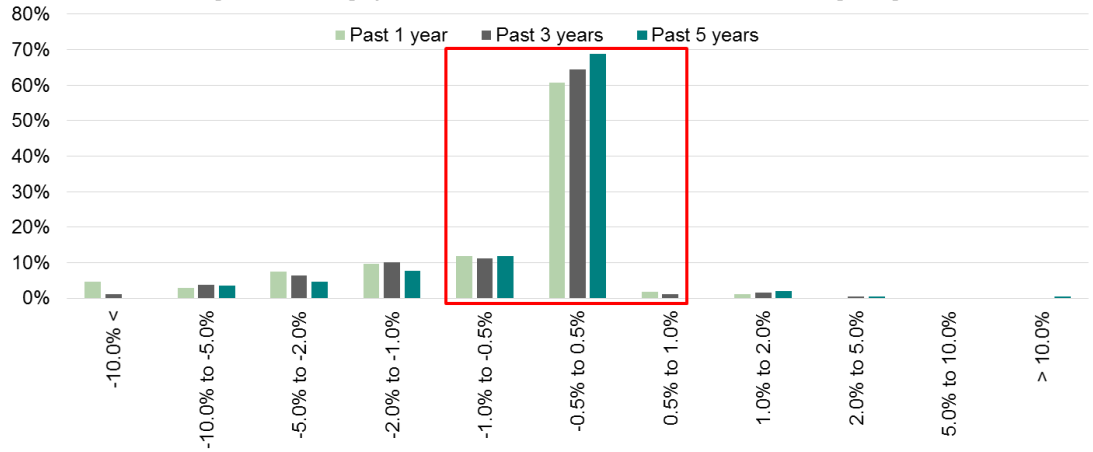
The risk of ETF price decoupling from its net asset value (NAV) has been debated extensively recently. It is generally expected that the economic incentive inherent in ETF's arbitrage mechanism should drive the market price of the ETF towards its intrinsic value (ie, indicative NAV (iNAV)[13]). However, under certain circumstances, significant premium or discount has been observed and could sustain for a prolonged period which prompt investors to question whether the ETFs are mispriced and whether enhancement of ETF regulations is needed.

While the importance of minimal premium or discount is acknowledged, we understand that there is no regulation in major ETF markets for example the US, Europe, or Asia which requires an ETF to have measures in place to ensure that the secondary market price is close to its iNAV. Autorité des Marchés Financiers (AMF) also recognised this risk but added that such a risk is limited in France due to the circuit-breaker mechanism in place on Euronext Paris[14]. Such mechanism works as follows: "*if order matching were to result in a trade at a price that falls outside the corridor, the ETF is halted for a 30-second period which may be repeated. The boundaries of the corridor are set at either +/–1.5 % of iNAV or +/–3%, at the ETF manager's discretion*."[14]

In the Hong Kong context

Pricing for the Hong Kong ETF market has been generally efficient, with minimal mispricing. Approximately 80% of ETFs were traded within 1.0% of deviation to NAV on average over the past five years.

Figure 13: Average premium or discount to NAV of ETFs listed in Hong Kong



Source: Bloomberg, SFC IP Research

[13] The indicative NAV (iNAV) indicates the intraday value of the NAV per unit based on the most-up-to-date information. For ETFs listed in Hong Kong, iNAV is updated every 15 seconds during trading hours and is provided by an ETF manager to the public via information vendors.

[14] AMF, *ETFs: Characteristics, overview and risk analysis – the case of the French market* (February 2017), http://www.amf-france.org/technique/multimedia?docId=workspace://SpacesStore/2d61ede7-b0be-40fa-8654-fe438a33ad00_en_1.0_rendition

There was nevertheless a small population of ETFs with persistent trading discount, predominantly associated with (i) price discovery; (ii) exposure to restricted markets; and (iii) low investor demand and small fund size.

Price discovery

The calculation of iNAV is subject to limitations as it normally relies on the last traded prices of the underlying securities. The iNAV can be stale if the ETF and its underlying securities are traded in different time zones (eg, ETFs listed in Hong Kong tracking US stock indices) or the underlying securities are infrequently traded or suspended.

In these scenarios such as the Mainland stock market correction episode in 2015, investors reacting to new market information often use ETFs as a price discovery tool when the underlying securities are suspended. Under these circumstances, we believe that the resulting premium or discount seems undeniably justifiable.

