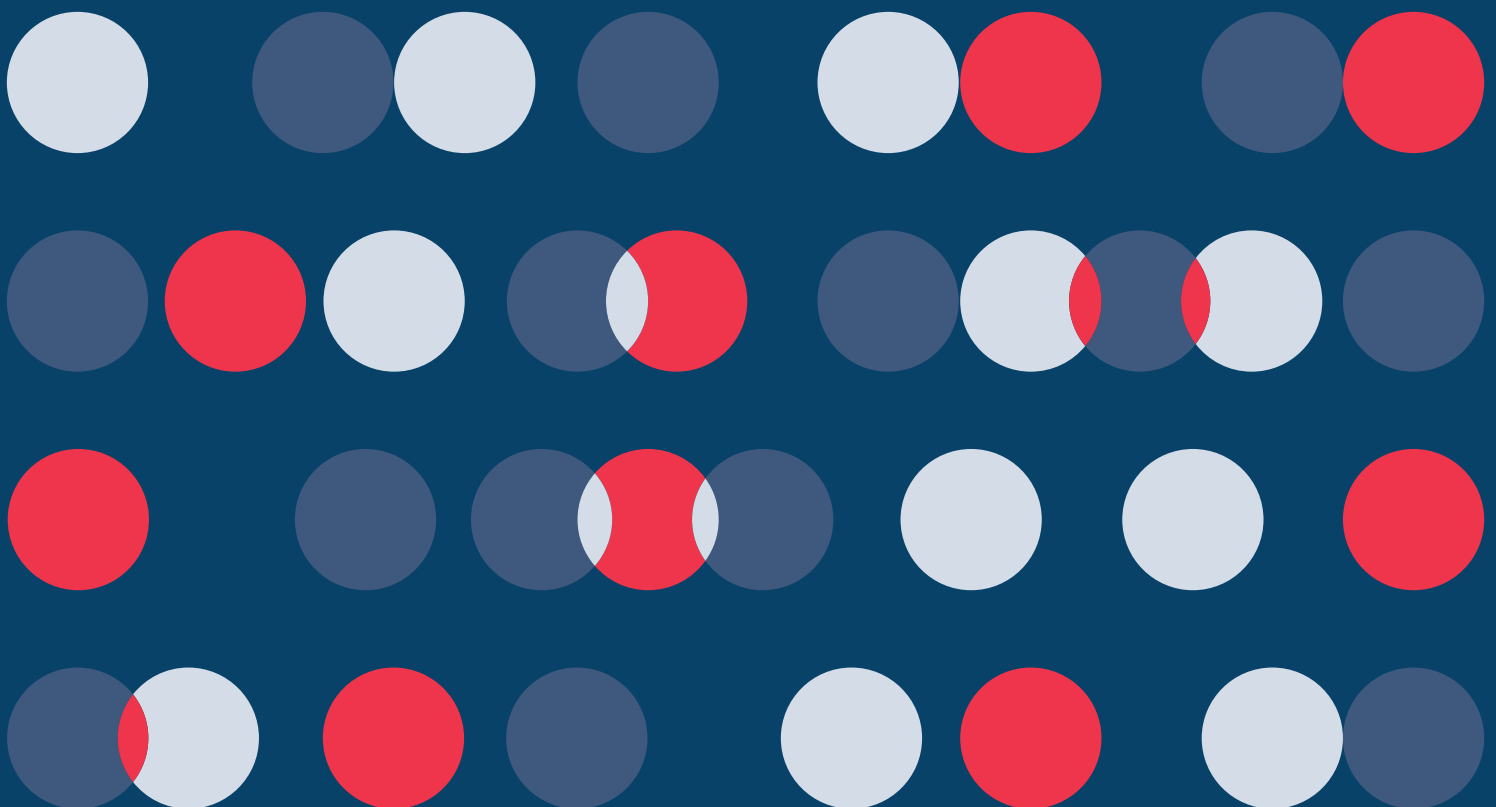


November 2018

RESEARCH REPORT

OFFSHORE RMB PRODUCTS AND
RISK MANAGEMENT TOOLS —
HONG KONG'S ECOSYSTEM NURTURED BY
THE CONNECT SCHEMES



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SUMMARY

Offshore Renminbi (RMB) securities and derivative products emerged and develop as the Mainland financial market continues to open up and the RMB progresses further on its internationalisation. Hong Kong is the first market in the world to start offshore RMB business upon authorisation by the Mainland government in 2003. Following subsequent Mainland policy liberalisation and facilitation by central policy support, RMB financial products began to prosper in Hong Kong. RMB products listed on HKEX now comprise bonds, exchange traded funds, real estate investment trust, equities, and RMB currency and commodity derivatives.

RMB bonds are by far the RMB security type with the most number of offshore listings on world exchanges, but trading is mostly conducted off-exchange. HKEX is ahead of other key exchanges in the world in offering the most offshore RMB-traded securities and RMB derivatives, with relatively active trading. Only a few other exchanges are found to offer a couple of RMB securities other than bonds, with low or no turnover. On the other hand, RMB currency futures and options are relatively popular products offered by a number of exchanges around the globe. Nevertheless, trading in these RMB derivatives has been concentrated on HKEX and a couple of other Asian exchanges.

The Stock Connect and Bond Connect schemes in Hong Kong for Northbound trading by global investors in eligible RMB securities in the Mainland market have further expanded the RMB product suite available for global investors to trade from offshore. Statistics showed that global investors have growing appetite for trading RMB products from offshore through the Connect schemes and that this is in parallel to the increased trading activities in RMB derivatives in Hong Kong for the associated risk management. The RMB products ecosystem in Hong Kong is thereby gradually established and being developed.

The scalability of the Mainland-Hong Kong Connect schemes implies the possible increase in eligible onshore RMB product types and in the number of products available for global investor trading in Hong Kong. Before the relaxation of foreign investor participation in the onshore RMB derivatives market in a large scale (needless to say the limited supply and variety of onshore RMB derivatives), the development of an extensive spectrum of offshore RMB risk management tools including RMB equity derivatives, fixed-income or interest rate derivatives, and currency derivatives would be important to support global trading in RMB products. Nurtured by the Connect schemes and if provided with the necessary policy support, the RMB products ecosystem in Hong Kong is expected to flourish with abundant product supply, active trading and greater interactions between the onshore and offshore markets.

1. EMERGENCE AND DEVELOPMENT OF THE OFFSHORE RMB PRODUCTS MARKET

1.1 Offshore RMB products' development driven by policy initiatives

Hong Kong is the first offshore market to introduce Renminbi (RMB) business by financial institutions in 2004 after China's central bank, the People's Bank of China (PBOC), and the Hong Kong Monetary Authority (HKMA) signed a Memorandum of Understanding in November 2003 which allowed Hong Kong banks to conduct RMB business for individuals. The scope of services was initially limited to remittance, exchange and RMB credit cards. RMB investment products in Hong Kong started with the issuance of RMB bonds, commonly referred to as "dim-sum" bonds, after the State Council of China gave consent to the expansion of RMB business in Hong Kong in January 2007 — allowing Mainland financial institutions to issue RMB financial bonds in Hong Kong. Related rules were issued in June 2007 for implementation of this state policy¹ and late in the same month the first RMB bond was offered in Hong Kong by a Mainland state-owned policy bank².

Subsequent policy relaxations have driven the rapid development of the RMB bond market in Hong Kong. In February 2010, according to policy clarification³, the range of eligible issuers, issue arrangement and target investors of RMB bonds in Hong Kong can be determined in accordance with the applicable regulations and market conditions in Hong Kong. In the same month, the PBOC gave its permission to allow financial institutions to open RMB accounts in Hong Kong that are related to debt financing, which enables the launch of RMB bond funds in Hong Kong. In October 2011, new rules were introduced to allow overseas RMB obtained through legitimate channels, e.g. by overseas issuance of RMB bonds and stocks, to be engaged in direct investment in the Mainland⁴. With the Mainland government's further central policy support⁵, RMB financial products began to prosper in Hong Kong, both off-exchange and on-exchange, to beyond RMB bonds.

At the same time, continuous efforts have been taken by the Mainland government to make progress in the internationalisation of the RMB, underpinned by the further opening of the Mainland financial market. In 2010, the PBOC began to allow qualified foreign institutions to use offshore RMB to invest in the China Interbank Bond Market (CIBM)⁶, and subsequently introduced liberalisation measures since 2015 to further enhance their participation. The RMB Qualified Foreign Institutional Investor (RQFII) scheme was introduced in 2011 as an extension of the Qualified Foreign Institutional Investor (QFII) scheme launched in 2002. This also allows the use of offshore RMB by foreign investors to invest in the Mainland domestic financial market, including the CIBM and the stock market. In November 2014, the Mainland-Hong Kong Mutual Market Access pilot programme was launched, with the Shanghai-Hong

¹ 《境內金融機構赴香港特別行政區發行人民幣債券管理暫行辦法》(Provisional Measures for the Administration of the Issuance of RMB Bonds in the Hong Kong Special Administrative Region by Domestic Financial Institutions) issued jointly by the PBOC and the National Development and Reform Commission (NDRC) on 8 June 2007.

² The RMB bond was offered by China Development Bank which had an offer size of RMB 5 billion, a coupon rate of 3% and a maturity of 2 years. At least 20% of the issue was offered to retail investors.

³ HKMA's letter of elucidation of supervisory principles and operational arrangements regarding RMB business in Hong Kong, 11 February 2010.

⁴ 《外商直接投資人民幣結算業務管理辦法》(Administrative Measures for the Clearing and Settlement of Foreign Direct Investment in Renminbi) issued by PBOC; 《關於跨境人民幣直接投資有關問題的通知》(Notification About Issues Relating to Cross-Border Direct Investment in Renminbi) issued by Ministry of Commerce (MoC).

⁵ In August 2011, the then Vice Premier Li Keqiang disclosed a series of central policies about Hong Kong development during his visit to Hong Kong. Specifically, policy support would be offered for Hong Kong's development into an offshore RMB business centre; this would include the development of innovative offshore RMB financial products in Hong Kong, an increase in the number of eligible institutions to issue RMB bonds in Hong Kong with an enlarged issue scale. In June 2012, the Mainland Government formally announced a set of policy measures to strengthen cooperation between the Mainland and Hong Kong, among which is the policy support in developing Hong Kong into an offshore RMB business centre.

⁶ 《關於境外人民幣清算行等三類機構運用人民幣投資銀行間債券市場試點有關事項的通知》(Notification About Issues Relating to the Pilot Programme of Allowing Three Kinds of Institutions including Foreign RMB Clearing Banks to Use RMB to Invest in the Interbank Bond Market), issued by the PBOC, 16 August 2010.

Kong Stock Connect (Shanghai Connect) introduced as the first initiative under this programme. Shanghai Connect allows foreign investors to trade eligible stocks listed on the Shanghai Stock Exchange (SSE) — Northbound trading, and Mainland investors to trade eligible stocks listed on the Stock Exchange of Hong Kong (SEHK), the securities arm of the Hong Kong Exchanges and Clearing Limited (HKEX) — Southbound trading, through the trading, clearing and settlement platforms at their respective home markets. A similar Connect scheme between the SEHK and the Shenzhen Stock Exchange (SZSE) — the Shenzhen-Hong Kong Stock Connect (Shenzhen Connect) — was introduced in December 2016. (Shanghai Connect and Shenzhen Connect are collectively referred to as the “Stock Connect” scheme.) Further in July 2017, the Bond Connect scheme — a mutual bond market access programme between Mainland China and Hong Kong — was launched, commencing with Northbound trading link initially and Southbound trading link to be added later.

As a result of the increasing connectivity between the offshore market and the onshore market, the offshore RMB financial system in Hong Kong has become increasingly vivid.

Currently, the RMB securities (i.e. securities traded in RMB) listed on the SEHK include bonds, exchange traded funds (ETFs), real estate investment trust (REIT) and equities. Other overseas exchanges are also found to list similar types of RMB securities, but not as many as the SEHK. Moreover, Northbound trading under the Connect schemes (comprising the Stock Connect scheme and the Bond Connect scheme) have extensively broadened the use of offshore RMB in the financial market and have effectively expanded to a large extent the universe of RMB securities tradable outside Mainland China by global investors in Hong Kong. (See Sections 2 and 3 below.)

1.2 Offshore RMB risk management demand driven by the progress in RMB internationalisation

In the path towards internationalisation where the RMB aims at ultimately being used internationally as a trading currency, a settlement currency and a reserve currency, the RMB exchange rate shall inevitably be determined by market forces. On 11 August 2015, the PBOC took a policy move on reforming the formation mechanism of the central parity rate of the RMB against US dollar (USD) in the Interbank foreign exchange (FX) market to make the RMB exchange rate more market-driven. After this critical move, the RMB was subsequently admitted to the Special Drawing Right (SDR) basket of currencies of the International Monetary Fund (IMF) on 1 October 2016. Since then, the central banks in Singapore (the Monetary Authority of Singapore), Europe (the European Central Bank), Germany (Deutsche Bundesbank) and France were reported to have included RMB in their foreign exchange reserves⁷. They are expected to be followed by other countries as well, given the SDR status of RMB and that the RMB ranked 8th as an international payments currency as of September 2018 (with a global share of 1.10%)⁸.

To provide the market with the currency risk management tool and investment tool in the course of gradual RMB internationalisation, HKEX introduced its first RMB derivative product — the USD to offshore RMB (CNH) futures (USD/CNH Futures) in September 2012. The HKEX RMB derivative product suite now consists of futures and options on multiple RMB/foreign currency pairs and commodities. (See Section 2.)

Apart from HKEX, at least ten other overseas exchanges also offer trading of RMB derivatives, mostly RMB currency futures and options. In fact, the Chicago Mercantile Exchange (CME) introduced its Chinese RMB/USD Futures denominated in onshore RMB (CNY) as early as in June 2006 but little trading was recorded. (See Section 3.)

⁷ Reported in the media during the period of June 2016 to January 2018.

⁸ Source: SWIFT RMB Tracker September 2018.

Other than RMB currency derivatives, few other overseas exchanges offer futures and options on other underlying assets denominated in RMB. Only Dubai Gold and Commodities Exchange (DGCX) was found to have introduced the Shanghai Gold Futures contract, which is based on the gold benchmark price as declared by the Shanghai Gold Exchange (SGE) for settlement and is cash settled in CNH.

