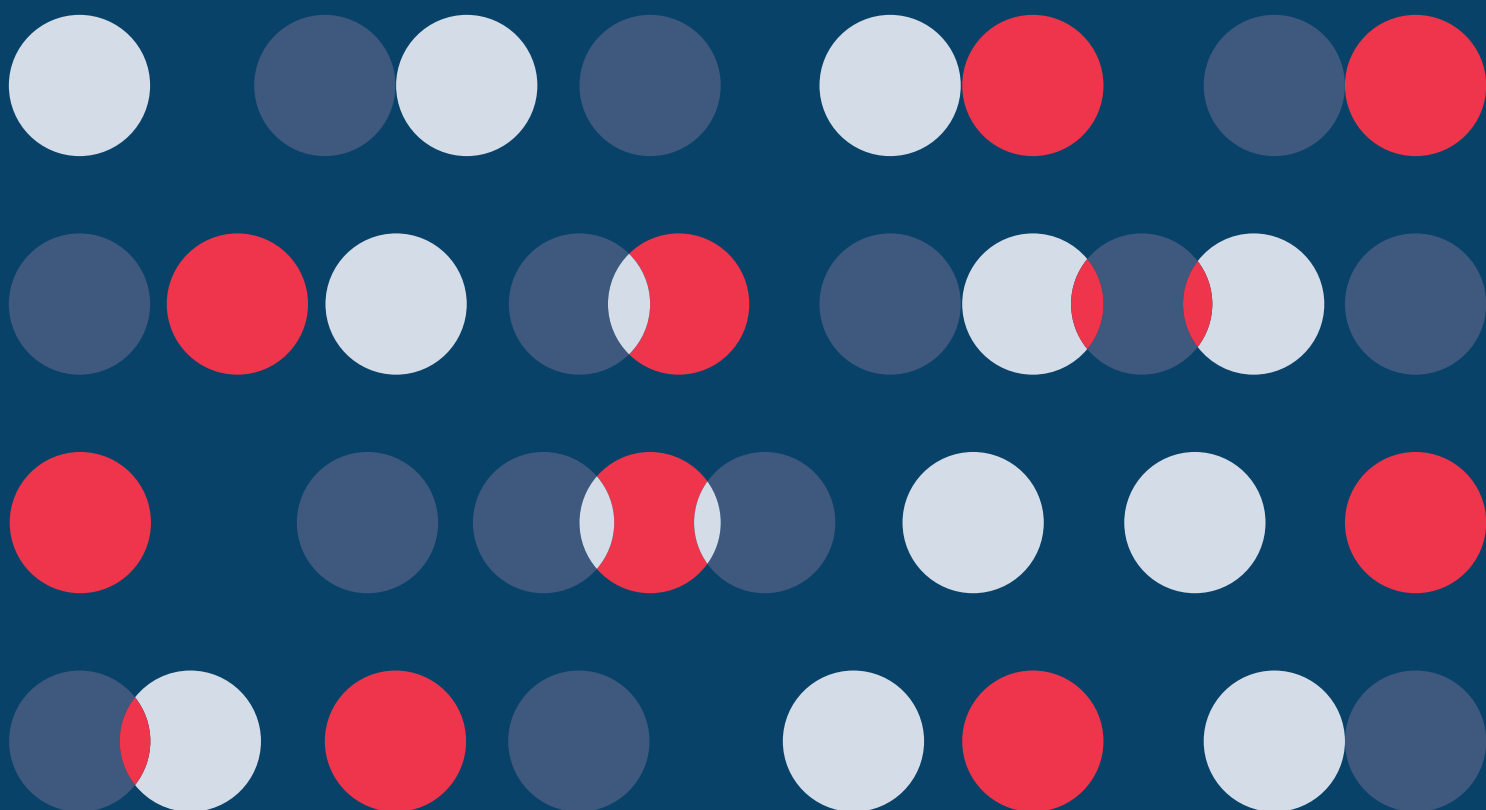


April 2017

RESEARCH REPORT

HKEX TOWARDS AN OFFSHORE RMB  
PRODUCT TRADING AND RISK MANAGEMENT CENTRE



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## SUMMARY

Hong Kong is the first market in the world to start offshore Renminbi (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, both off-exchange and on-exchange. RMB products on HKEX now comprise bonds, exchange traded funds (ETFs), real estate investment trust (REIT), equities, RMB fixed income and currency (FIC) derivatives and commodity derivatives. RMB ETFs have been the most actively traded RMB product on the HKEX securities market while RMB currency futures are the most popular product on the HKEX derivatives market and achieved record volume in 2016.

HKEX takes the lead in the listing and trading of RMB products, both securities and derivatives, among world exchanges. Only several RMB securities products are found to be offered by a few other exchanges, with low trading in them. On the other hand, RMB currency futures and options are rather popular products offered by a number of exchanges around the globe. Nevertheless, trading is concentrated on the Asian exchanges and among which HKEX has been the most active venue. In fact, trading statistics showed that the RMB futures contracts on HKEX well exhibited their functionality as RMB currency risk management tools at times of high volatility in RMB exchange rate.

The comparative advantages of HKEX for offshore RMB product trading and risk management lie in a number of factors, including geographically in the centre of the One-Belt-One-Road strategic initiative, the active RMB businesses in Hong Kong supported by a large RMB pool, the international investor base of the HKEX markets and the infrastructural efficiency that the markets offer.

An offshore market with a rich supply of RMB products and risk management instruments is fundamental to support the internationalisation of RMB and at the same time maintaining a steady exchange rate level. Towards this end, HKEX's RMB product suite will continuously be enriched, both in the securities and derivatives markets, to serve the growing investor needs as the RMB steadily progresses on its internationalisation. In addition to the recently launched USD/CNH options and Mainland treasury bond futures, other RMB risk management tools would possibly be introduced in the future. HKEX is well positioned to be the offshore RMB product trading and risk management centre for global investors.