In fact, price discovery could be uniquely offered by ETFs tracking a foreign market from a different time zone. For instance, an ETF listed in Hong Kong could be the sole available tool to trade on certain US-listed technology stocks during Asian hours. Any temporary deviation of the trading price from the iNAV is merely a by-product of market efficiency.

In addition, the premium or discount arising from the above reasons are normally auto-correcting and short-lived. Therefore, it would appear reasonable to accommodate them as their contribution to price discovery is an important feature of ETFs.

Exposure to restricted markets

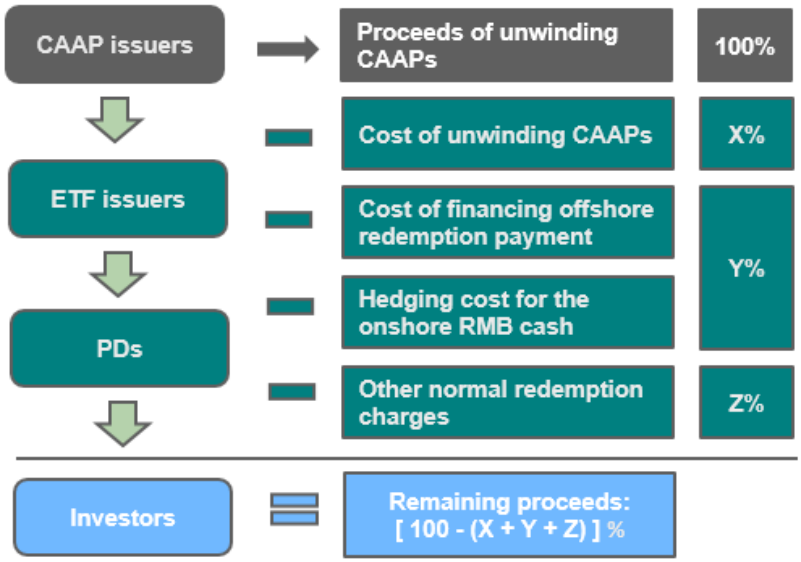
We have seen that redemptions of certain synthetic ETFs with exposure to restricted markets may be subject to additional fees and charges levied by authorised participants (APs)[15] as the unwinding process may be occasionally complex and costly.

For example, we understand from ETF managers that when redeeming synthetic China A-share ETFs using China A-Share Access Products (CAAPs) in stressed market conditions in 2015, there were extra costs such as (i) cost of unwinding CAAPs; (ii) cost of financing offshore redemption payment; and (iii) hedging cost for idle onshore renminbi cash, which hindered the ability of the participating dealers (PDs)[16] to arbitrage effectively.

Under this scenario, since these additional unwinding costs have neither been embedded in the NAV calculation nor the ongoing charges disclosure at the ETF fund level, the NAV of the ETF did not manage to precisely reflect the actual proceeds to be received by redeeming the ETFs. The shortfall could hence result in a persistent discount to NAV.

[15] The terminologies 'authorised participant' (AP) and 'participating dealer' (PD) are interchangeably used in this paper given they are merely terminologies used in different jurisdictions.
[16] The terminologies 'authorised participant' (AP) and 'participating dealer' (PD) are interchangeably used in this paper given they are merely terminologies used in different jurisdictions.

Figure 14: Breakdown of redemption proceeds to investors for a synthetic A-share ETF using CAAPs



While these extra costs are largely driven by commercial decisions in response to market restrictions, proper disclosures should be made by ETF managers in their offering documents to warn investors about them. In addition, for incoming synthetic ETF applications with significant exposure to any restricted market, we would expect the ETF managers to assess and disclose any additional fee which may be charged by the derivative counterparties or CAAP issuers during redemption when unwinding the derivatives or CAAPs through the closing out of the corresponding underlying positions. For ETFs adopting a swap-based structure, ETF managers are also expected to assess and disclose the swap fees as they generally do not form part of the ongoing charges of the ETF.

Some ETF managers may argue that these over-the-counter derivatives or synthetic structures are more efficient operationally but it appears from our experience that such setup may backfire when the underlying securities became illiquid for any reason. The unwinding process may be more complex and costly and may even lead to a breakdown of effective arbitrage.