From the offerings and trading activities of the RMB derivative products in Hong Kong and overseas, one can see that with the greater liberalisation of the RMB exchange rate, there is a fast growing demand for RMB exchange rate risk management tools by global investors. Despite the fact that China is a major importer of many major commodities⁹, the RMB pricing power in global commodities is still limited and RMB-denominated commodity derivatives are not common on world exchanges. In addition, in the light of the increasingly active global investor trading in Mainland bonds through the Bond Connect scheme, it is expected that there will be growing global demand for RMB fixed income or interest rate derivatives for hedging their positions. While this demand may not be fully satisfied via trading in the Mainland domestic derivatives market¹⁰, offshore RMB interest rate hedging tools will be of paramount interest to global investors.

In summary, **RMB currency derivatives** are currently the most popular product type of offshore RMB derivatives; offshore **RMB commodity derivatives** are yet to develop as the international pricing power of RMB continues to build up in the commodities market; and offshore **RMB fixed-income and interest rate derivatives** are expected to flourish in the future along with the growing RMB assets held by global investors. **RMB equity derivatives** are not yet available offshore but are expected to be in great demand as cross-border global trading in RMB equities continue to grow.

2. THE RMB PRODUCT SUITE IN HONG KONG

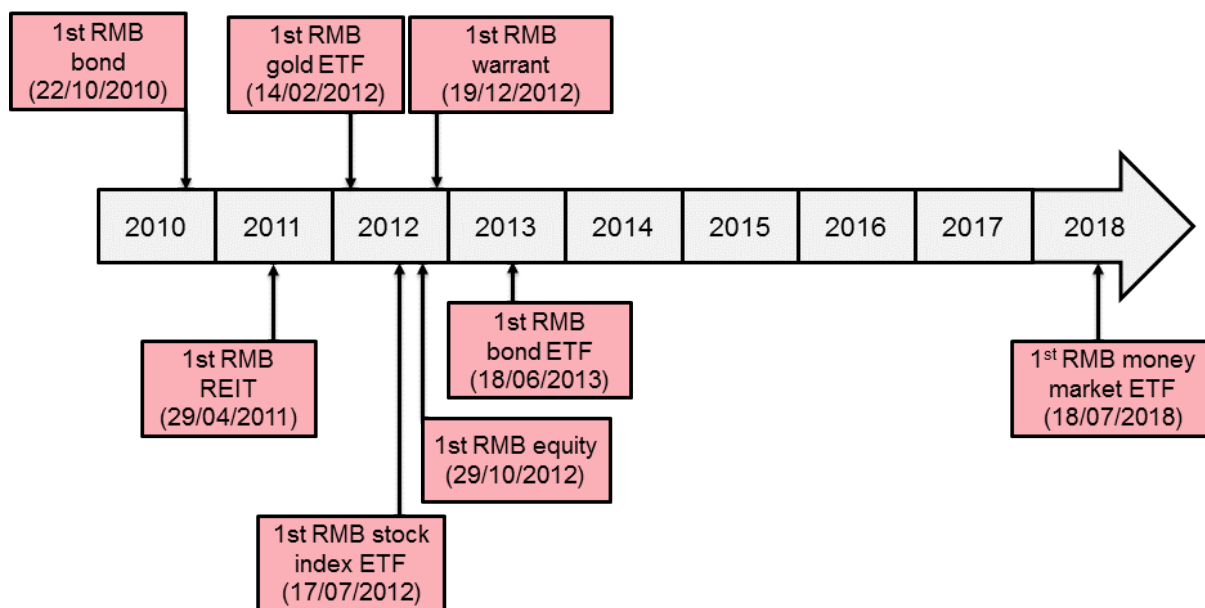
2.1 Securities products

The Hong Kong securities market saw the first RMB bond listing on 22 October 2010. This was followed by the first RMB REIT in 2011, and by the first RMB ETF (on gold), the first RMB equity and the first RMB warrant in 2012. By the end of September 2018, the total number of listed RMB securities was 134, most of which were RMB bonds. See Figure 1 for the timeline of RMB securities product launch and Figure 2 for the growth in the number of RMB securities on the HKEX securities market, i.e. the SEHK.

⁹ For example, China's imports of iron ore as percentage of the world's total imports has grown from 14% in 2000 to 67% in 2016; China's imports of crude oil as percentage of the world's total imports has grown from 11% in 2009 to 19% in 2017. (Source: Wind.)

¹⁰ According to the Bond Connect measures issued by the PBOC (《內地與香港債券市場互聯互通合作管理暫行辦法》) on 21 June 2016, eligible securities for Northbound trading by foreign investors under Bond Connect are all the cash bond types on the CIBM, not including bond derivatives. Only foreign reserves institutions are allowed to trade bond derivatives like bond forwards, interest rate swaps (IRS), forward rate agreements (FRA) on the CIBM.

**Figure 1. Timeline of the launch of new RMB securities product types on HKEX
(up to September 2018)**

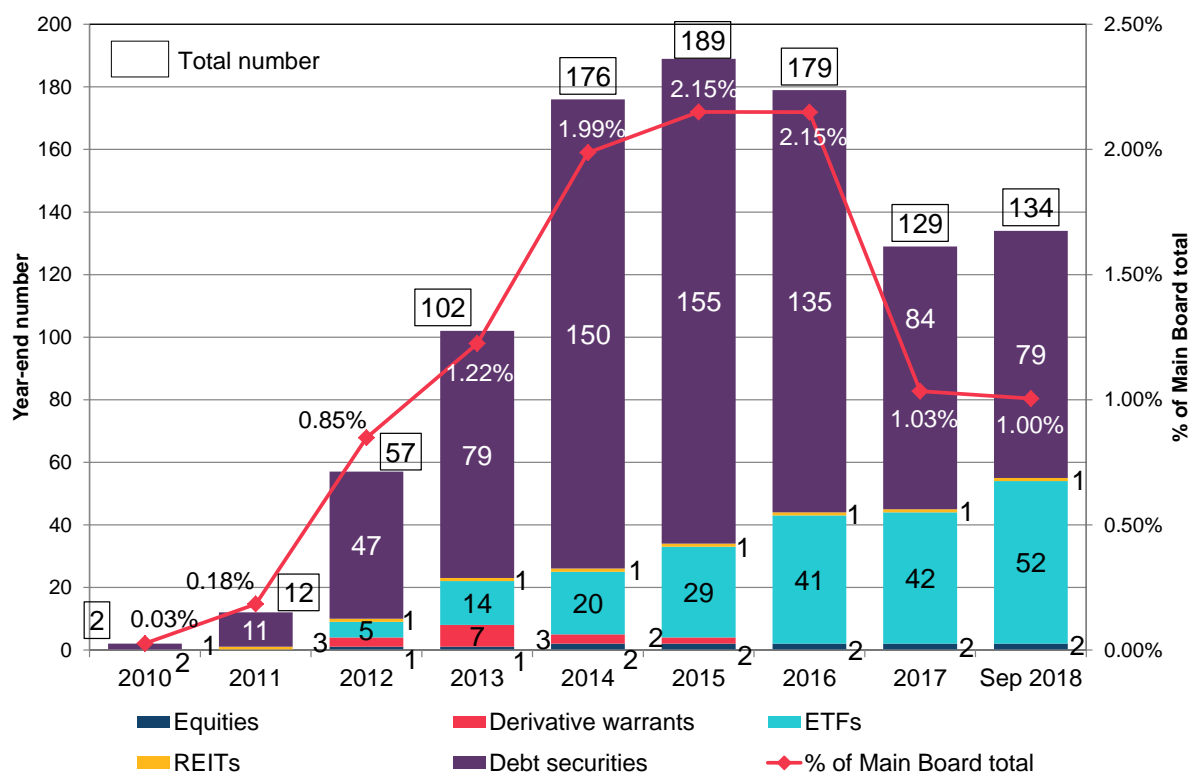


Source: HKEX.

The percentage share of RMB securities in number terms rose to over 2% of all listed Main Board securities as at end-2015 and end-2016 and decreased to about 1% by end-2017 and September 2018 owing mainly to the reduction in the listings of RMB bonds. On the other hand, the number of listed RMB ETFs continued to grow over the years. At the end of September 2018, RMB securities consisted as to 59% of RMB bonds and 39% of ETFs. Among RMB ETFs, stock index ETFs constituted the most (34% of all RMB securities). The proportion of RMB securities in number, though small in respect of all securities on the Main Board, was rather significant for ETFs (46%)¹¹. (See Figures 2 to 4.)

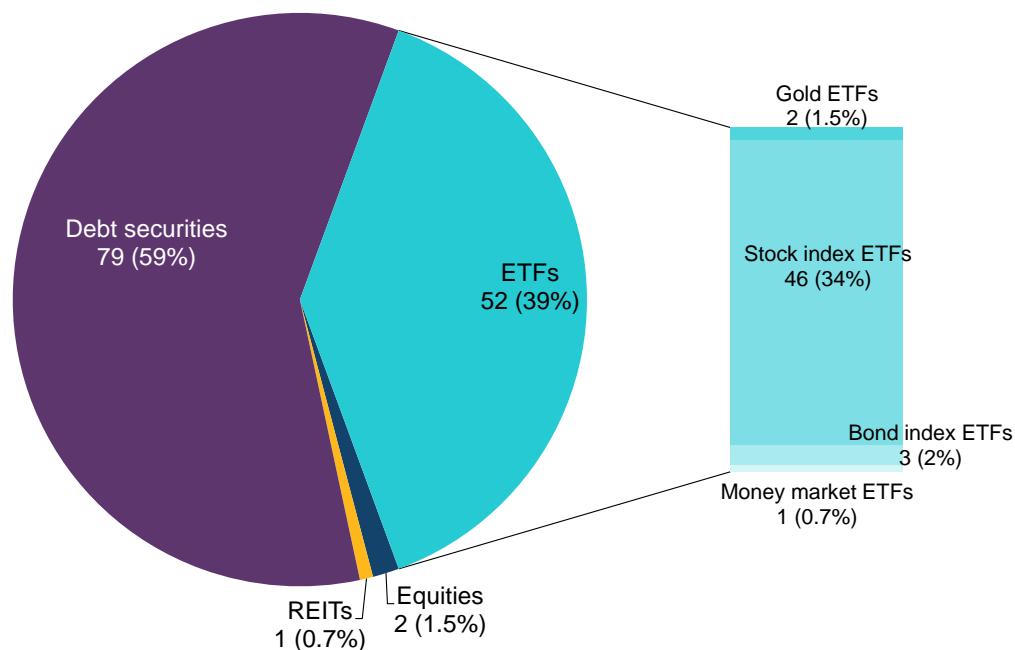
¹¹ All except one (a RMB gold ETF) of these ETFs are ETFs with dual or multiple counters for trading in RMB and other currencies (Hong Kong dollars and/or USD).

Figure 2. Year-end number of RMB securities listed on HKEX by type (2010 – Sep 2018)



Source: HKEX.

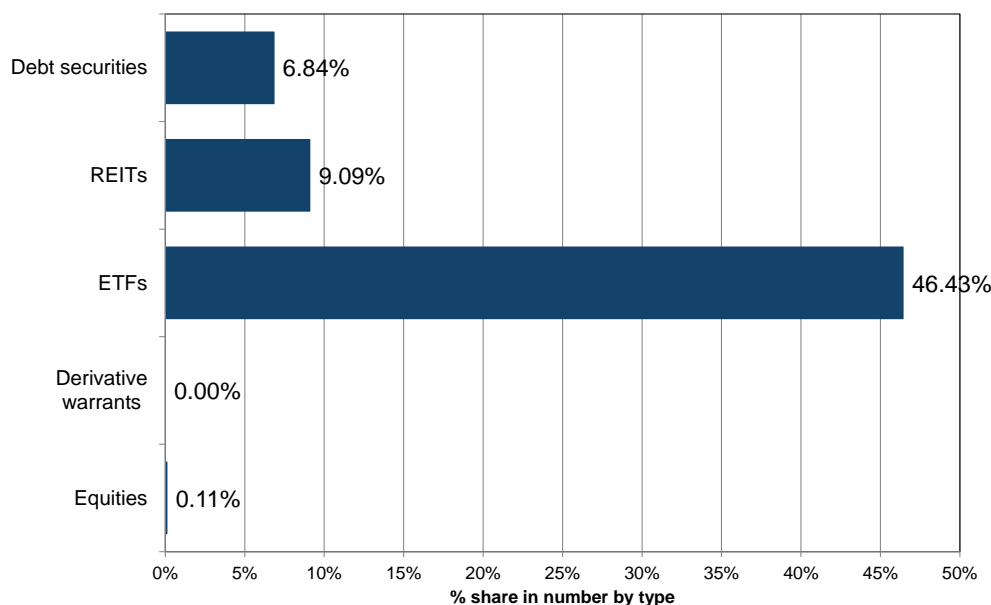
Figure 3. Composition of RMB securities listed on HKEX in number by type (End-Sep 2018)



Note: Percentages may not add up to 100% due to rounding.

Source: HKEX.