## 1. BACKGROUND

Renminbi (RMB) business in Hong Kong began 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 policy<sup>1</sup> and late in the same month the first RMB bond was offered in Hong Kong by a Mainland state-owned policy bank<sup>2</sup>.

Subsequent policy relaxations have driven the rapid development of the RMB bond market in Hong Kong. In February 2010, according to policy clarification<sup>3</sup>, 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 Mainland<sup>4</sup>.

Fuelled by the increasingly extensive scope of eligible RMB businesses in the Hong Kong financial sector and the Mainland government's central policy support<sup>5</sup>, RMB financial products began to prosper in Hong Kong, both off-exchange and on-exchange, to beyond RMB bonds. In the exchange **securities** market, RMB bonds have the most listings in number terms while RMB-traded exchange traded funds (ETFs) have become the most actively traded RMB products (see section 2 below). In the exchange **derivatives** market, the RMB futures contract has exhibited its role in RMB exchange rate risk management at times of high exchange rate volatility (see section 3 below).

This report gives an account of HKEX's RMB product development in comparison with other exchanges in the world, showing that HKEX takes the lead in exchange-traded RMB products among world markets and drives itself towards a RMB product trading and risk management centre.

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

<sup>2</sup> 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.

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

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

<sup>5</sup> 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.

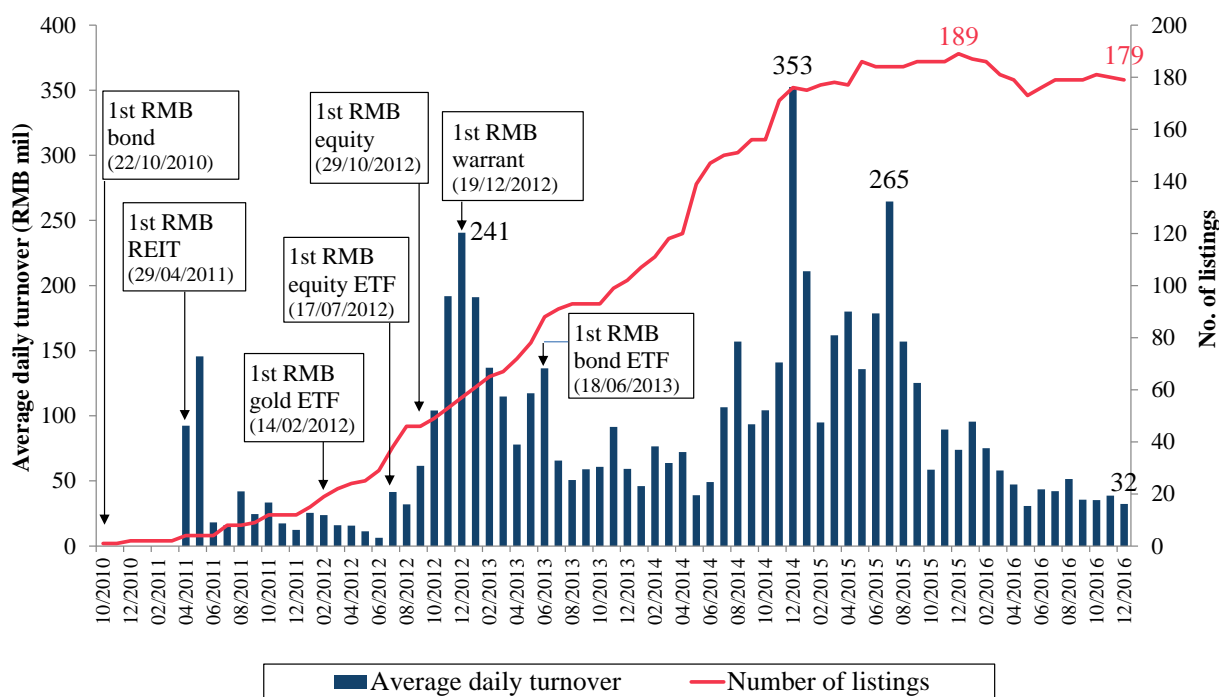
## 2. HKEX'S RMB PRODUCT DEVELOPMENT

### 2.1 Securities products

HKEX saw the first listing of RMB bonds on its securities market on 22 October 2010, three years after the issuance of the first RMB bond outside China. This was a ten-year bond issued by an *international financial institution*, the Asian Development Bank. The listing of the first RMB bond of a *Mainland entity* was seen in January 2012, issued by the Agricultural Bank of China. The first listings of two RMB *Mainland government bonds* took place in July 2012, about three years after the issuance of the first offshore RMB Mainland government bond in Hong Kong in September 2009.

Listed RMB security types shortly extended beyond RMB bonds. The first RMB real estate investment trust (REIT) was listed in April 2011; the first RMB ETF (on gold) was listed in February 2012; the first RMB equity was listed in October 2012; and the first RMB warrant was listed in December 2012. By the end of 2016, the total number of listed RMB securities has grown to 179. Figure 1 shows the historical average daily turnover, and the growth in number, of RMB securities on HKEX.