Lastly, we note that there has been significant progress recently in the opening up of the China A-share market, which is by far the largest restricted market exposure among Hong Kong ETFs. The trading premium or discount abnormality posed by synthetic China A-share ETFs using CAAPs is hence expected to become less prevalent for the Hong Kong ETF market going forward as ETF managers now prefer to launch physical China A-share ETFs given the direct access to the China A-share market via the RQFII quota and/or Stock Connect.

Low investor demand and small fund size

ETFs with low demand are usually traded at a discount which in theory should attract arbitrageurs to conduct redemption to profit from it. However, when the demand for those ETFs fails to turn around, they may enter into a vicious cycle which eventually leads to a case that the arbitrage profit can no longer incentivise arbitrageurs. In addition, the arbitrage mechanism has its own limitations. In the extreme case where only one basket of ETF units remains, a redemption would then effectively terminate the product.

B. Reliance on authorised participants and liquidity providers in the provision of liquidity for ETFs

Given ETFs dealings in the primary and secondary market coexist, authorised participants (APs) (or PDs) and official liquidity providers (LPs)[17] (or market makers (MMs))[17] play vital roles in ensuring efficient ETF pricing. In light of their importance, this section is devoted to discussions around these two key players in the ETF ecosystem.

The liquidity of an ETF is highly dependent on (i) its underlying market; (ii) the balance between demand and supply in the secondary market; and (iii) the efficient creation and redemption of ETF units by APs in the primary market.

Recently, there have been discussions and comments expressed by various regulators such as the Central Bank of Ireland (CBI) and AMF on the relationship among ETFs, APs and LPs in their examination of ETF liquidity risk.

ETFs, authorised participants and liquidity providers

Secondary market liquidity is dependent on the functioning of APs and LPs. However, there is no uniform market making requirement across different stock exchanges around the world. In extremely stressed market conditions, an ETF manager could find it impossible to trade the underlying securities and is not willing to process redemption requests. The liquidity of the ETF may be impaired as a result and the ETF may trade with wider bid-ask spreads. It is even possible that ETFs would trade like a closed-end fund.

The activities as an AP of an ETF are generally not regulated and the relationship between an AP and an ETF is usually a commercial one where an AP is not required to actively participate in each and every ETF. As such, an AP may not be under any legal obligation to handle creation or redemption requests of ETF units. Similar to APs, LPs may not be duty-bound nor under any legal obligation to provide liquidity for ETFs. Rather, LPs may enter into a commercial arrangement and are bound by the restrictions and market making requirements as stipulated by the relevant stock exchange to provide liquidity to designated ETFs. It is also possible that an entity or entities within the same group may concurrently act as AP and LP for an ETF.

Given the only redemption channel to other market participants is provided by APs, investors could be 'stranded', especially in extreme stressed market conditions if APs withdraw from redemption activities. For example, during the June 2013 Taper Tantrum, Citigroup, a major AP, temporarily suspended redemption activities to various ETFs after reaching its internal prudential risk limits. Although there were other APs who were ready and willing to process creation and redemption for the affected ETFs[18], it nevertheless highlighted the vulnerability of the reliance of APs in the provision of liquidity for ETFs.

In the Hong Kong context

In Hong Kong, the ETF liquidity mechanism is akin to the US and European ETF markets. The functions of PDs and MMs are similar to those of APs and LPs in these markets.

[17] The terminologies 'official liquidity provider' (LP) and 'market maker' (MM) are interchangeably used in this paper given they are merely terminologies used in different jurisdictions.
[18] See *Comment Letter of the Investment Company Institute* (25 March 2015), https://www.ici.org/pdf/15_ici_fsoc_ltr.pdf

Currently, all PDs and MMs of SFC-authorized ETFs are licensed by the SFC while MMs must be exchange participants for the securities market in Hong Kong. In addition, SFC-authorized ETFs are required to have at least one MM to provide liquidity to facilitate the trading of ETFs on SEHK. An MM is not required to be a PD although in practice, we observe that an MM of an ETF listed in Hong Kong is typically also a PD but not all PDs are MMs for these ETFs.

In Hong Kong, the procedures and conditions in respect of the creation and redemption mechanism are clearly set out in the ETF's offering documents and the constitutive documents. In particular, any restrictions in creation and redemption of units and the circumstances under which investors' orders may be refused are required to be clearly disclosed to investors.