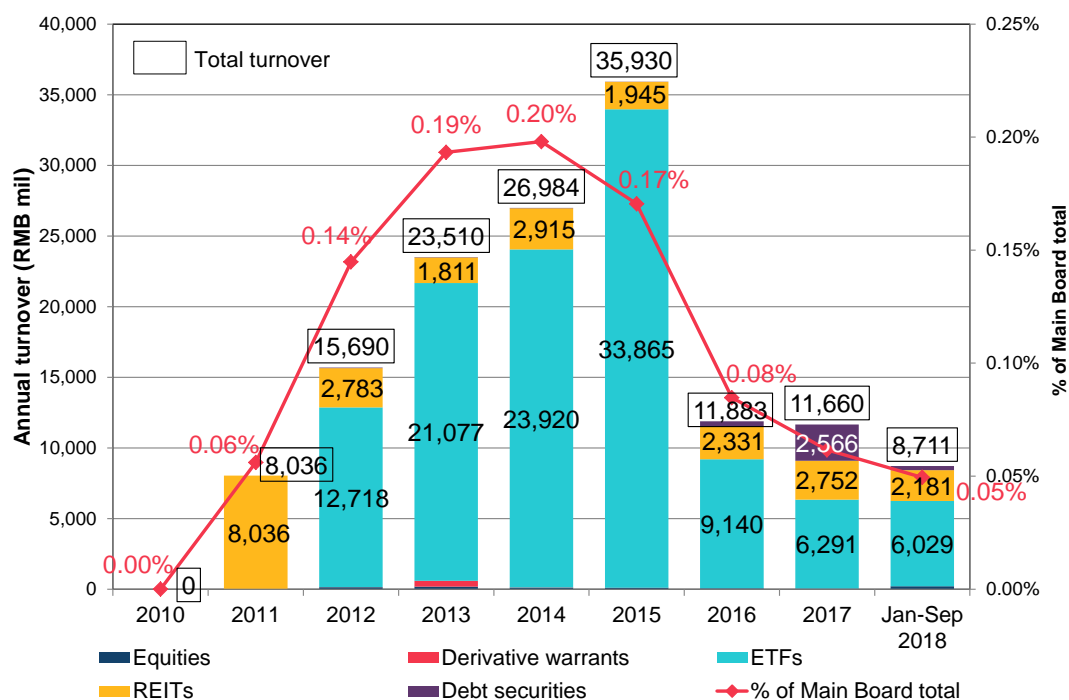
Figure 4. Number of RMB securities as percentage of total number of securities listed on HKEX by type (End-Sep 2018)



Source: HKEX.

Trading in RMB securities had grown for five consecutive years since 2011 before a contraction since 2016. Owing to the small number of listings, securities traded in RMB had only a negligible share of the Main Board market total turnover (see Figure 5). Among them, RMB ETFs had the biggest share in each year since their launch year of 2012, constituting 69% in 2018 up to September, mainly from stock index ETFs. The only one RMB REIT came second (25% in the same period). Although RMB bonds had the most listings, they had only a small share by turnover (3% in the same period). (See Figures 5 and 6.)

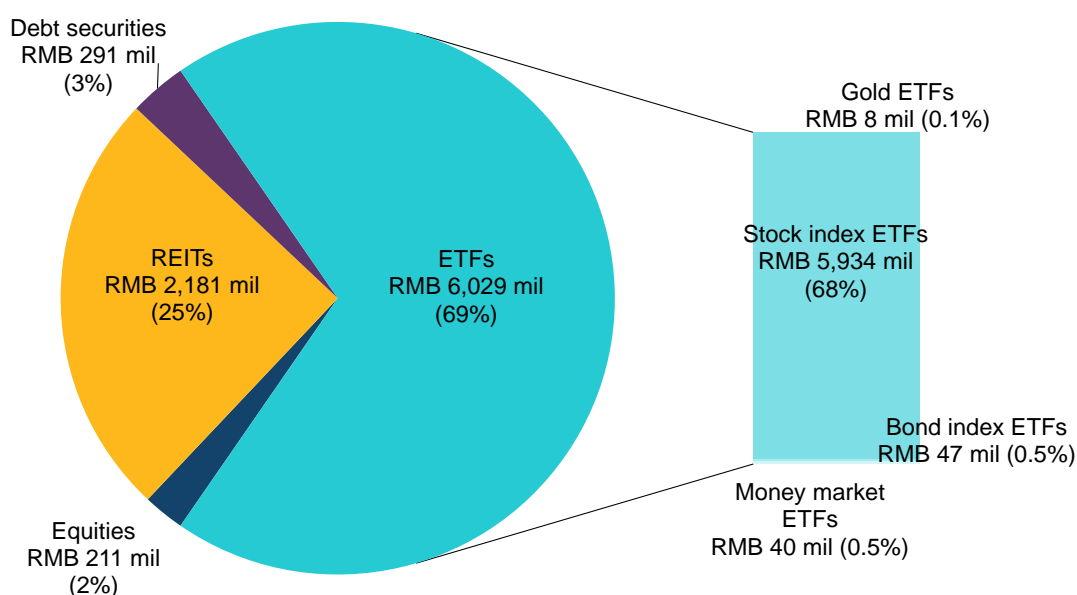
Figure 5. Annual turnover of RMB securities listed on HKEX by type (2010 – Sep 2018)



Note: Turnover of RMB securities does not include turnover in non-RMB trading counters of the securities, if any.

Source: HKEX.

Figure 6. Composition of RMB securities listed on HKEX in turnover by type (Jan-Sep 2018)



Note: Turnover of RMB securities does not include turnover in non-RMB trading counters of the securities, if any. Percentages may not add up to 100% due to rounding.

Source: HKEX.

In summary, RMB securities on HKEX experienced a steady development. RMB ETFs, mainly stock index ETFs, are of relatively higher significance.

2.2 Derivative products

The first RMB derivative product traded on the HKEX derivatives market, i.e. the Hong Kong Futures Exchange (HKFE), was the **USD/CNH Futures** launched in September 2012. After a modest start, active trading in the product was ignited by the RMB exchange rate mechanism reform on 11 August 2015. The trading momentum further picked up in 2016 along with increased RMB exchange rate volatility in the year. To serve anticipated increasing demand for more RMB currency derivatives in view of increasing global economic activities conducted in RMB, HKEX introduced three new cash-settled RMB-traded currency futures of offshore RMB against Euro, Japanese yen and Australian dollar — **EUR/CNH, JPY/CNH and AUD/CNH**, and the cash-settled USD-traded **CNH/USD Futures** in May 2016.

Another product initiative to support the international use of the RMB and RMB pricing in the real economy is the introduction of RMB-traded commodity futures contracts in December 2014. The first batch of products launched were **London metal mini futures contracts** on aluminium, copper and zinc. The underlying three metals are those which China had significant shares in global consumption¹² and which had the most liquid futures contracts traded on the London Metal Exchange (LME)¹³, a subsidiary of HKEX. A year later, three more London metal mini futures were launched — lead, nickel and tin. These six RMB-traded metal contracts are cash-settled mini contracts of the corresponding physically-settled contracts traded on LME. They are the first metal products outside Mainland China which

¹² China's share in global consumption was 36% for aluminium in 2015 (24,960 kilo tonnes out of 69,374 kilo tonnes, source: World Aluminium, <http://www.world-aluminium.org>), 46% for copper in 2015 (9,942 kilo tonnes out of 21.8 mil tonnes, source: The Statistics Portal, <https://www.statista.com>) and 45% for zinc in 2014 (about 6.25 mil tonnes out of 13.75 mil tonnes, source: Metal Bulletin, The Statistics Portal).

¹³ In 2017, trading volume in futures contracts of aluminium, copper and zinc on LME constituted 35%, 23% and 20% of the total commodity derivatives trading volume on LME (source: LME).

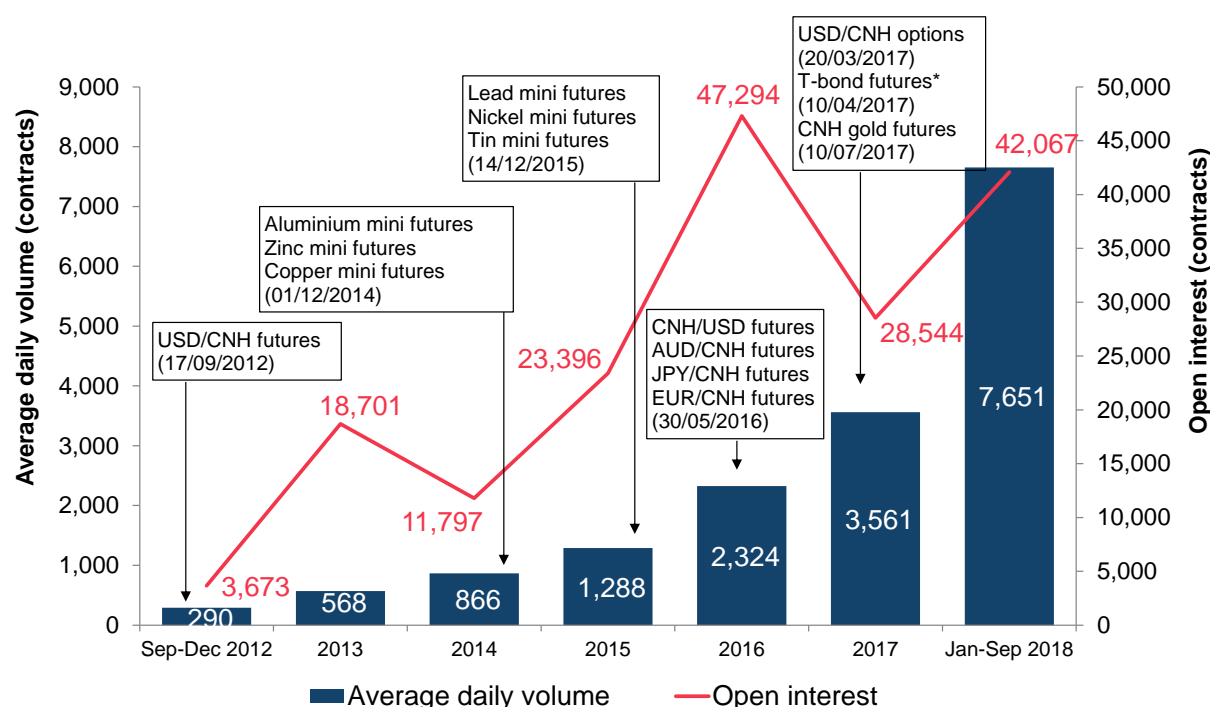
provides for RMB exposure in the underlying assets, supporting RMB benchmarking for metals in the Asian time zone.

RMB currency risk management tools on HKEX are further enriched upon the introduction on 20 March 2017 of the first RMB currency options contract, **USD/CNH Options**. The increased product variety would also provide opportunities for investors to adopt different investment strategies for their RMB exposure.

Furthermore, futures contracts on treasury bonds issued by China's Ministry of Finance (**MOF T-bond Futures**) were launched on 10 April 2017 under a pilot scheme. RMB bond derivatives would be useful tools for interest rate hedging, especially under the **Bond Connect scheme** introduced in July 2017. The pilot programme was subsequently halted at the end of 2017 to allow for the formulation of a suitable regulatory framework for offshore RMB derivatives.

Figure 7 shows the average daily trading volume (ADV) and period-end open interest of RMB derivatives on HKEX over the years since launch.

Figure 7. ADV and period-end open interest of RMB derivatives on HKEX (Sep 2012 – Sep 2018)



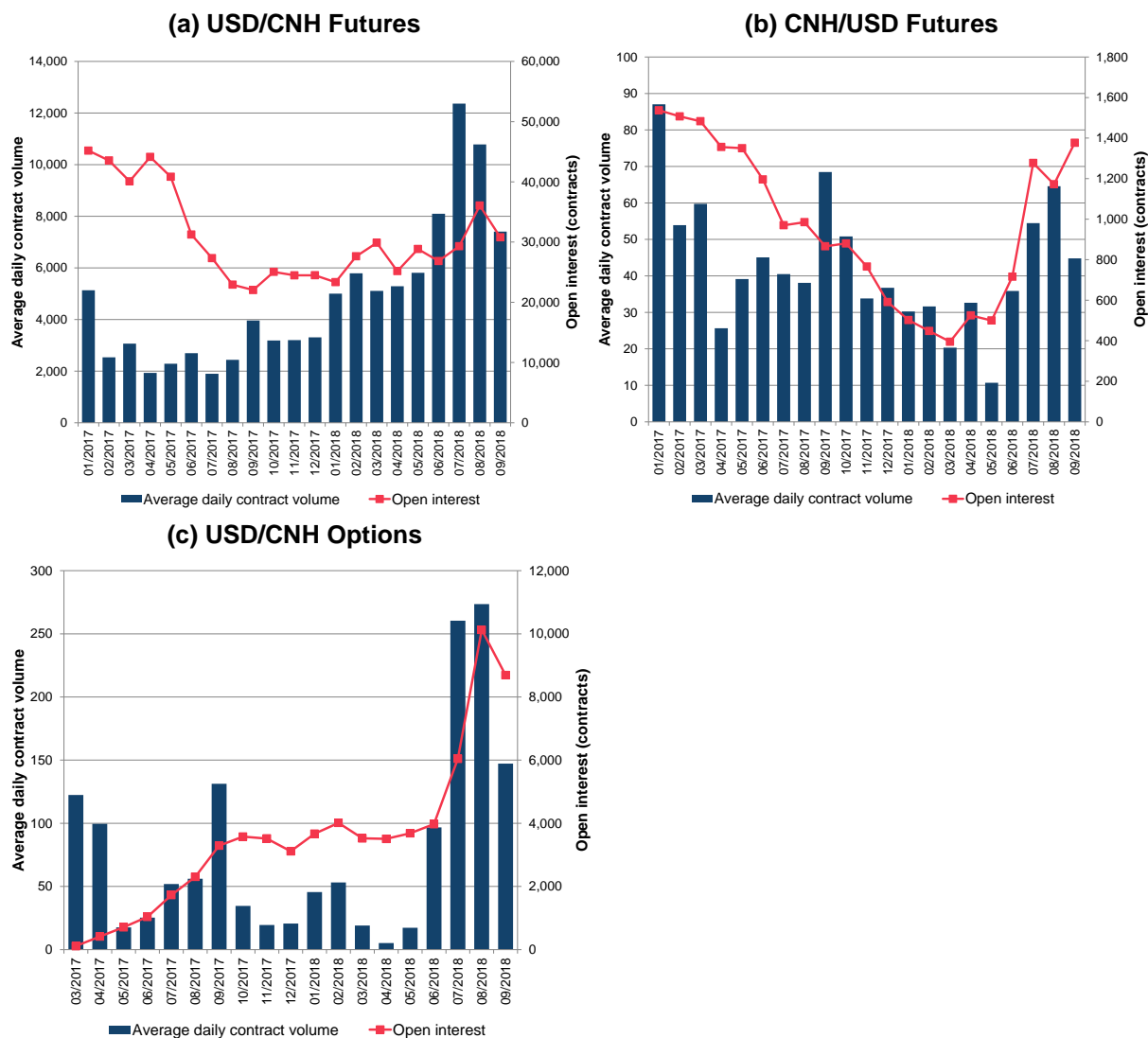
* The MOF T-bond Futures were launched as a pilot programme, trading was suspended after the expiry of the December 2017 contract.