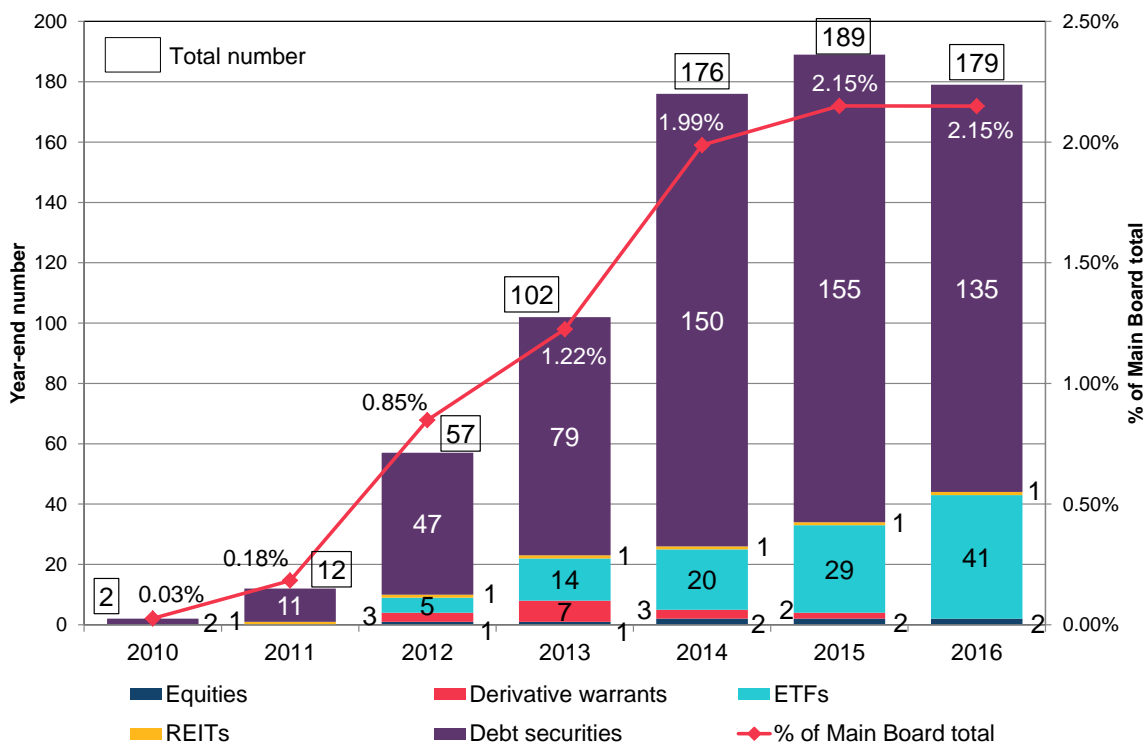
**Figure 1. Turnover and number of RMB securities listed on HKEX (Oct 2010 – Dec 2016)**



Source: HKEX

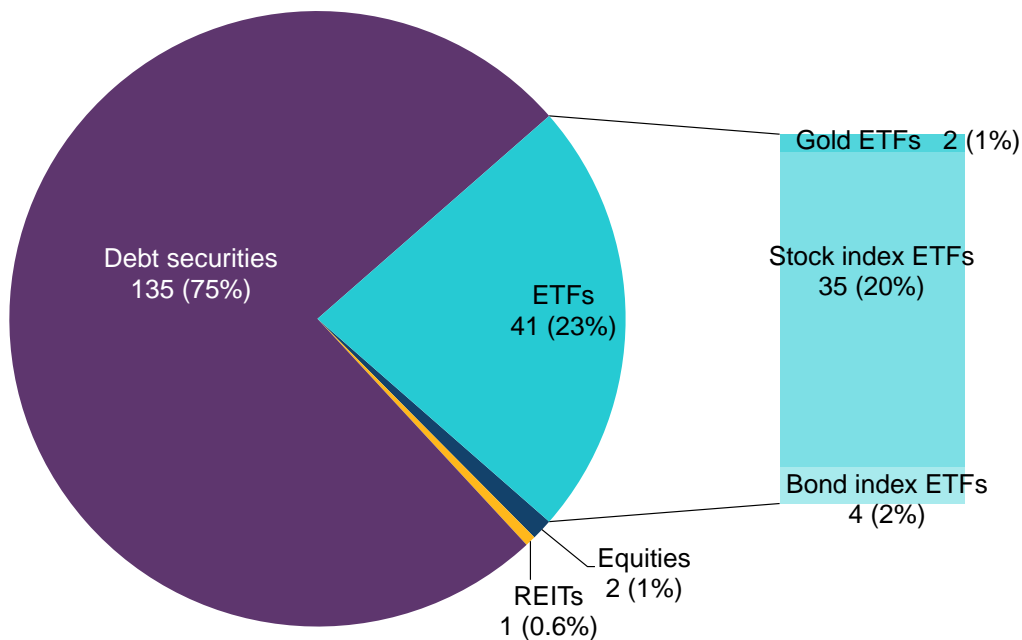
The percentage share of RMB securities in number terms rose to 2% of all listed Main Board securities by the end of 2016. At end-2016, RMB securities consisted mainly of RMB bonds (75%) and ETFs (23%). Among RMB ETFs, stock index ETFs constituted the most (20% of all RMB securities). The proportion of RMB securities in number, though small in respect of all security types on the Main Board, was rather significant for ETFs (31%) and to a considerable extent for debt securities (15%). (See Figures 2 to 4.)