Mainland stock market correction 2015

The Mainland stock market correction in 2015 provides a real life case of liquidity stress testing on investment funds authorized by the SFC. After peaking in mid-June, the Mainland stock market plunged, by more than 30% in three weeks. During the market correction period, there was a widespread suspension of China A-shares. Furthermore, there were major redemptions, partly due to a loss of confidence, partly due to the need for liquidity. During such period of market correction, redemption requests of ETFs listed in Hong Kong were met in an orderly manner without activating any redemption tools (such as redemption suspension or gate).

SFC-authorized A-share ETFs were able to meet redemption in specie, which could reduce selling of assets and potential fire sales. It proved to be an effective tool in this case. This arrangement has proved to protect existing as well as remaining investors while discouraging and reducing the impact of redemption.

It appears that the ability to offer in-kind redemption by ETFs can alleviate the risk of large redemption pressure in a stressed market condition as a liquidity risk management tool and help ETF managers in processing redemption requests.

Proposals in mitigating the vulnerability of the reliance on APs and LPs

There have been ongoing discussions internationally on proposals in mitigating the vulnerability of the reliance on APs and LPs in the provision of liquidity for ETFs.

Enhance the transparency of APs and LPs through disclosure

In view of the above, it has been suggested that regulators should understand further the reasons behind AP or LP's withdrawal from the market as well as any potential issues arising from any interconnectedness of the AP and LP ecosystem in the provision of liquidity and the effective supervision of ETFs.

In Hong Kong, disclosure about the roles and functions of PDs and MMs, the identity of the initial PDs and MMs, the risks of reliance on MMs and reliance on the same group (if applicable) are disclosed in the offering documents of the Hong Kong listed ETFs. The latest list of PDs and MMs is also required to be displayed on the ETF's website.

Direct redemption by investors

According to the ESMA Guidelines, UCITS ETFs are required to offer direct redemption right to secondary market ETF investors in the event of market disruption[19]. The idea to open up primary dealing facility to holders of ETF units when the AP arrangement deteriorates has been considered by the SFC.

Unlike the UCITS space, currently there is no regulatory requirement in Hong Kong for ETF managers to accept redemptions directly from investors. We have previously discussed with ETF managers about the possibility of imposing a direct redemption requirement for Hong Kong listed ETFs to give retail investors the right to redeem their units directly from the ETF manager in exceptional circumstances. ETF managers expressed the view that direct redemption may not be a feasible arrangement given that ETF units in Hong Kong are generally held through a central securities depository and are registered in the name of the HKSCC Nominees Limited by the registrar on the register of ETF unitholders. Accordingly, most of the ETF managers in Hong Kong will not have direct access to information of the ultimate investors.

CBI shared similar concerns over the inherent difficulty associated with the nominee arrangement within which ETFs operate in order to procure direct redemption access for ETF investors[20]. CBI acknowledged that there may be disconnect between regulatory obligations and the legal and operational framework within which ETFs operate.

We will continue to keep in view of international development in this area.

C. Liquidity of underlying assets

In the previous section, we studied the liquidity issues of ETFs arising from intermediaries. Next, we examine how the fundamental design of ETF as an asset wrapper could potentially lead to concerns over liquidity.

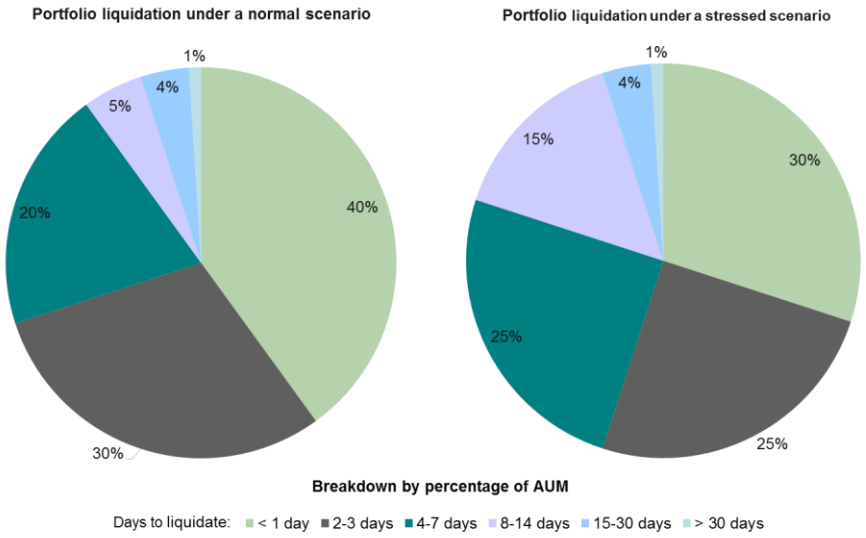
An ETF is theoretically as liquid as its underlying assets assuming primary dealings are available. However, the secondary trading of an ETF can reach multiple times of that of its underlying assets. On one hand, this liquidity advantage appears to be a compelling feature that has fuelled the meteoric rise of ETFs, but on the other hand, some critics argued that investors are exposed to illusions of liquidity in stressed market conditions where redemptions cannot be processed in the same liquidity level that secondary market has been offering[21]. Proponents of the liquidity illusion theory questioned whether these ETFs or, to a broader extent, the market can hold up in a downward spiral triggered by massive redemptions. The concern is particularly relevant to fixed income ETFs whose underlying assets such as high-yield corporate bonds are usually traded infrequently and over-the-counter.