Source: HKEX.

Among the RMB derivatives, the futures and options contracts on the CNH exchange rate against the USD are by far the most active ones. The flagship RMB derivative product — USD/CNH Futures — recorded a significant 36% annual growth in trading volume in 2017, achieving an ADV of 2,966 contracts. Its sister product — CNH/USD Futures — also recorded a remarkable growth of 145% in trading volume in 2017. Further trading growth was observed for the USD/CNH Futures in 2018, with the ADV rose to 7,295 contracts for the period of January to September 2018, a tremendous growth of 146% from the ADV in 2017. The USD/CNH Options newly launched in March 2017 had a trading volume of 10,473 contracts in 2017 and 19,310 contracts during January to September 2018, with a strong rise in open interest which achieved a record high of 10,126 contracts on 30 August 2018 and a monthly

average of 5,247 contracts in 2018 up to September. (See Figure 8.) Besides, the volume and open interest of all cash-settled RMB currency futures increased gradually in 2018 with the total open interest hit 2,538 contracts as of end-September 2018 from 735 contracts as of end-2017.

Figure 8. ADV and month-end open interest of USD/CNH and CNH/USD contracts on HKEX (Jan 2017 – Sep 2018)



Source: HKEX

In summary, RMB currency products are in high demand by global investors in the course of RMB internationalisation, and the RMB currency derivatives on HKEX have been well received by investors to meet their needs. HKEX's RMB derivative product suite is continuously being enriched with more upcoming products to serve the growing investor demand.

3. HONG KONG LEADS THE WORLD IN OFFSHORE RMB PRODUCT OFFERINGS

Not many major exchanges in the world are found to have RMB-traded securities or derivative products listed on their markets¹⁴. An overview is given in sub-sections below.

3.1 Securities products

Major offshore exchanges found to have listed RMB securities include China Europe International Exchange (CEINEX), Japan Exchange Group (JPX), London Stock Exchange (LSE), Singapore Exchange (SGX) and Taiwan Stock Exchange (TWSE)¹⁵. CEINEX is a joint venture set up by Deutsche Börse (DB) with the Shanghai Stock Exchange (SSE) and the China Financial Futures Exchange (CFFEX) — which offers trading of China-related securities on the DB's trading platforms (with some traded in RMB).

In terms of number of listings, RMB bonds have been the most — it was found that over 400 offshore RMB bonds were traded on offshore exchanges other than HKEX. These include Luxembourg Stock Exchange, LSE, Taipei Exchange (Gretai Securities Market), SGX and Frankfurt Stock Exchange of DB¹⁶. On the contrary, other types of RMB securities are not very common on offshore exchanges. A few RMB ETFs were listed on exchanges like CEINEX, LSE and TWSE. Like HKEX, SGX and TWSE offer dual-currency securities trading counters — one equity security with RMB trading counter on SGX and two ETFs with RMB trading counters on TWSE.

HKEX is ahead of other key exchanges in the world in offering the largest number of RMB securities¹⁷. **ETF is the most active on-exchange RMB securities product type in markets outside Mainland China.** Despite the considerable number of listings of RMB bonds, on-exchange trading is negligible, if any¹⁸.

Table 1. RMB-traded securities listed on HKEX and selected exchanges (Sep 2018)					
Exchange	Equity	ETF	REIT	Debt	Total
HKEX	2	52	1	79	134
LSE	0	2	0	118	120
SGX	1	0	0	109	110
CEINEX	0	2	0	1	3
TWSE	0	2	0	0	2
JPX	0	0	0	1	1

Note: Data other than HKEX are compiled on a best-efforts basis.

Source: HKEX for HKEX data, the respective exchanges' websites for others.

Table 1 above gives a comparison of the number of RMB securities products on HKEX with other exchanges in the world found to offer RMB securities; and Table 2 below gives a comparison of their trading in RMB ETFs. The average daily turnover value (ADT) of RMB

¹⁴ Information search was done on selected world exchanges' official websites on a best-efforts basis and comprehensiveness and accuracy are not guaranteed.

¹⁵ See Appendix 1 for the list of identified RMB-traded securities on HKEX and overseas exchanges.

¹⁶ Source: Thomson Reuters, 4 October 2018. The number would include multiple counting as the same RMB bond may be traded on multiple exchanges. Note that the list cannot be verified with the official source of the exchanges.

¹⁷ As far as known from available data and information.

¹⁸ Bond trading is often done over-the-counter (OTC) rather than on exchanges. Bond listings on exchanges may be pursued by issuers to enable trading by institutional investors and fund managers who are required in their mandate to invest in securities that are listed on a recognised stock exchange.

ETFs on HKEX in 2018 up to September was RMB 33 million, much higher than the other exchanges, even on an average per-security basis.

Table 2. Total and average daily turnover of RMB ETFs (Jan-Sep 2018)		
Exchange	Total (RMB mil)	ADT (RMB mil)
HKEX	6,029	32.8
CEINEX*	0	0
LSE	1	0.0
TWSE	63	0.3

* RMB products are traded on DB platforms.

3.2 Derivative products

The offshore RMB derivatives found to be traded on exchanges other than HKEX are mostly RMB currency futures and options. These exchanges include CME and B3 – Brazil Bolsa Balcão¹⁹ in Americas; SGX, ICE Futures Singapore (ICE SGP), Korea Exchange (KRX) and Taiwan Futures Exchange (TAIFEX) in Asia; Moscow Exchange (MOEX) in Eastern Europe; Johannesburg Stock Exchange (JSE) in Africa; Bursa Istanbul (BIST) in Eurasia; and DGCX in the Middle East²⁰. DGCX is the only exchange other than HKEX found to have introduced RMB-traded commodity contracts — a gold futures contract.

As in the securities market, HKEX offers the most RMB derivatives among global exchanges. Table 3 below gives the number of RMB derivatives on HKEX and other exchanges in the world.

Table 3. RMB derivatives on HKEX and selected exchanges (end-Sep 2018)							
Exchange	Currency		Commodity		Total		Grand total
	Futures	Options	Futures	Options	Futures	Options	
HKEX	5	1	7	0	12	1	13
B3	1	0	0	0	1	0	1
BIST	1	0	0	0	1	0	1
CME	4	2	0	0	4	2	6
DGCX	1	0	1	0	2	0	2
ICE SGP	2	0	0	0	2	0	2
JSE	1	0	0	0	1	0	1
KRX	1	0	0	0	1	0	1
MOEX	1	0	0	0	1	0	1
SGX	5	1	0	0	5	1	6
TAIFEX	2	2	0	0	2	2	4
Total	24	6	8	0	32	6	38

Note: Data other than HKEX are compiled on a best-efforts basis.

Source: HKEX for HKEX data, the respective exchanges' websites for others.

RMB currency futures have become the most popular RMB derivatives in the world, with at least 10 other exchanges offering them in addition to HKEX. Contracts in the currency pair of USD/CNH receive the greatest investor interest, reflected by their relatively high trading volume. Contracts on RMB against another international currency, Euro, and other domestic

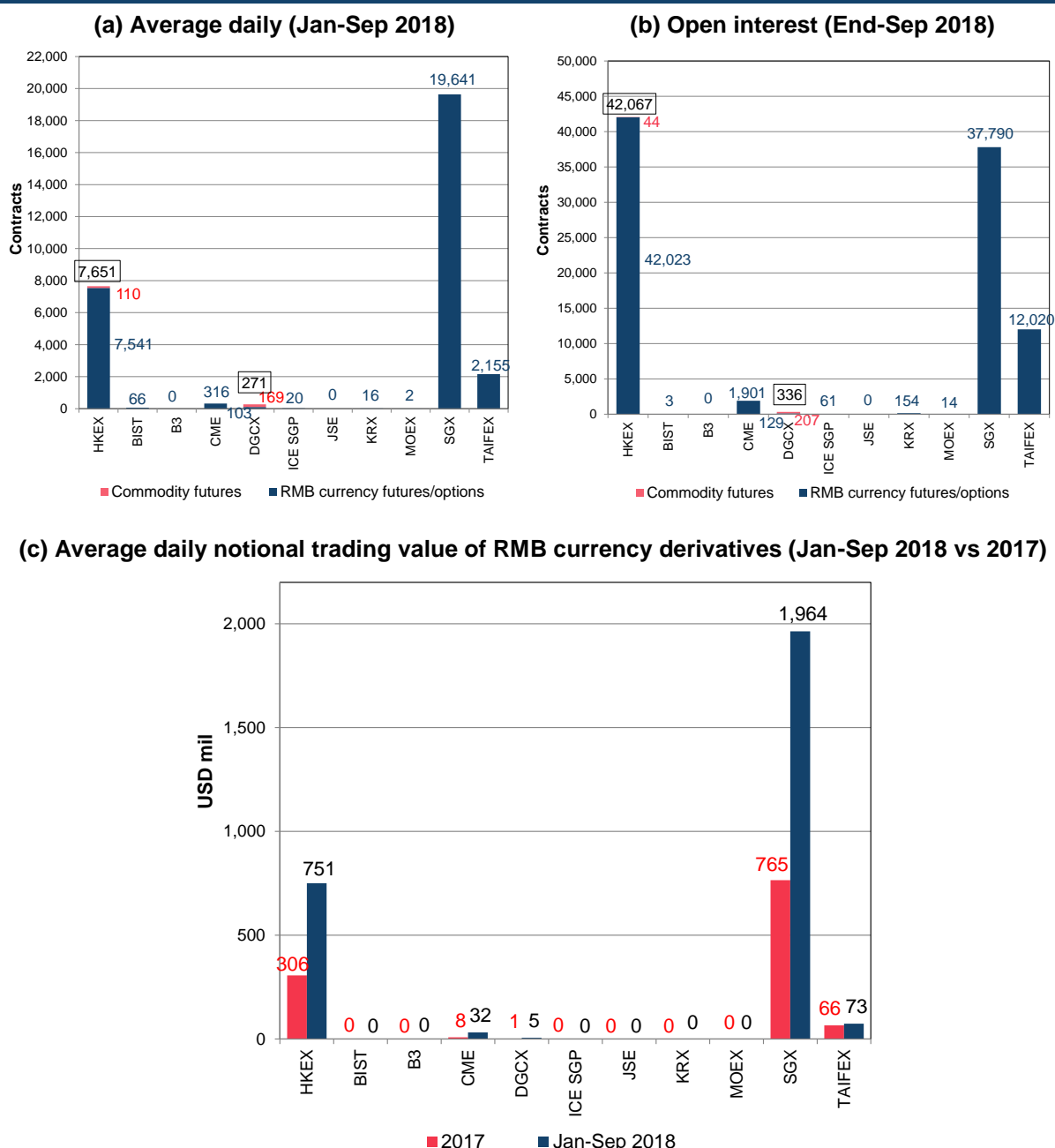
¹⁹ Formerly BM&FBOVESPA, corporate name changed on 16 June 2017 along with its merger with Cetip.

²⁰ See Appendix 2 for the list of identified RMB derivatives on HKEX and overseas exchanges.

currencies such as Singapore dollars (SGD), Korean Won (KRW) and Russian Rubles (RUB) had recorded very low or no trading (according to the official sources of the exchanges examined).

Trading activities in RMB currency futures were found to concentrate on the Asian exchanges — HKEX in Hong Kong, SGX, and to a lesser extent TAIFEX (see Figure 9). HKEX is the only exchange in the world that has significant trading activities in RMB currency options.

Figure 9. Trading volume and open interest of RMB derivatives on HKEX and selected exchanges (Jan-Sep 2018)



Source: HKEX for HKEX data, Futures Industry Association (FIA) statistics for BIST, and the respective exchanges' websites for others.

(See Appendix 3 on the ADV of each RMB currency product on the key exchanges in 2018 up to September.)

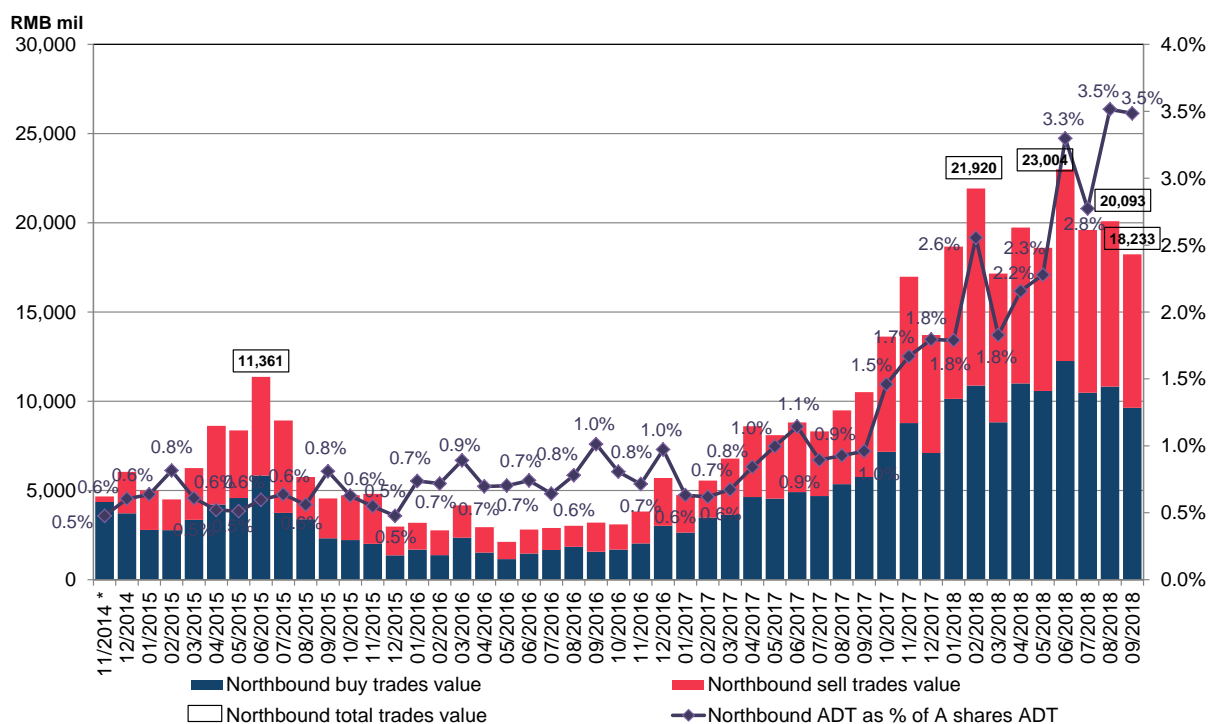
4. HONG KONG'S RMB PRODUCT ECOSYSTEM NURTURED BY THE CONNECT SCHEMES

The universe of RMB securities tradable outside Mainland China by global investors has been much expanded since the launch of Shanghai Connect in November 2014. The universe is further enlarged considerably with the launch of Shenzhen Connect in December 2016 and the Bond Connect in July 2017. Northbound trading under the Connect schemes enables foreign investors outside Mainland China to trade eligible RMB securities listed on the SSE and the SZSE, and to trade RMB bonds on the CIBM, through the trading platforms in Hong Kong. The global investor trading of RMB securities under the Connect schemes was substantial compared to the trading of RMB securities listed outside Mainland China. This is believed to have also driven up the trading activities of RMB derivatives listed overseas, especially in Hong Kong. This is illustrated in sub-sections below.