**Figure 2. Year-end number of RMB securities listed on HKEX by type (2010 – 2016)**



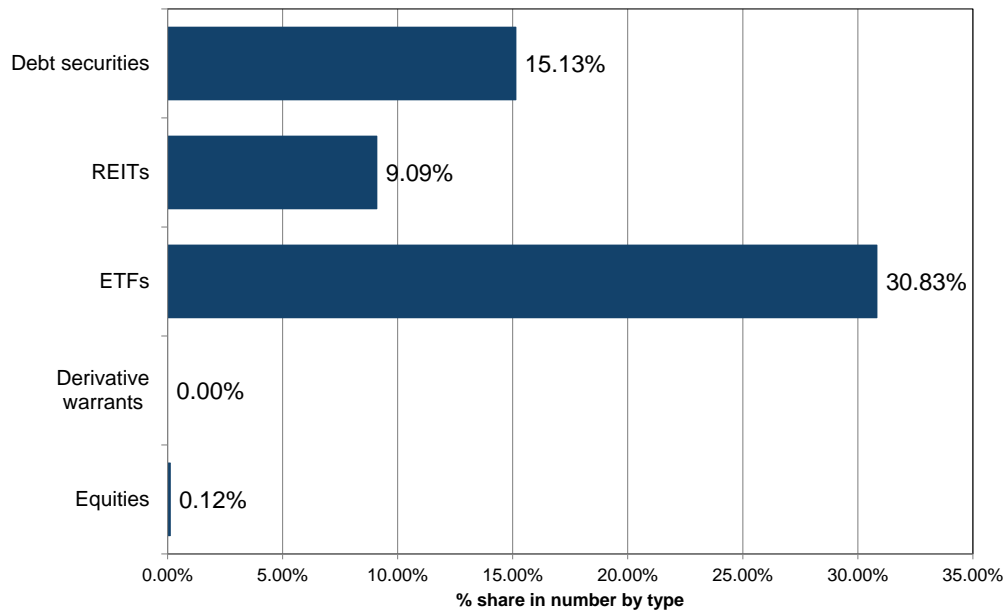
Source: HKEX

**Figure 3. Number of RMB securities listed on HKEX by type (End-2016)**



Source: HKEX

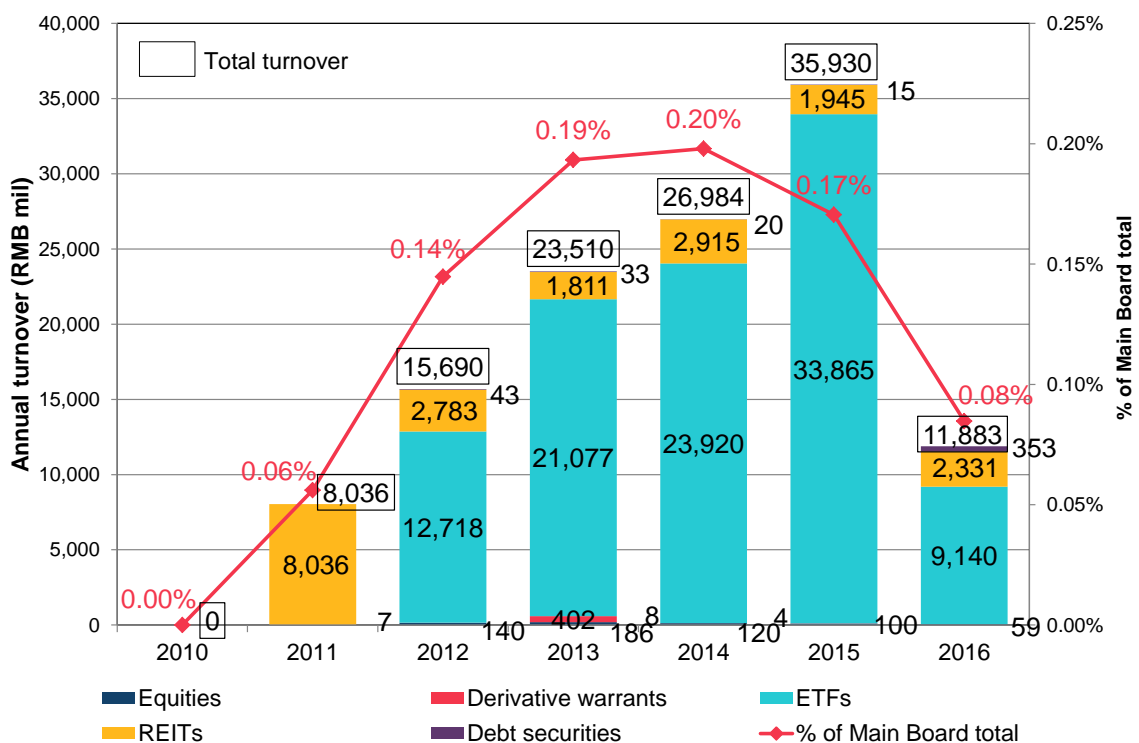
**Figure 4. Number of RMB securities as percentage of total number of securities listed on HKEX by type (End-2016)**



Source: HKEX

Trading in RMB securities grew for 4 consecutive years since 2011 before a contraction in 2016. Owing to the small number of listings, securities traded in RMB had only a negligible share of the Main Board market total turnover. Among them, RMB ETFs had the biggest share in each year since their launch year of 2012 — 77% in 2016, mainly from stock index ETFs. The only one REIT came second (20% in 2016). Although RMB bonds had the most listings, they had only a small share by turnover (3%). (See Figures 5 and 6.)