[19] *ESMA Guidelines on ETFs and other UCITS issues*, page 7, paragraphs 23 and 24
[20] CBI, *Discussion Paper on Exchange Traded Funds* (May 2017): https://www.centralbank.ie/docs/default-source/publications/discussion-papers/discussion-paper-6/discussion-paper-6---exchange-traded-funds.pdf?sfvrsn=6
[21] Bank for International Settlements, *85th Annual Report*: https://www.bis.org/publ/arpdf/ar2015_ec.pdf
Dhara Ranasinghe, *Thriving ETFs may be stoking a 'liquidity illusion' for bonds, 1 February 2016 (Reuters)*: https://www.reuters.com/article/us-markets-bonds-etfs/thriving-etfs-may-be-stoking-a-liquidity-illusion-for-bonds-idUSKCN0VA2HY
Stephen Foley, *The alchemy of ETF liquidity is an illusory promise, 5 April 2015 (Financial Times)*: https://www.ft.com/content/cc44cd76-d918-11e4-b907-00144feab7de

In the Hong Kong context

In Hong Kong, there are only a handful of fixed income ETFs and the majority of which are tracking government bonds indices. That said, the concern over liquidity mismatch is no less important and we have been tackling this through our robust product authorization regime. In assessing an ETF application, the ETF manager has to demonstrate that the underlying index is sufficiently liquid by providing information regarding the liquidity horizon of the underlying assets under normal and stressed scenarios, taking into account reasonable exit costs and target fund sizes (see Figure 15 for an example). By doing so, we aim to screen out indices whose liquidity profiles require further consideration and help reducing the likelihood of authorizing ETFs with serious liquidity mismatch.

Figure 15: Example of liquidity information provided by ETF managers



In addition, it is important that investors are fully informed of the assets held through their ETF investments and aware of the assets' potential behaviour when market deteriorates. ETF managers are therefore required to disclose such information in the offering documents and are encouraged to carry out investor education to raise investors' awareness in this regard.

D. Active ETFs

Recently in Hong Kong, some industry participants have expressed to us their interests in launching active ETFs. An active ETF is an active management strategy in an ETF wrapper. Unlike an index tracking ETF, an active ETF does not track any index. Instead, it seeks to achieve a stated investment objective by investing in a portfolio of securities. Units of an active ETF are listed and/or traded on stock exchange with MMs providing liquidity for secondary trading while creation and redemption of units in the primary market are expected to be conducted by PDs.

Some investors may find active ETFs appealing because of their intraday liquidity, dynamic strategies and lower costs. For fund managers, it means a new distribution channel for their products as active ETFs can be distributed through the brokers' channel. Additionally, having an ETF structure or a listed share class for an unlisted

investment fund may give the fund an opportunity to attract more capital inflow via secondary market.

That said, since the emergence of active ETFs in the US in 2008, portfolio transparency of active ETFs has been under much debate. There is substantial tension in providing the full portfolio transparency to the public for ETFs deploying active strategies. Fund managers have concerns that full portfolio disclosure to the public may result in significant exposure to front running as well as risk of reverse engineering the manager's strategy. We notice the different regulatory approaches adopted in overseas jurisdictions as a result. While some regulators require full portfolio disclosure to the public on a daily basis[22], many others[23] permit the provision of active ETF's portfolio to PDs and MMs ahead of the public.