4.1 Northbound securities trading under Stock Connect on the rise

On top of the limited supply of RMB securities listed outside Mainland China, Shanghai Connect adds some 570 SSE-listed stocks and Shenzhen Connect further adds over 800 stocks²¹ for trading by global investors outside Mainland China. Northbound trading of these securities has increased substantially since the launch of Shenzhen Connect, with its contribution to Mainland A-share market turnover increased to 3.5%²² in September 2018. (See Figure 10.)

Figure 10. Stock Connect Northbound ADT (Nov 2014 – Sep 2018)



* Starting from 17 November 2014 when Shanghai Connect was launched. Shenzhen Connect is included since its launch on 5 December 2016.

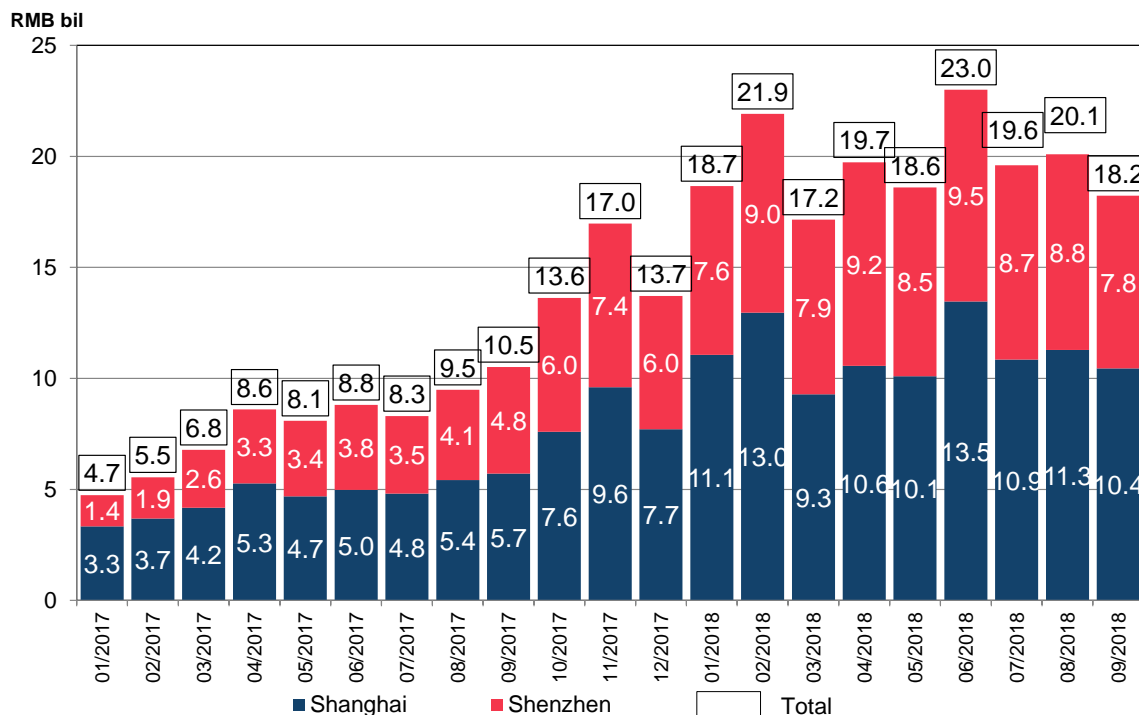
Source: HKEX.

²¹ As at the end of September 2018, there were 579 SSE-listed eligible securities and 862 SZSE-listed eligible securities under the Stock Connect scheme for Northbound trading (eligible for both buy and sell).

²² Buy and sell combined trade value is halved to give 1-sided turnover value for calculating the contribution to the 1-sided A-share market turnover.

Shenzhen Connect shared over 40% of Northbound ADT over the months since May 2017. The cumulative investment value in RMB securities held by global investors under Stock Connect amounted to RMB 589 billion by September 2018 (57% in SSE-listed securities and 43% in SZSE-listed securities). (See Figures 11 and 12.)

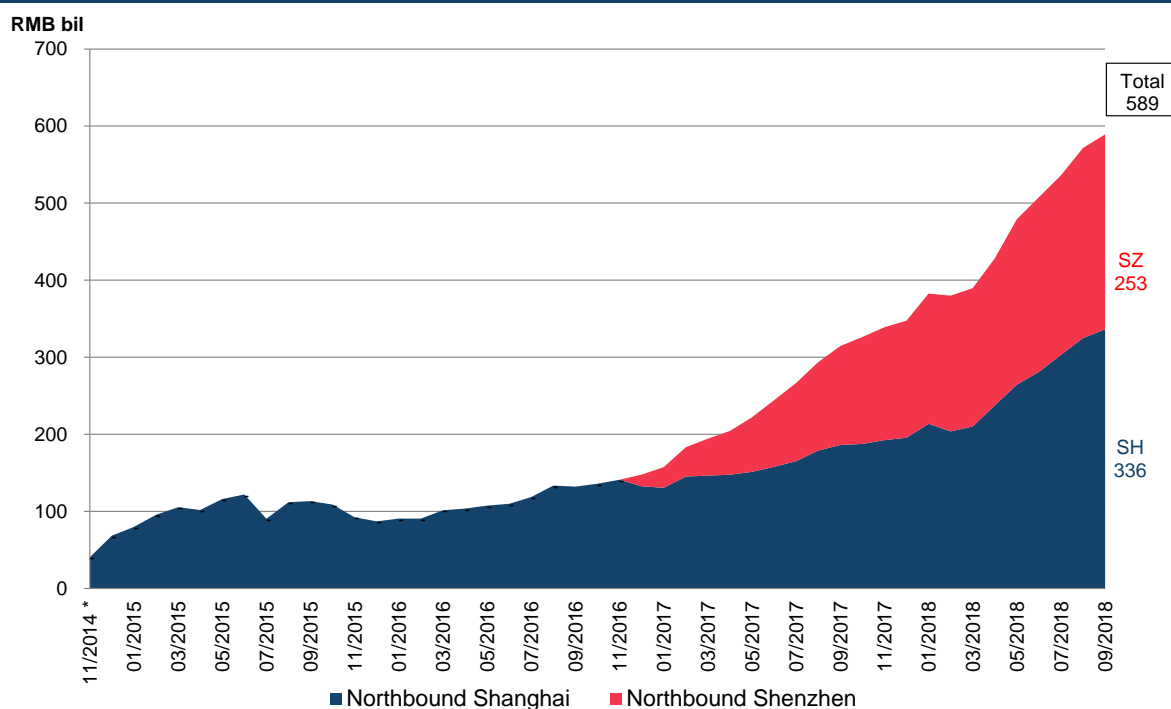
Figure 11. Shanghai and Shenzhen's market shares in Northbound ADT (Jan 2017 – Sep 2018)



Note: Trading values include buy and sell.

Source: HKEX.

Figure 12. Northbound cumulative investment value (Nov 2014 – Sep 2018)



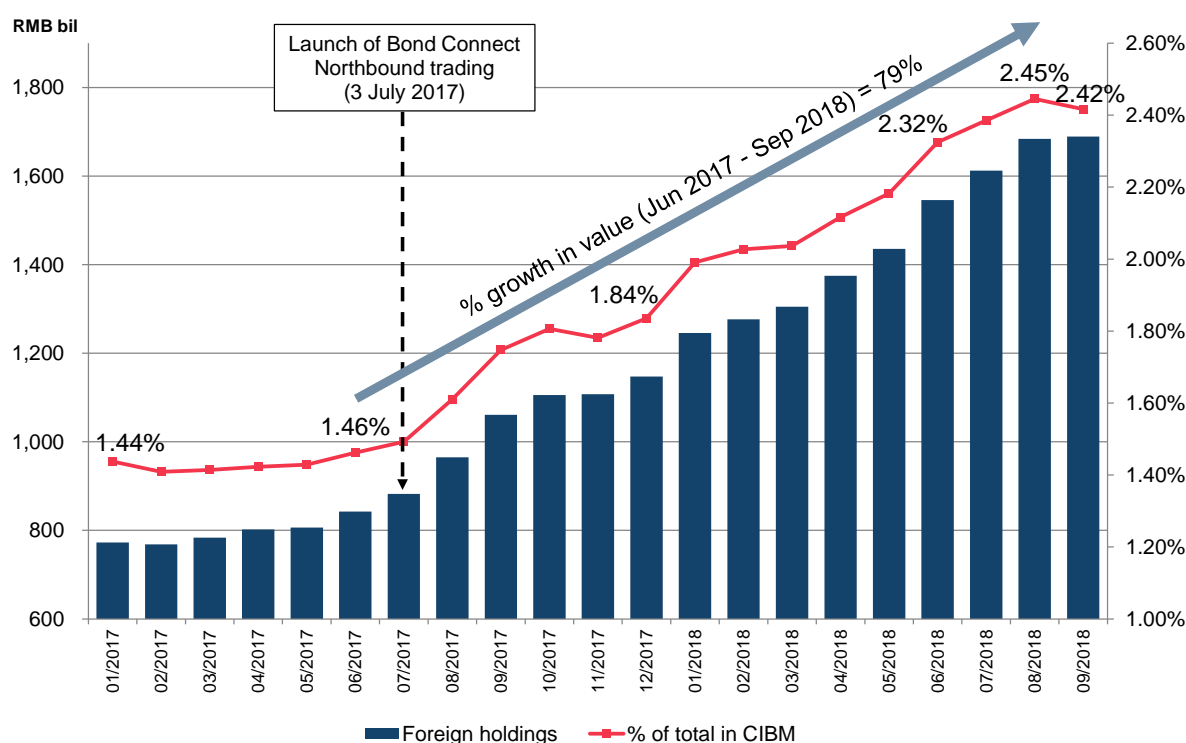
Note: Starting from 17 November 2014 when Shanghai Connect was launched.

Source: HKEX.

4.2 Foreign bond holdings driven up by Bond Connect

A steady growth in the foreign holdings of Chinese bonds at CIBM was observed since the launch of Bond Connect. The outstanding bond amount at CIBM²³ held in the hands of foreign investors rose from RMB 842.50 billion as at the end of June 2017 to RMB 1,689 billion as at the end of September 2018, recording a 100% increase during the 15-month period after the launch of Bond Connect. The net increase in foreign holdings registered during this period was almost 5 times more than the annual increase before the launch of Bond Connect²⁴. However, given the big size of the Mainland domestic bond market (a total of RMB 69.9 trillion at CIBM as at end-September 2018), the share of foreign investor holdings of Chinese bonds at CIBM rose only slightly from 1.46% as at end-June 2017 to 2.42% as at end-September 2018. (See Figure 13.)

Figure 13. Foreign holdings in Chinese bonds at CIBM (Jan 2017 – Sep 2018)



Source: CCDC and SCH websites.

4.3 RMB risk management served by RMB derivatives on HKEX

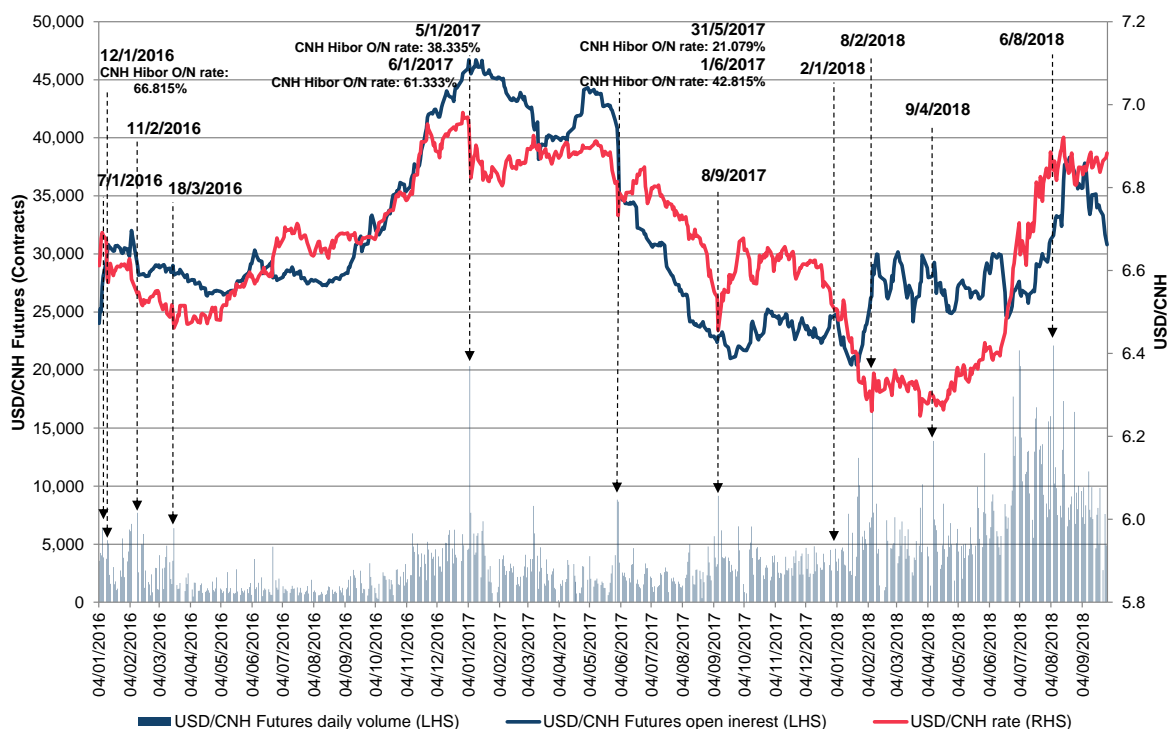
Currency derivatives

The RMB flagship derivative product on HKEX — USD/CNH Futures — has been actively supporting the RMB currency risk management function required by global investors in RMB products. Trading volume in the product assumed a growing trend along with the increased fluctuation in the RMB exchange rate, hitting an all-time record of 22,105 contracts on 6 August 2018, while the open interest of the product fluctuated in reaction to changes in the RMB exchange rate. (See Figure 14.)