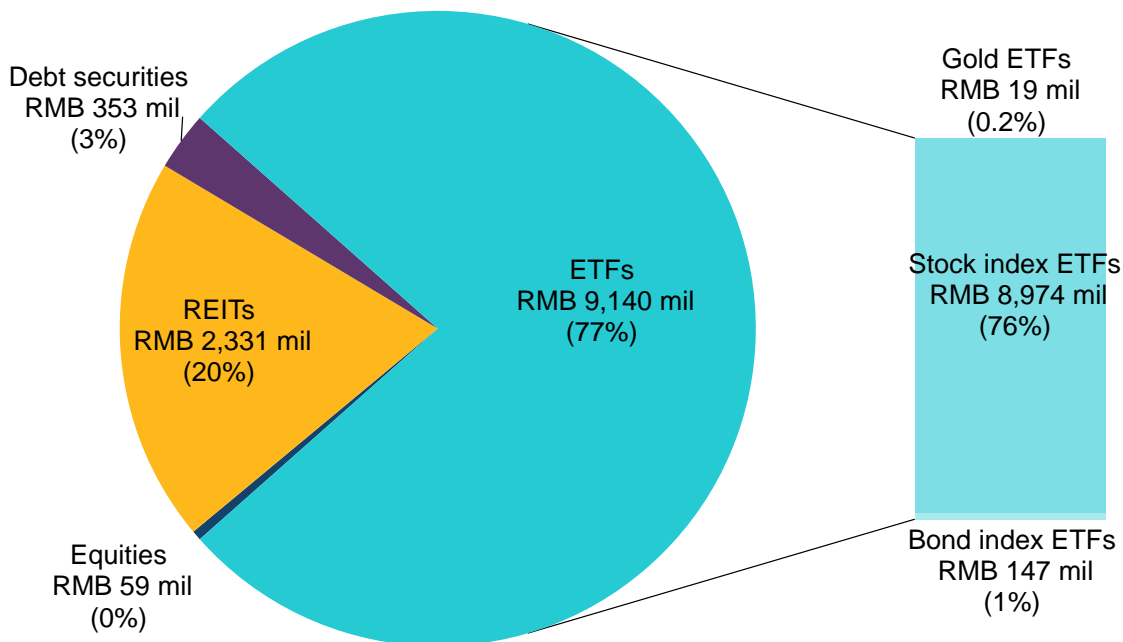
**Figure 5. Annual RMB turnover of RMB securities listed on HKEX by type (2010 – 2016)**



Note: RMB turnover refers to the turnover of RMB trading counters of the RMB securities.

Source: HKEX

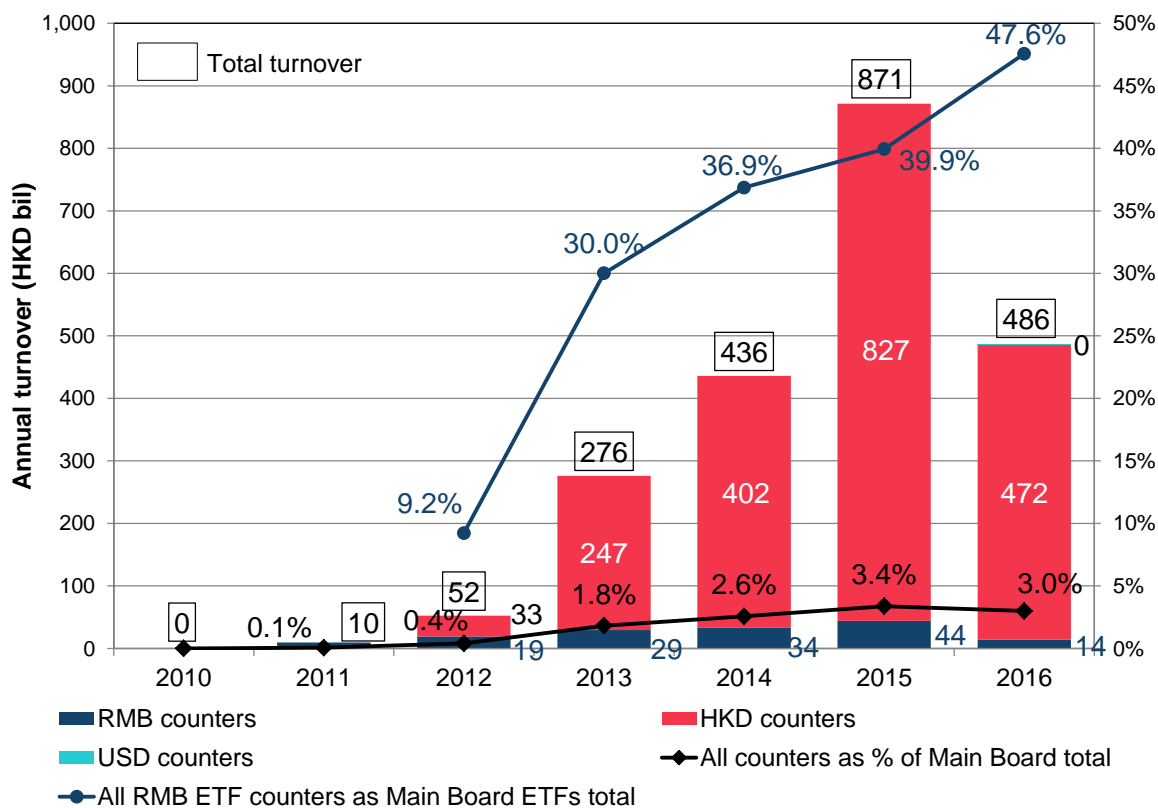
**Figure 6. Share in RMB turnover of RMB securities listed on HKEX by type (2016)**



Note: RMB turnover refers to the turnover of RMB trading counters of the RMB securities.

Source: HKEX

**Figure 7. Turnover of all counters of RMB securities listed on HKEX by counter (2016)**



Note: The first dual counters of a RMB security were listed on 12 October 2012.

Source: HKEX



Starting from October 2012, dual counter trading of RMB securities in other currencies, mainly Hong Kong dollar (HKD) and to a lesser extent US dollar (USD), is available. As at the end of 2016, there are 41 HKD dual counters and 9 USD dual counters of RMB securities on HKEX — one of the two RMB equity securities has a HKD counter; all RMB ETFs except one gold ETF had HKD counters and 9 of them also had USD counters. Compared to RMB counters, trading in the HKD counters of RMB securities were more active. In fact, most of the trading of RMB securities across all counters was concentrated in the HKD counters (over 97% in 2016). The combined turnover of all counters of RMB securities rose to about 3% of Main Board total turnover in 2015 and 2016. In particular, the combined turnover of all counters of RMB ETFs (almost all stock index ETFs) had an ever increasing share of the total turnover of all ETFs on the Main Board since their launch in 2012, reaching the all-time high of 48% in 2016 (compared to a 31% share of all ETFs in number terms). (See Figure 7.)