On the other hand, we note that the availability of daily portfolio information to APs and LPs is necessary to facilitate the provision of liquidity and the performance of effective arbitrage for an active ETF and ultimately facilitating secondary trading price of an active ETF on a stock exchange to be closer to its NAV. In addition, the iNAV of the active ETF available to the public throughout the trading session would enable the public to assess the value of their investment and make investment decision on trading in the secondary market.

In the Hong Kong context

Our proposals in introducing active ETFs in Hong Kong are set out in the *Consultation Paper on Proposed Amendments to the Code on Unit Trusts and Mutual Funds* (CP) issued on 18 December 2017 as part of the review of the Code on Unit Trusts and Mutual Funds (UT Code) exercise. In formulating our regulatory requirements on portfolio transparency, we observed from overseas development of active ETFs and industry feedback that imposing the disclosure of full portfolio on daily basis to the public would hinder the growth of active ETFs. We also note that existing SFC-authorized passive ETFs are allowed to provide portfolio information to PDs and MMs ahead of the public, similar to other overseas markets[24]. Such practice has been running smoothly and so far we are not aware of any major issues. As such, in the CP, we have proposed, for public consultation, a balanced approach such that we will not require daily full portfolio disclosure to the public while allowing the provision of portfolio information to PDs and MMs ahead of the public. Active ETFs must, under our proposals, publish full portfolio information to the public on a monthly basis (with no more than a one-month delay). We believe that this balanced approach would facilitate both secondary market pricing and the longer term development of active ETFs. Investors would also benefit from more product choices and lower costs.

E. ETFs and funds with listed and unlisted share class

The possibility of an ETF to establish a non-ETF share class (ie, an unlisted share class) or an unlisted fund to establish an ETF share class (ie, a listed share class) has been raised recently. Subject to the provisions of its constitutive documents, it is legally possible for an unlisted fund to set up a listed share class for listing and/or trading on a stock exchange. Such a structure may provide additional distribution channel for an unlisted fund via the secondary market. Conversely, it is also legally possible for an ETF to set up an unlisted share class for distribution in the primary market.

[22] For example, the US and Korea.
[23] For example, Canada, Australia, Germany, the UK and Ireland.
[24] For example, Australia.

We understand that for instance, while the possibility for a listed share class and an unlisted share class to be established and co-existed within the same fund seeking a single investment strategy is not prohibited under the UCITS regime, some overseas regulators have raised potential issues on fairness between treatment of investors for the listed and unlisted share classes under this structure. They are concerned that (i) holders of the listed share class may be disadvantaged when they can only exit the fund at a trading price at a significant discount to the NAV in the secondary market under stressed market conditions while holders of the unlisted share class may be able to redeem the units at NAV (albeit on a delayed basis); and (ii) the apparent differences between the holders of listed and unlisted shares classes in divesting themselves of the units on an intra-day basis.

In the Hong Kong context

We have considered the regulatory concerns associated with this idea. The potential fairness issues associated with having unlisted share class within an ETF (or alternatively, having a listed share class within an unlisted fund) can be addressed by adequate disclosure to holders of different share classes and investor education efforts. As such, given the structure is new to the Hong Kong market, we have proposed in the CP that subject to consultation with the SFC (i) an unlisted fund may set up a listed share class for the purpose of listing on the stock exchange and such listed share class should comply with the requirements on active ETF in 8.10 of the revised UT Code; (ii) schemes under 8.6 of the revised UT Code may have unlisted and/or listed unit/share classes, provided that the dealing arrangements and risks associated with these two share classes are clearly disclosed in the offering documents.

We welcome comments from the industry on our proposals on active ETFs and ETFs and funds with listed and unlisted share class (as well as other proposals in connection with the UT Code review) by no later than 19 March 2018.

F. Macro issues relating to the growth of passive investing

The growth of passive investment, particularly ETFs, has given rise to concerns in multiple dimensions. A large volume of academic literature has been produced to examine how ETFs impacted the underlying markets. One recurring theme asserts that the auto-pilot feature of passive investments has resulted in misallocation of capital and asset bubble formation. Investors may run the risk of losing sight of fundamentals and be trapped in a feedback loop by allocating money into potentially overvalued securities alongside a thriving market capitalization weighted index. Other comments include (i) labelling passive investments as price takers which impair informational efficiency; (ii) adding volatility to the underlying securities through primary dealing activities; and (iii) shifting liquidity from the underlying to the ETFs. Many of the topics are still under debate and have not yielded any conclusive results.