²³ The bond outstanding value at CIBM comprises the values at custody of the China Central Depository & Co., Ltd (CCDC) and of the Shanghai Clearing House (SCH).

²⁴ The net increase in foreign holdings value at CIBM was RMB 846.48 billion during the period from end-June 2017 to end-September 2018, compared to the net increase of RMB 143.37 billion during the 12-month period ending June 2017.

Figure 14. HKEX USD/CNH Futures activities and offshore RMB rate (Jan 2016 – Sep 2018)

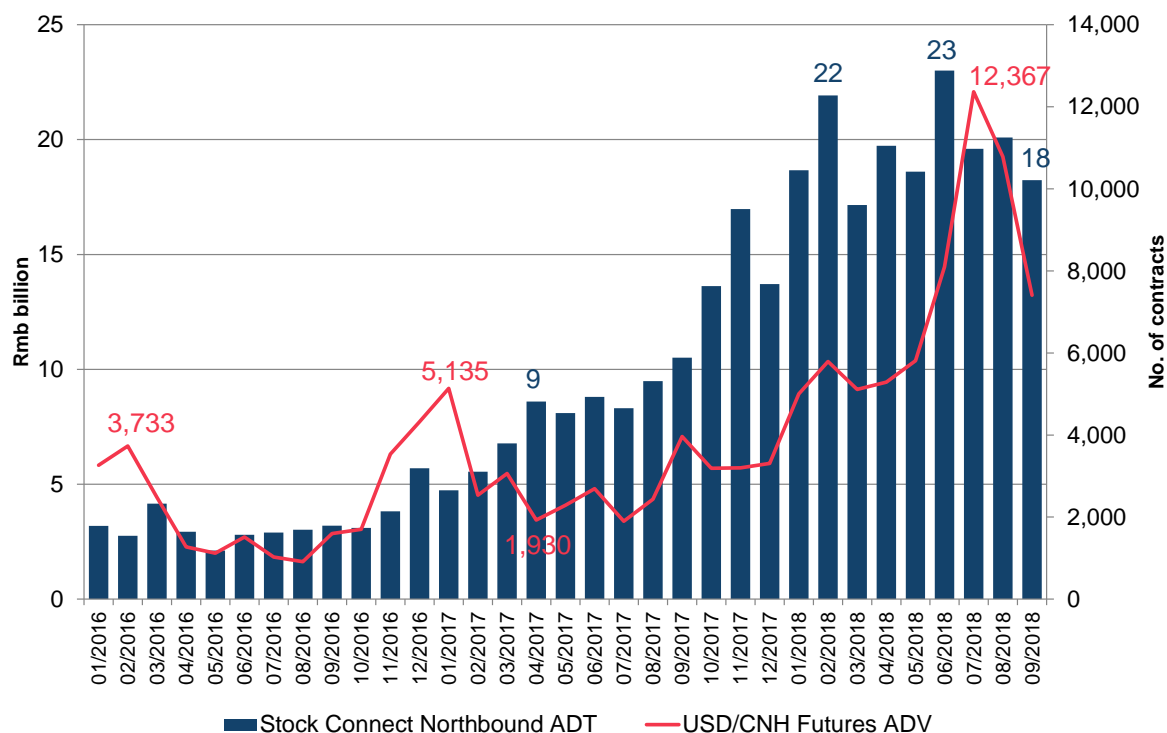


Source: HKEX and Thomson Reuters.

Interestingly, the ADV of the USD/CNH Futures was found to have a growth trend in parallel with that of Stock Connect Northbound trading since early 2017 after the upsurge in Jan 2017 at the time of a heightened overnight (O/N) CNH Hong Kong Interbank Offered Rate (Hibor). The ADV of USD/CNH Futures grew from 1,930 contracts in April 2017 to 12,367 contracts in July 2018 before a drop in the following months to 7,408 contracts in September 2018. During the period, Stock Connect Northbound trading grew from RMB 9 billion to RMB 23 billion in June 2018 and down to RMB 18 billion in September 2018. The growth trend is also in parallel with that of foreign holdings of Chinese bonds at CIBM since July 2017 (see sub-section above).

One possible explanation is that the increased securities trading activities in RMB under Stock Connect and Bond Connect might possibly induce greater demand for RMB currency risk hedging, in the light of the increased RMB exchange rate volatility.

Figure 15. Stock Connect Northbound trading ADT and HKEX USD/CNH Futures ADV (Jan 2016 – Sep 2018)



Source: HKEX.

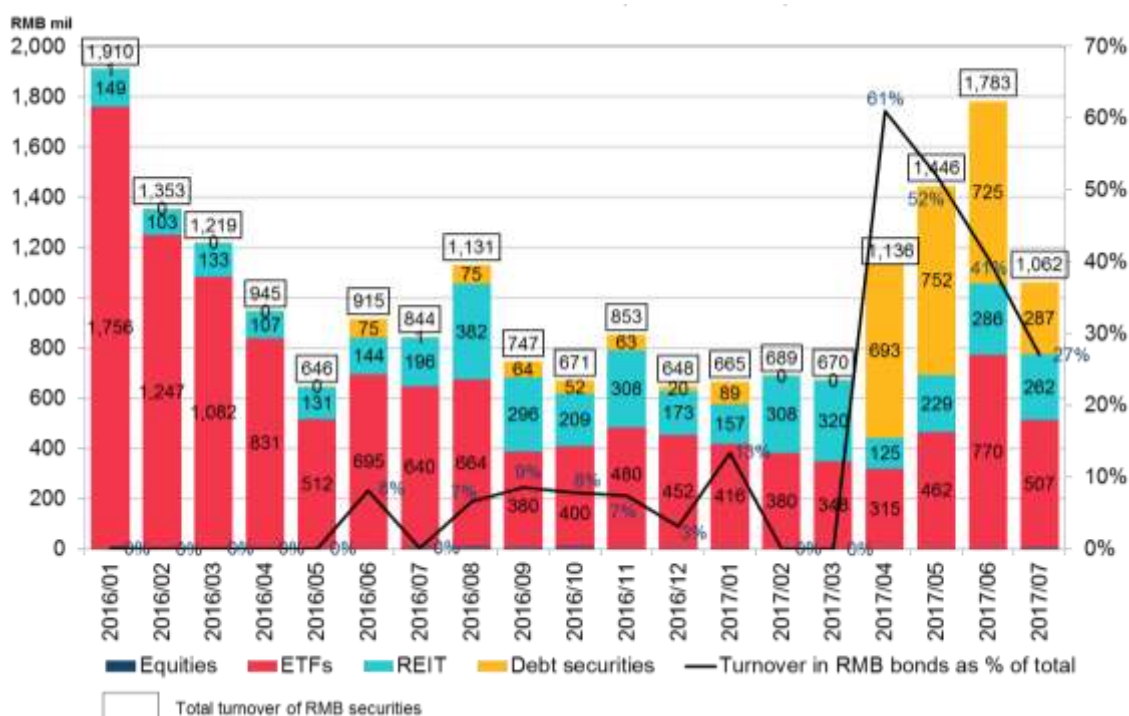
Fixed-income derivatives

Apart from currency risk, RMB bond investment in both the offshore market and the onshore market in the Mainland through channels like Bond Connect also demand risk management tools for hedging RMB interest rate risk. HKEX introduced the first RMB bond derivatives in the world in April 2017 — the 5-Year China Ministry of Finance Treasury Bond Futures (MOF T-Bond Futures), which were traded and settled in RMB — to serve as an interest rate hedging tool for RMB bond investment. A brief examination of the trading activities of this futures product and their relationship with those of RMB bonds listed on HKEX was conducted for the first few months after the product's introduction up to July 2017²⁵. It was found that RMB bond trading recorded a significant surge in the subsequent months after the MOF T-Bond Futures were introduced. Detailed examination results are presented below.

In April 2017 when the MOF T-Bond Futures were launched, the share of RMB bond trading in the monthly total turnover of RMB securities on HKEX shot up to 61%, and gradually dropped to 27% in July. For the four months from April to July 2017, RMB bonds contributed 45% of total RMB securities trading, compared to 3% in 2016. The trend of daily trading value of RMB bonds illustrated an increase in trading activities during April to July 2017, which coincides with the launch of MOF T-bond Futures. (See Figures 16 and 17.)

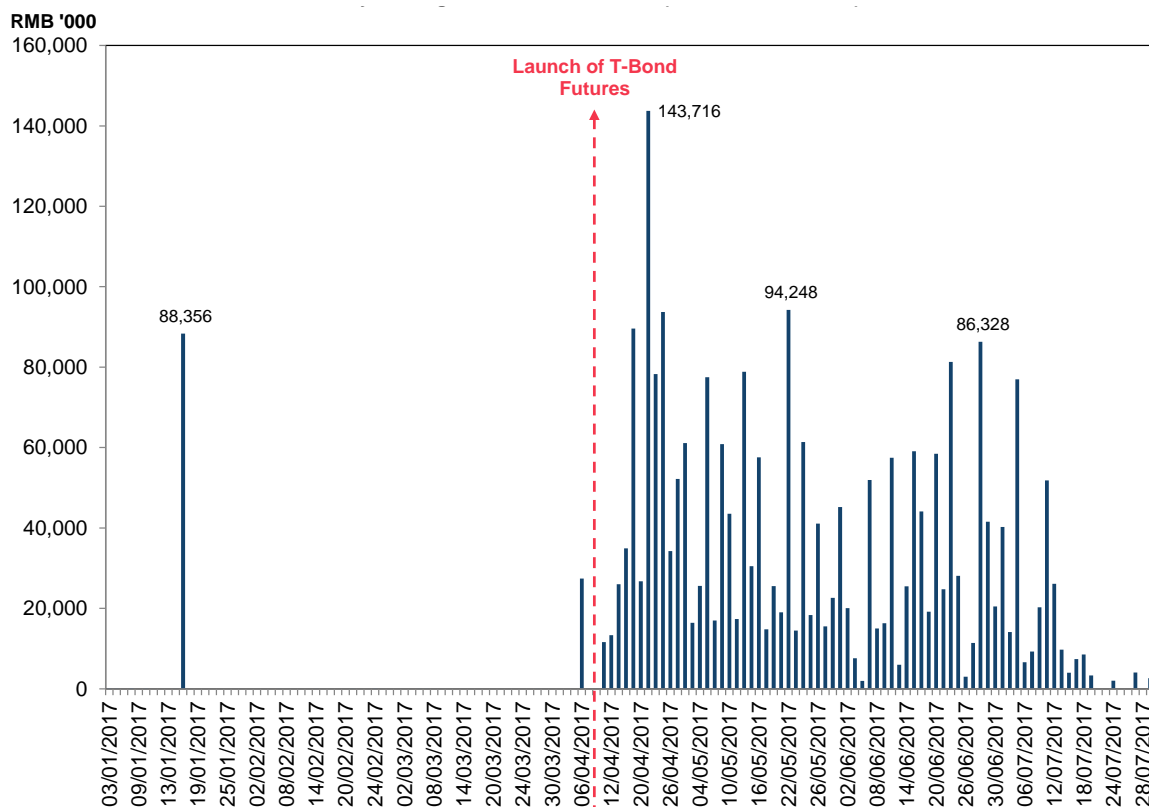
²⁵ HKEX issued a circular on 31 August 2017 to notify Exchange Participants that trading of the MOF T-Bond Futures would be suspended after the expiry of the December 2017 contract.

Figure 16. Turnover of RMB securities on HKEX by type (Jan 2016 – Jul 2017)



Source: HKEX.

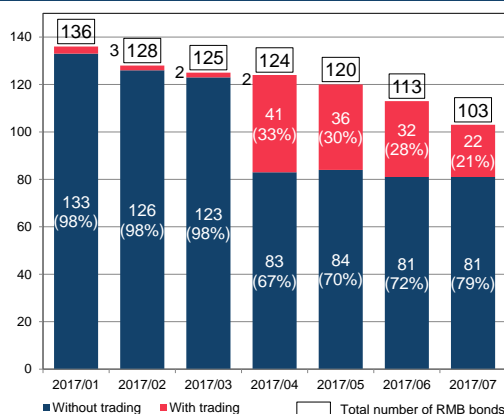
Figure 17. Daily trading of RMB bonds listed on HKEX (Jan-Jul 2017)



Source: HKEX.