In summary, RMB securities on HKEX experienced a steady development. The introduction of dual-counter trading in HKD provides trading convenience to investors and attracted considerable degree of trading. RMB ETFs, mainly stock index ETFs, are particularly attractive to investors, albeit most of the trading was concentrated in the HKD counters.

## 2.2 Derivative products

The first RMB derivative product traded on HKEX was the US dollar to offshore RMB (USD/CNH) futures launched in September 2012. The product was introduced to provide the market with the currency risk management tool and investment tool in the course of gradual RMB internationalisation. After a modest start, active trading in the product was ignited by the policy move of the PBOC on 11 August 2015 on the formation mechanism of the central parity rate of RMB against US dollar in the Interbank foreign exchange (FX) market to make the currency rate more market-driven. 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 RMB-traded currency futures of offshore RMB against euro, Japanese yen and Australian dollar — EUR/CNH, JPY/CNH and AUD/CNH, and the USD-traded CNH/USD futures on 30 May 2016.

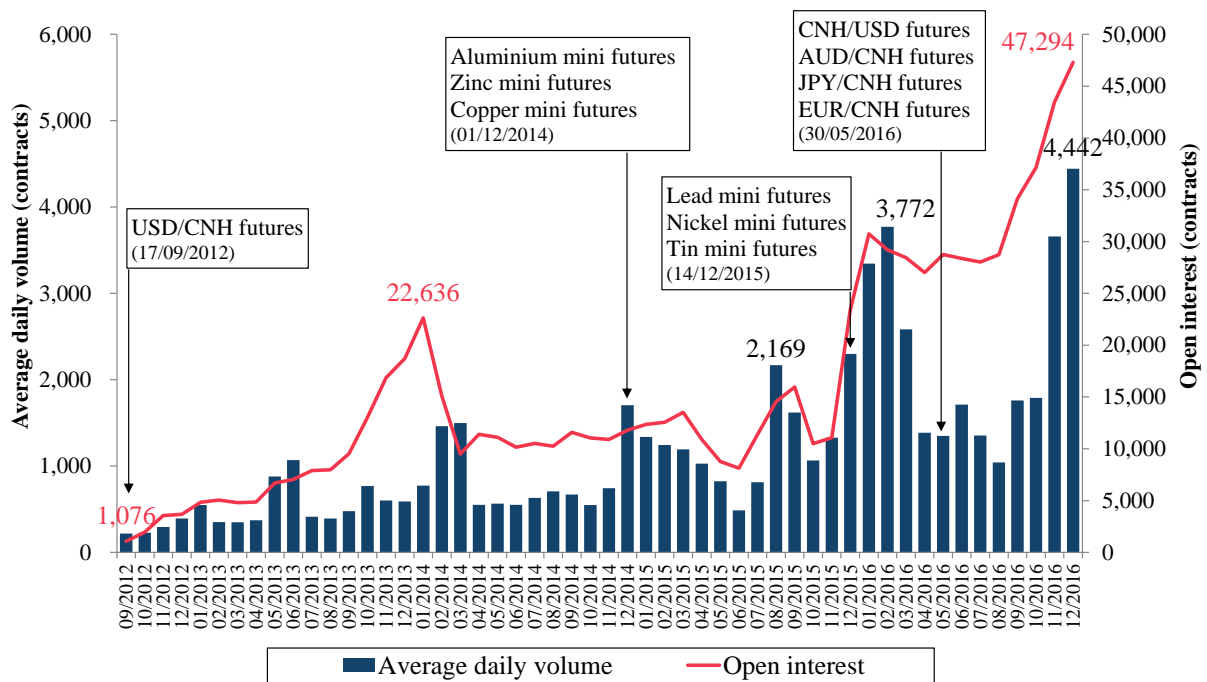
Another product initiative to support the international use of the RMB and RMB pricing in the real economy is the introduction of RMB-traded commodity futures contracts in December 2014. The first batch of products launched were London metal mini futures contracts on aluminium, copper and zinc. The underlying three metals are those which China has significant shares in global consumption<sup>6</sup> and which have the most liquid futures contracts traded on the London Metal Exchange (LME)<sup>7</sup>, a subsidiary of HKEX. A year later, three more 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 China which provides for RMB exposure in the underlying assets, supporting RMB benchmarking for metals in the Asian time zone.

Figure 8 shows the historical average daily volume and open interest of RMB derivatives on HKEX since launch.

<sup>6</sup> 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).

<sup>7</sup> In 2016, trading volume in futures contracts of aluminium, copper and zinc on LME constituted 35.5%, 24.7% and 18.0% of the total futures trading volume on LME (source: LME).

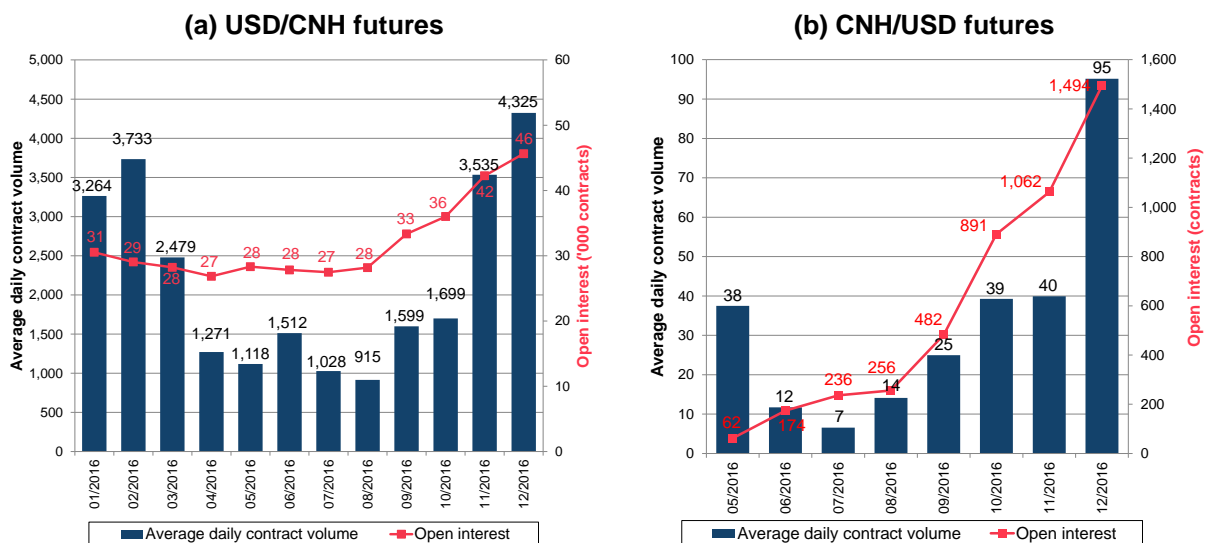
**Figure 8. Volume and open interest of RMB derivatives on HKEX (Sep 2012 – Dec 2016)**