Another area of focus is around negative externalities arising from passive investments and is closely related to the topic of corporate governance. In particular, there is an emerging field of academic studies which attribute higher consumer prices to the rise of index investing and ETFs have become the centre of the discussions. Some papers argued, by empirical studies, that substantial ownership of companies within an industry by a group of large passive managers discouraged competition[25], as aggressive competition could damage their portfolio values. Passive managers are commented as

[25] Azar, José and Schmalz, Martin C. and Tecu, Isabel, *Anti-Competitive Effects of Common Ownership, 15 March 2017 (Journal of Finance)*: https://ssrn.com/abstract=2427345 or http://dx.doi.org/10.2139/ssrn.2427345

not as incentivised as the active managers to frequently engage resources to interact with companies. As a result, it hurt consumers as prices could potentially be lower should competition be more intense.

In the Hong Kong context

As the size of the Hong Kong ETF market is fairly modest compared to other major markets, any resulting impact on the underlying, if proven valid, should remain subdued. We would keep in view international discussions around these topics and the growth of passive investments in Hong Kong.

In relation to the concerns on corporate governance, a stewardship code, namely the Principles of Responsible Ownership, was introduced by the SFC in 2016. The principles aim to encourage investors, especially institutions which invest on behalf of clients, to constructively engage with companies and to establish clear voting policies. They are, in our view, precisely some of the best practices for passive managers to address the global concerns on stewardship and corporate governance.

We have already seen encouraging signs that some of the largest managers of index tracking funds are pursuing stewardship initiatives such as publishing voting records and adopting the SFC's Principles of Responsible Ownership.

A recent survey conducted by Morningstar indicated that passive managers across the globe are stepping up their commitment to responsible investing and strong corporate oversight[26]. One of the convincing evidence of increasing emphasis on stewardship responsibilities is perhaps the growth of passive managers' stewardship teams[27]. By allocating more resources and professionals, it allows specialisation and sophistication in stewardship initiatives and offers investors comfort that the increased quantity of engagement with corporates would not sacrifice the quality of interactions.

[26] Morningstar Manager Research, *Passive Fund Providers Take an Active Approach to Investment Stewardship*: http://corporate1.morningstar.com/ResearchArticle.aspx?documentId=839413

[27] For instance, according to Morningstar Manager Research, *Passive Fund Providers Take an Active Approach to Investment Stewardship*, BlackRock and Vanguard expanded their stewardship teams by more than half over the past three years. See footnote 26.

IV. In closing

18 years after the first debut, ETFs has become an important and fast-growing component of the investment product universe in Hong Kong. ETF offerings in Hong Kong are progressively expanding in both breadth and depth. We also see major breakthroughs in the ETF space presented by Mainland initiatives over the years.

Market participants predict that the AUM of ETFs will be growing at the rate of around 15% per annum for the next three to five years, where global ETF AUM could reach US$7.6 trillion by 2020[28]. Alongside with the growth and development of the ETF markets around the world, active discussions on the topical issues will certainly continue in the ETF space. We will keep in view of these developments and continuously engage with the industry to formulate suitable regulatory responses.

In addition, we are already in the midst of working with ETF stakeholders, exchanges and Mainland authorities on various initiatives to enhance our market infrastructure and regulatory regime. Key initiatives include the public consultation on the proposed amendments to the UT Code, our proposals to introduce active ETFs, the enhancement of the securities market making programme for ETFs, as well as the implementation of ETF Connect.

We believe that the growth and success of the Hong Kong ETF market hinge on an efficient and effective ecosystem for ETFs as well as product innovations. To this end, we will continue to work with ETF stakeholders in enhancing our market infrastructure and regulatory regime as well as new product proposals with demonstrable benefits to the Hong Kong ETF market in order to facilitate a sustainable growth.

[28] Ernst & Young, *Reshaping around investors - Global ETF Research Report 2017*
http://www.ey.com/Publication/vwLUAssets/ey-global-etf-survey-2017/$FILE/ey-global-etf-survey-2017.pdf