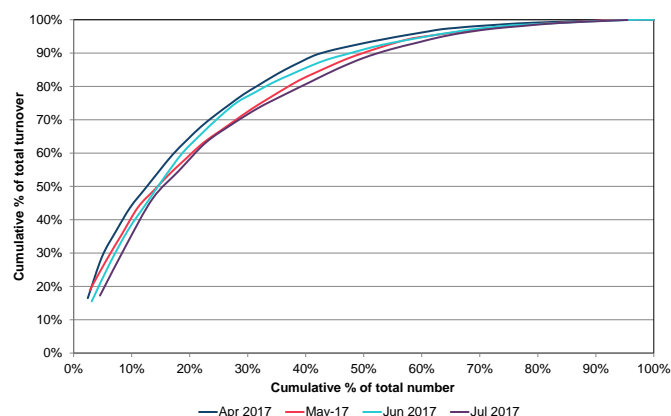
Further examination found that a much larger proportion of listed RMB bonds recorded trading after the launch of MOF T-bond Futures in April 2017. The proportion was the highest in April (33%) and gradually reduced to 21% in July. Trading was found to distribute widely across the traded bonds and was not concentrated in only a few active bonds. Before April 2017, some trading was recorded in China's treasury bonds (issued by the Ministry of Finance) and the relatively high turnover recorded on a day in January 2017 was predominantly in a policy bank note (issued by China Development Bank). But since April 2017, RMB bonds recorded trading were mostly corporate bonds. This reflects that there was a genuine increase in demand for trading listed RMB bonds, especially in corporate bonds, after the launch of MOF T-bond Futures. (See Figures 18 and 19.)

Figure 18. Number of RMB bonds with/without trading (Jan-Jul 2017)



Source: HKEX.

Figure 19. Degree of concentration in RMB bond trading (Apr-Jul 2017)

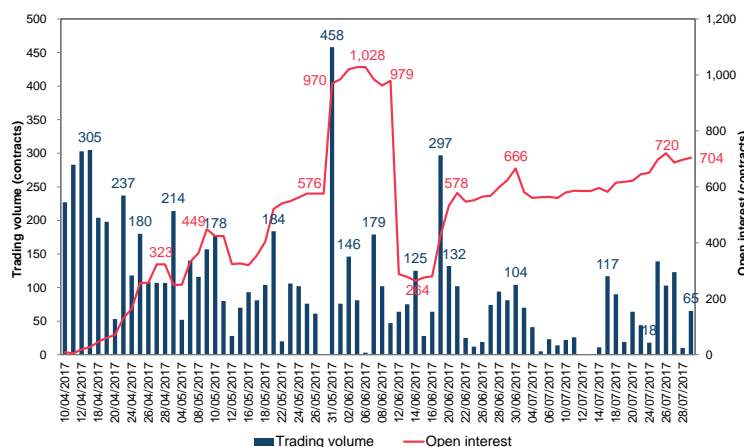


Note: A steeper slope implies higher concentration.

Source: HKEX.

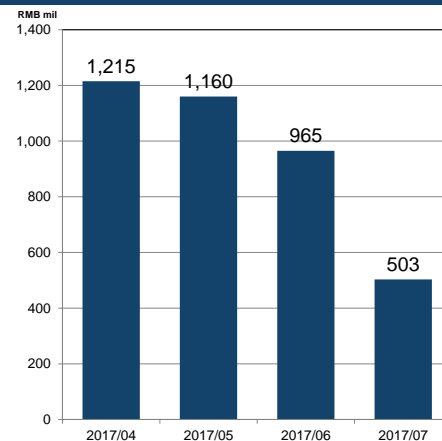
Alongside, open interest in the MOF T-bond Futures was building up in the several months after launch, despite a relatively big drop in June 2017 which was attributable to the expiry of the spot month contract. Monthly notional trading value gradually decreased from RMB 1,215 million in April 2017 to RMB 503 million in July 2017. Interestingly, compared to the 60% monthly drop in turnover value of RMB bonds in July, MOF T-bond Futures also suffered a relatively big drop in the same month (48%).

Figure 20. Daily trading volume and open interest of MOF T-bond Futures (Apr-Jul 2017)



Source: HKEX.

Figure 21. Monthly notional trading value of MOF T-bond Futures (Apr-Jul 2017)



Source: HKEX.

In summary, trading in RMB bonds listed on HKEX had become active in the several months after the launch of MOF T-bond Futures. Increased trading activity was recorded for an increased proportion of listed RMB bonds, many of which were corporate bonds. This might be due to the provision of hedging opportunities against interest rate risks offered by the MOF T-bond Futures. As corporate bonds are priced at a spread above the government treasuries in the market, treasury bond futures are an efficient hedging instrument for both corporate bond and treasury bond holdings. Although other factors including risk characteristics would affect pricing of different bond types such as credit risk for corporate bonds, the availability of treasury bond futures in the market as hedging tools would nevertheless help support trading in various kinds of fixed-income security²⁶.

The pilot scheme of MOF T-bond Futures was halted at the end of 2017 to allow for the formulation of a suitable regulatory framework for offshore RMB derivatives. It is believed that with the increasing bond trading activities under Bond Connect, there will be increasing calls for the re-launch of new RMB fixed-income or interest rate derivatives to meet the hedging needs of the market.

5. GROWING GLOBAL TRADING IN RMB PRODUCTS AND THE INCREASING DEMAND FOR RMB RISK MANAGEMENT TOOLS

In comparison with the ADT of RMB 18 billion for Northbound trading under Stock Connect during the first nine months of 2018, trading in offshore RMB securities listed on the key offshore market on HKEX was much less — only RMB 47 million, over 90% of which was in RMB ETFs and REIT (these are RMB product types not available for Northbound trading under Stock Connect) and only 3% in RMB bonds (see Figure 6 above). The rapid growth in Northbound trading of RMB equities and bonds under the Connect schemes has been driven by a number of supportive policies as well as market initiatives, which include:

- The abolition of the aggregate quota for trading under Stock Connect since the launch of Shenzhen Connect;
- The 4-fold increase in daily quota for Stock Connect starting from 1 May 2018, further relieving concerns over trading restrictions;
- The inclusion of China A shares in the MSCI China Index, MSCI Emerging Markets Index and the MSCI ACWI Index, with a partial inclusion factor of 5% in two steps of 2.5% each, starting from June 2018²⁷;
- The first-time launch of global hybrid bond indices with inclusion of Chinese bonds in March 2017 — Bloomberg Barclays' Global Aggregate + China Index and EM Local Currency Government + China Index, followed by the subsequent announcement by Bloomberg in March 2018 of the formal inclusion of Chinese RMB-denominated government and policy bank bonds to its Global Aggregate Index, to be phased in over a 20-month period starting April 2019;
- The inclusion or planned inclusion of Chinese bonds in other global index providers, including FTSE Russell and J.P. Morgan²⁸;
- The relaxation of registration requirements in June 2018 by the PBOC for overseas investors to enter the CIBM.

²⁶ See HKEX research report, *HKEX's Five-Year China Ministry of Finance Treasury Bond Futures — The world's first RMB bond derivatives accessible to offshore investors*, published on the HKEX website, April 2017.

²⁷ FTSE Russell also announced on 27 September 2018 the inclusion of China A shares in its global equity benchmarks from June 2019.

²⁸ See HKEX research report, *The inclusion of China into global bond indices: Current status and development*, published on the HKEX website, 7 June 2018.

- The latest facilitative measures introduced in July 2018 to support the development of the Bond Connect scheme, including the addition of 10 more Bond Connect dealers to give a total of 34, and an average overall discount of over 50% on the transaction-based service fee charged by the Bond Connect Company Ltd (BCCL).

Other supportive measures for the sustainable development of the Bond Connect scheme were announced on 3 July 2018 by the PBOC and have been subsequently introduced or on the way to be introduced. These include, in August 2018, the full implementation of real-time delivery-versus-payment (RDVP) settlement system, the launch of block trade allocation service with reduced trading size (to facilitate institutional investors to allocate the trades into their sub-funds) and the clarification of tax policy for overseas investors²⁹. Others on the way include the permission of international investors to access repurchase (repo) and derivatives markets and the cooperation with mainstream international e-trading platforms.

In addition, other Mainland market segments, in particular the commodity markets, are also gearing up to open to foreign participation. In July 2015, the Shanghai Gold Exchange (SGE) and the Chinese Gold and Silver Exchange Society (CGSE) in Hong Kong jointly launched “Shanghai-Hong Kong Gold Connect” to enable investors in Hong Kong to trade on the Mainland gold market using offshore RMB. Direct foreign participation in the Mainland domestic commodity futures market began this year when the crude oil futures on the Shanghai International Energy Exchange (INE) opens to foreign investors since its commencement of trading on 26 March 2018. This was followed by the iron ore futures on the Dalian Commodity Exchange (DCE) starting from 4 May 2018, and will be followed by the PTA futures on Zhengzhou Commodity Exchange starting from 30 November 2018³⁰ and by the standard natural rubber futures on the Shanghai Futures Exchange (SHFE)³¹.

Currently, global investor trading in Mainland-listed RMB securities constitutes only about 3% of the domestic stock market's total turnover value and foreign holdings in RMB bonds in the domestic bond market is only about 2% of the total outstanding amount (see above). Foreign participation in the Mainland commodity derivatives market is just at its beginning stage while foreign participation in the Mainland financial derivatives market is still limited to QFIIs and RQFIIs and to equity index futures only. Nevertheless, the global use of RMB in the financial market is expected to increase given the Chinese Government's determined path of RMB to become an international currency in trade, investment and foreign reserves, along which the RMB has been admitted to the IMF's SDR basket of currencies and RMB products are being increasingly admitted to global indices.

It is believed that there is a high potential for the market shares of global investor participation in various RMB product segments through offshore channels to grow substantially as the Mainland financial market continues to open up and RMB internationalisation continues to progress. Given the current restricted access to onshore derivatives market (not to say the limited supply and variety of RMB derivatives in the onshore market) by global investors for risk management of their RMB investments, the development of an extensive spectrum of offshore RMB risk management tools including RMB equity derivatives, fixed-income or interest rate derivatives and currency derivatives has become imminent.

²⁹ The State Council announced on 20 August 2018 the exemption of corporate income tax and value-added tax (VAT) on foreign institutions' interest gains from onshore bond market investments for three years.

³⁰ Announced by the China Securities Regulatory Commission (CSRC) on 26 October 2018.

³¹ Disclosed by the CSRC on 9 September 2018 at a forum.

6. CONCLUSION

Offshore RMB securities and derivative products emerged and develop as the Mainland financial market continues to open up and the RMB progresses further on its internationalisation. HKEX is ahead of other key exchanges in the world in offering the most offshore RMB-traded securities (mostly bonds and ETFs) and RMB derivatives, with relatively active trading. The Stock Connect and Bond Connect schemes in Hong Kong for Northbound trading by global investors in eligible RMB securities in the Mainland market have further expanded the RMB product suite available for global investors to trade from offshore. Statistics showed that global investors have growing appetite for trading RMB products from offshore through the Connect schemes and that this is in parallel to the increased trading activities in RMB derivatives in Hong Kong for the associated risk management. The RMB products ecosystem in Hong Kong is thereby gradually established and being developed.

The scalability of the Mainland-Hong Kong Connect schemes implies the potential increase in eligible onshore RMB product types and in the number of products available for global investor trading in Hong Kong. Before the relaxation of foreign investor participation in the onshore RMB derivatives market in a large scale (needless to say the limited supply and variety of onshore RMB derivatives), the development of an extensive spectrum of offshore RMB risk management tools including RMB equity derivatives, fixed-income or interest rate derivatives, and currency derivatives would be important to support global trading in RMB products. Nurtured by the Connect schemes and if provided with the necessary policy support, the RMB products ecosystem in Hong Kong is expected to flourish with abundant product supply, active trading and greater interactions between onshore and offshore markets.

APPENDIX 1. LIST OF RMB-TRADED EQUITIES, ETFs AND REITS ON HKEX AND OVERSEAS EXCHANGES (END-SEPTEMBER 2018)

HKEX		
Type	Stock code	Product
Equity	80737	Hopewell Highway Infrastructure Ltd.
Equity	84602	ICBC RMB 6.00% Non-Cum, Non-Part, Perpetual Offshore PrefShs
ETF	82805	Vanguard FTSE Asia ex Japan Index ETF
ETF	82808	E Fund Citi Chinese Government Bond 5-10 Years Index ETF
ETF	82811	Haitong CSI300 Index ETF
ETF	82813	ChinaAMC Bloomberg Barclays ChinaTreasury+Policy Bk B Idx ETF
ETF	82822	CSOP FTSE China A50 ETF
ETF	82823	iShares FTSE A50 China Index ETF
ETF	82828	Hang Seng H-Share Index ETF
ETF	82832	Bosera FTSE China A50 Index ETF
ETF	82833	Hang Seng Index ETF
ETF	82834	iShares NASDAQ 100 Index ETF
ETF	82836	iShares Core S&P BSE SENSEX India Index ETF
ETF	82843	Amundi FTSE China A50 Index ETF
ETF	82846	iShares Core CSI 300 Index ETF
ETF	82847	iShares FTSE 100 Index ETF
ETF	83008	C-Shares CSI 300 Index ETF
ETF	83010	iShares Core MSCI AC Asia ex Japan Index ETF
ETF	83012	AMUNDI Hang Seng HK 35 Index ETF
ETF	83053	CSOP Hong Kong Dollar Money Market ETF
ETF	83074	iShares Core MSCI Taiwan Index ETF
ETF	83081	Value Gold ETF
ETF	83085	Vanguard FTSE Asia ex Japan High Dividend Yield Index ETF
ETF	83095	Value China A-Share ETF
ETF	83100	E Fund CSI 100 A-Share Index ETF
ETF	83101	Vanguard FTSE Developed Europe Index ETF
ETF	83107	C-Shares CSI Consumer Staples Index ETF
ETF	83115	iShares Core Hang Seng Index ETF
ETF	83118	Harvest MSCI China A Index ETF
ETF	83120	E Fund CES China 120 Index ETF
ETF	83122	CSOP China Ultra Short-Term Bond ETF
ETF	83126	Vanguard FTSE Japan Index ETF
ETF	83127	Mirae Asset Horizons CSI 300 ETF
ETF	83128	Hang Seng China A Industry Top Index ETF
ETF	83129	CSOP China CSI 300 Smart ETF
ETF	83132	C-Shares CSI Healthcare Index ETF
ETF	83136	Harvest MSCI China A 50 Index ETF
ETF	83137	CSOP CES China A80 ETF
ETF	83140	Vanguard S&P 500 Index ETF
ETF	83146	iShares DAX Index ETF
ETF	83147	CSOP SZSE ChiNext ETF
ETF	83149	CSOP MSCI China A International ETF
ETF	83150	Harvest CSI Smallcap 500 Index ETF
ETF	83155	iShares EURO STOXX 50 Index ETF
ETF	83156	GFI MSCI China A International ETF
ETF	83167	ICBC CSOP S&P New China Sectors ETF
ETF	83168	Hang Seng RMB Gold ETF
ETF	83169	Vanguard Total China Index ETF
ETF	83170	iShares Core KOSPI 200 Index ETF
ETF	83180	ChinaAMC CES China A80 Index ETF
ETF	83186	CICC KraneShares CSI China Internet Index ETF
ETF	83188	ChinaAMC CSI 300 Index ETF
ETF	83197	ChinaAMC MSCI China A Inclusion Index ETF
ETF	83199	CSOP China 5-Year Treasury Bond ETF

HKEX		
Type	Stock code	Product
REIT	87001	Hui Xian Real Estate Investment Trust
Overseas exchange		Product
China Europe International Exchange (CEINEX) [Products traded on platforms of Deutsche Börse (DB)]	ETF	BOCI Commerzbank SSE 50 A Share Index UCITS ETF
	ETF	Commerzbank CCBI RQFII Money Market UCITS ETF
London Stock Exchange (LSE)	ETF	Commerzbank CCBI RQFII Money Market UCITS ETF
	ETF	ICBC Credit Suisse UCITS ETF SICAV
Singapore Exchange (SGX)	Equity	Yangzijiang Shipbuilding Holdings Ltd
Taiwan Stock Exchange (TWSE)	ETF	Fubon SSE180 ETF
	ETF	Capital SZSE SME Price Index ETF

Sources: HKEX for HKEX products; the respective exchanges' websites for their RMB products.