Source: HKEX

Among the RMB derivatives, the two futures contracts on the CNH rate against the USD are by far the most active ones. The **USD/CNH futures** on HKEX achieved remarkable performance in 2016, recording historical highs of annual contract volume and year-end open interest. The record-breaking total trading volume of the product in 2016 was 538,594 contracts, an annual increase of 105%; and the record high year-end open interest was 45,635 contracts, a year-on-year increase of 98%. Its average daily volume climbed to 4,325 contracts in December 2016. The newly introduced **CNH/USD futures** also showed a growing contract volume in 2016H2 and its open interest has been continuously building up since launch. Its average daily volume achieved 95 contracts in December 2016; and its open interest reached the highest of 1,494 contracts at year-end. (See Figure 9.)

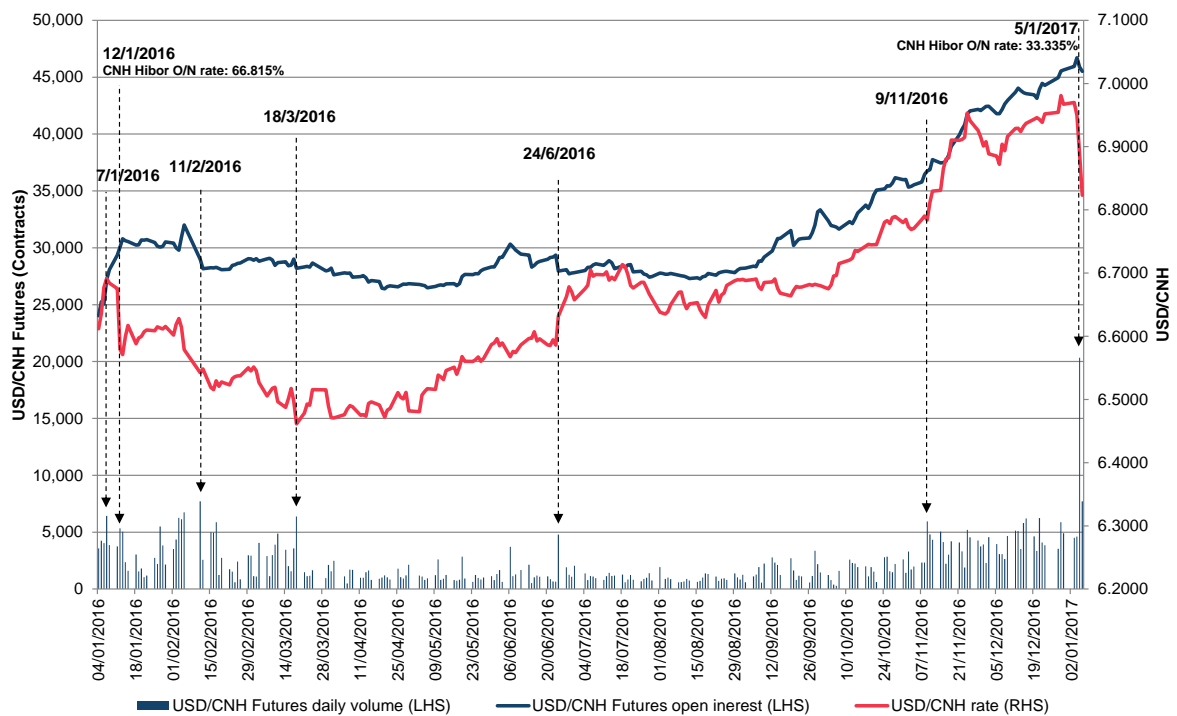
**Figure 9. Volume and open interest of USD/CNH and CNH/USD contracts on HKEX (2016)**