APPENDIX 2. LIST OF RMB CURRENCY FUTURES/OPTIONS ON HKEX AND OVERSEAS EXCHANGES (END-SEPTEMBER 2018)

Exchange	Product	Contract size	Trading currency*	Settlement
HKFE	USD/CNH Futures	USD100,000	CNH	Deliverable
	USD/CNH Options	USD100,000	CNH	Deliverable
	EUR/CNH Futures	EUR 50,000	CNH	Cash settled
	JPY/CNH Futures	JPY 6,000,000	CNH	Cash settled
	AUD/CNH Futures	AUD 80,000	CNH	Cash settled
	CNH/USD Futures	RMB 300,000	USD	Cash settled
	CNH Gold Futures	1 kilogram	CNH	Deliverable
	London Aluminium Mini Futures	5 tonnes	CNH	Cash settled
	London Zinc Mini Futures	5 tonnes	CNH	Cash settled
	London Copper Mini Futures	5 tonnes	CNH	Cash settled
	London Lead Mini Futures	5 tonnes	CNH	Cash settled
	London Nickel Mini Futures	1 tonne	CNH	Cash settled
	London Tin Mini Futures	1 tonne	CNH	Cash settled
B3	Chinese Yuan Futures	CNY 350,000	BRL	Cash settled
BIST	CNH/TRY Futures	CNH 10,000	TRY	Cash settled
CME	Standard-Size USD/Offshore RMB (CNH) Futures	USD 100,000	CNH	Cash settled
	E-micro Size USD/Offshore RMB (CNH) Futures	USD 10,000	CNH	Cash settled
	Chinese Renminbi/USD Futures	CNY 1,000,000	USD	Cash settled
	Chinese Renminbi/Euro Futures	CNY 1,000,000	EUR	Cash settled
	Chinese Renminbi/USD Options on Futures	CNY 1,000,000	USD	Deliverable
	Chinese Renminbi/Euro Options on Futures	CNY 1,000,000	EUR	Deliverable
DGCX	US Dollar / Chinese Yuan Futures	USD 50,000	CNH	Cash settled
	Shanghai Gold Futures	1 kilogram	CNH	Cash settled
ICE SGP	Mini Offshore Renminbi Futures	USD 10,000	CNH	Deliverable
	Mini Onshore Renminbi Futures	CNY 100,000	USD	Cash settled
JSE	Chinese Renminbi/Rand Currency Futures	CNY 10,000	ZAR	Cash settled
KRX	Chinese Yuan Futures	CNH 100,000	KRW	Deliverable
MOEX	CNY/RUB Exchange Rate Futures	CNY 10,000	RUB	Cash settled
SGX	CNY/SGD FX Futures	CNY 500,000	SGD	Cash settled
	CNY/USD FX Futures	CNY 500,000	USD	Cash settled
	EUR/CNH FX Futures	EUR 100,000	CNH	Cash settled
	SGD/CNH FX Futures	SGD 100,000	CNH	Cash settled
	USD/CNH FX Futures	USD 100,000	CNH	Cash settled
	USD/CNH FX Options on Futures	USD 100,000	CNH	Cash settled
TAIFEX	USD/CNH FX Futures	USD 100,000	CNH	Cash settled
	USD/CNT FX Futures	USD 20,000	CNH	Cash settled
	USD/CNH FX Options	USD 100,000	CNH	Cash settled
	USD/CNT FX Options	USD 20,000	CNH	Cash settled

* CNH = Offshore RMB; CNY = Onshore RMB

Abbreviations of exchanges:

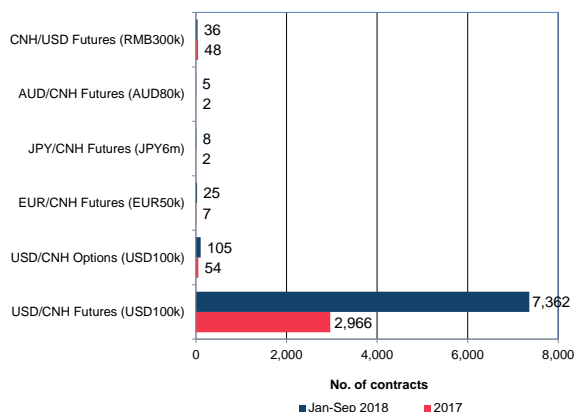
BIST	Bursa Istanbul	JSE	Johannesburg Stock Exchange
B3	B3 – Brazil Bolsa Balcão	KRX	Korea Exchange
CME	Chicago Mercantile Exchange	MOEX	Moscow Exchange
DGCX	Dubai Gold and Commodities Exchange	SGX	Singapore Exchange
HKFE	Hong Kong Futures Exchange, subsidiary of HKEX	TAIFEX	Taiwan Futures Exchange
ICE SGP	ICE Futures Singapore		

Sources: HKEX for HKEX products; the respective exchanges' websites for their RMB products.

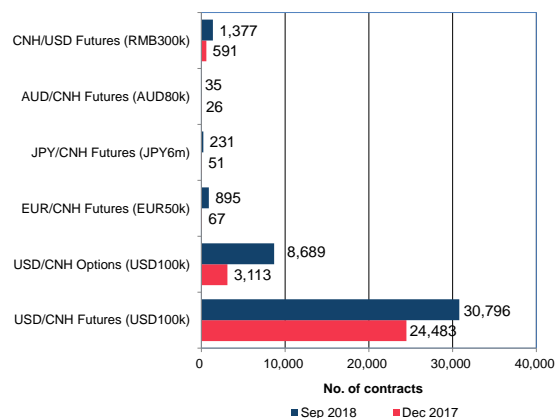
APPENDIX 3. AVERAGE DAILY TRADING VOLUME AND PERIOD-END OPEN INTEREST OF RMB CURRENCY PRODUCTS ON HKEX AND KEY OVERSEAS EXCHANGES (JAN-SEP 2018 VS 2017)

HKEX

(a) Average daily trading volume

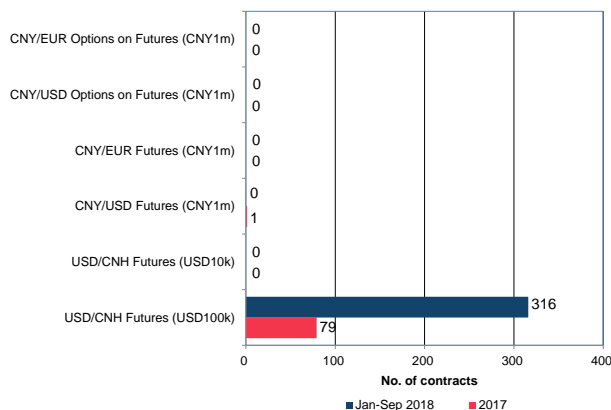


(b) Year-end open interest

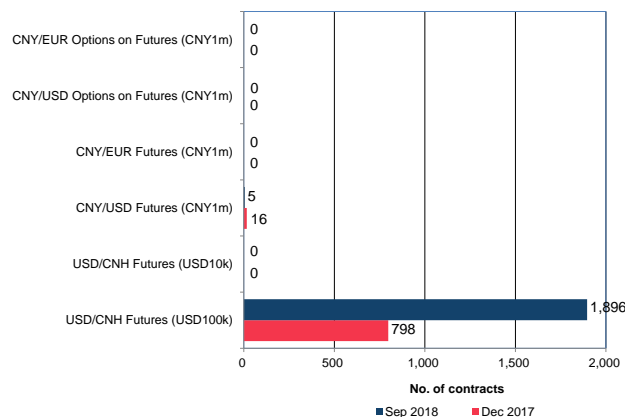


CME Group

(a) Average daily trading volume

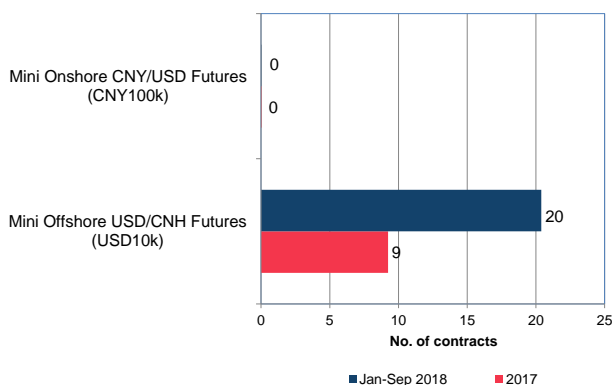


(b) Year-end open interest

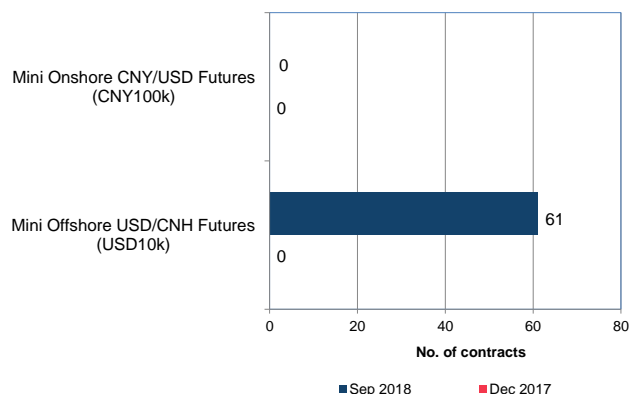


ICE Futures Singapore

(a) Average daily trading volume



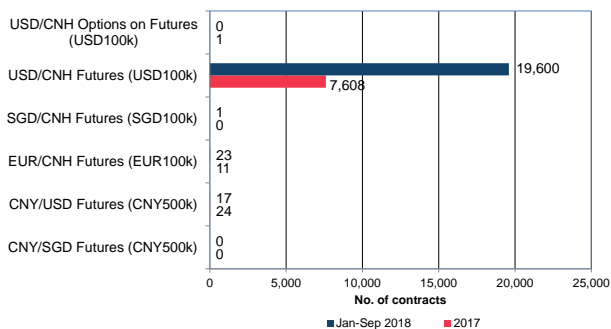
(b) Year-end open interest



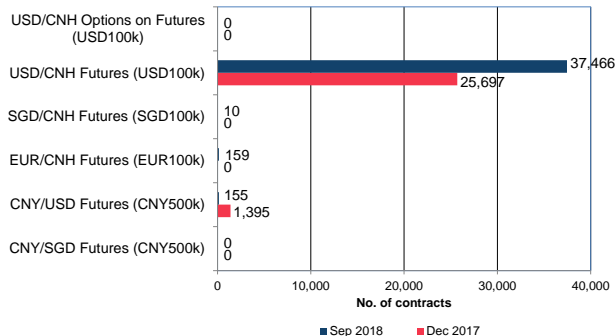
APPENDIX 3. AVERAGE DAILY TRADING VOLUME AND PERIOD-END OPEN INTEREST OF RMB CURRENCY PRODUCTS ON HKEX AND KEY OVERSEAS EXCHANGES (JAN-SEP 2018 VS 2017) (CONT'D)

Singapore Exchange

(a) Average daily trading volume

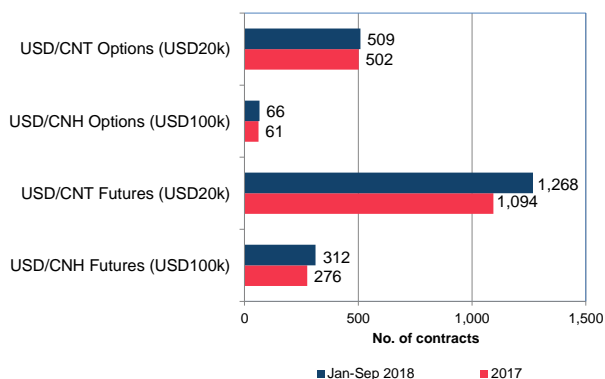


(b) Year-end open interest

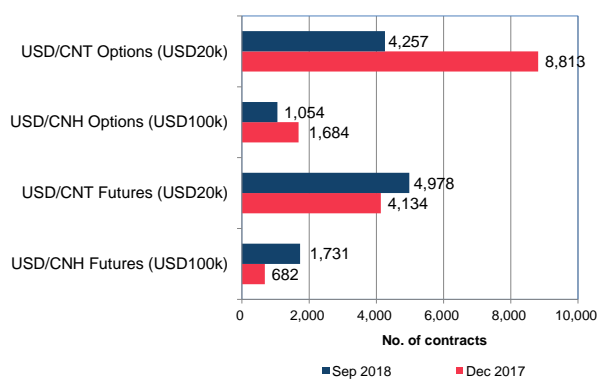


TAIFEX

(a) Average daily trading volume



(b) Year-end open interest



Sources: HKEX for HKEX products; the respective exchanges' websites for their RMB products.

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