Source: HKEX

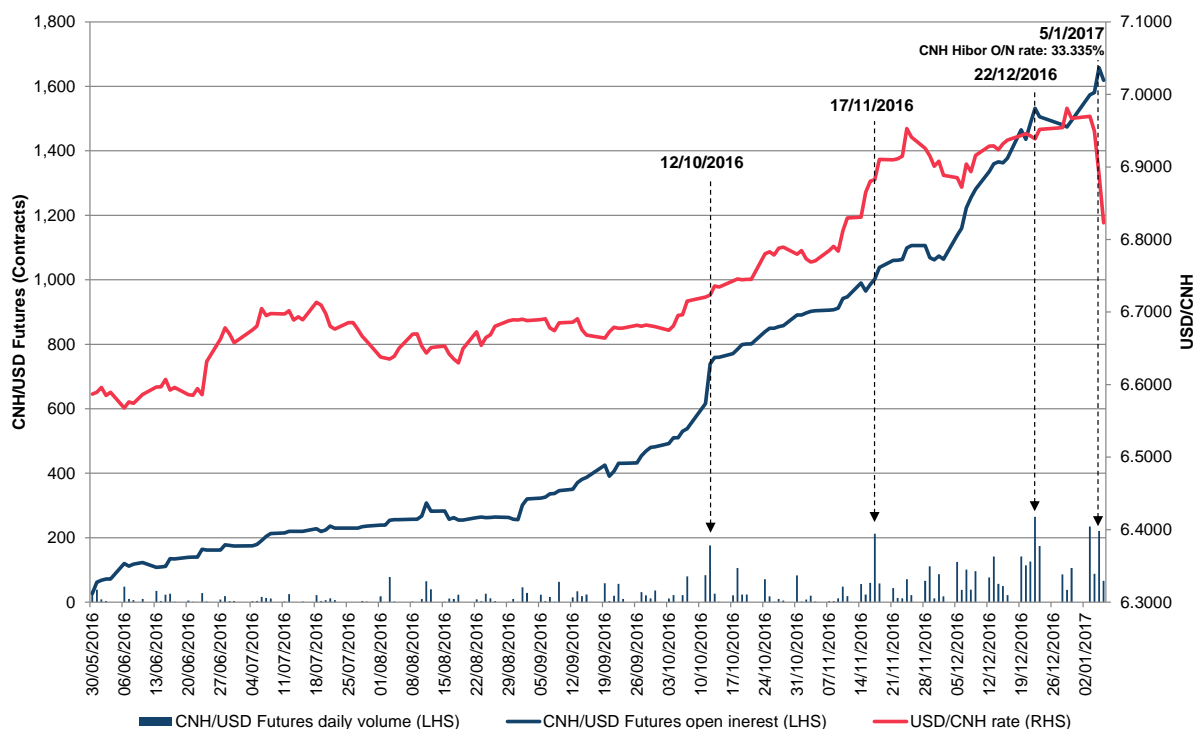
In fact, the increased volume and open interest in the two futures contracts on HKEX reflects that their functionality as RMB currency hedging tools is being realised. High trading volumes were observed in the contracts at times of high volatility in offshore RMB (CNH) to USD exchange rate (see Figures 10 and 11 below). On 5 January 2017 when CNH rate saw big fluctuations and the overnight (O/N) CNH Hibor fixing rate surged to 33.335%, the full-day trading volume and open interest in USD/CNH futures reached all-time highs of 20,338 contracts and 46,711 contracts respectively. On the day before (4 January 2017), the after-hours futures trading (AHFT) in the USD/CNH contract also reached an all-time high of 3,642 contracts. The risk management functionality of the RMB currency products is also observed in the fact that a moderate but statistically significant degree of correlation (a correlation coefficient of about 0.4 to 0.5) was found between the daily contract volume and open interest of the two products with the CNH Hibor O/N rate during 2016. That is, the higher the liquidity problem of offshore RMB, trading in the futures products tends to be more active and the open interest tends to be higher.

**Figure 10. Daily volume and open interest of USD/CNH futures on HKEX and USD/CNH exchange rate (4 Jan 2016 – 6 Jan 2017)**



Source: HKEX for futures data; Thomson Reuters for USD/CNH rate.

**Figure 11. Daily volume and open interest of CNH/USD futures on HKEX and USD/CNH exchange rate (30 May 2016 – 6 Jan 2017)**



Source: HKEX for futures data; Thomson Reuters for USD/CNH rate.

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**, which had a first-day trading volume of 109 contracts and an average daily volume of 122 contracts up to the end of March 2017. The increased product variety would also provide opportunities for investors to adopt different investment strategies for their RMB exposure.

On the backdrop of the increasing internationalisation of the RMB and liberalisation of the RMB market, the demand from global investors for hedging against their RMB exposure is ever increasing. To better serve investor needs, HKEX continues to pursue new product initiatives. In June 2016, it launched the **TR/HKEX RMB Currency Index series (RXY Indices or RXY Index series)** which is jointly developed with Thomson Reuters<sup>8</sup>. The RXY Index series is the first tradable index series on RMB outside Mainland China. **Related index futures** with RXY as the underlying could then be launched when conditions are mature.

Furthermore, futures contracts on treasury bonds issued by China’s Ministry of Finance (**MOF T-bond futures**) had just been launched on 10 April 2017. RMB derivatives would be useful tools for interest rate hedging, especially under the **Bond Connect scheme** between the bond markets in Mainland and Hong Kong which was publicly addressed by Premier Le Keqiang on 15 March 2017 at the press conference after the close of the National People’s Congress meeting.

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 FIC products to serve the growing investor demand.

<sup>8</sup> See HKEX research report, “TR/HKEX RMB CURRENCY INDICES (RXY)”, October 2016, HKEX website.

### 3. RMB PRODUCTS OFFERED BY WORLD EXCHANGES

Not many major exchanges in the world are found to have RMB-traded securities or derivative products listed on their markets<sup>9</sup>. These findings are described in sub-sections below.

#### 3.1 Securities products

From the official websites of major exchanges, those found to have listed RMB-traded securities include Deutsche Börse (DB), Japan Exchange Group (JPX), London Stock Exchange (LSE), Singapore Exchange (SGX) and Taiwan Stock Exchange (TWSE)<sup>10</sup>.

**DB** formed a joint venture — **China Europe International Exchange (CEINEX)** — with the Shanghai Stock Exchange (SSE) and the China Financial Futures Exchange (CFFEX), which commenced business on 18 November 2015. CEINEX is positioned as the trading and pricing centre for offshore RMB assets in Europe. At the initial stage, product development would be focused on cash securities products traded and settled in RMB and later on derivative products when conditions become mature. As at the end of 2016, RMB-traded securities on CEINDEX consist of two ETFs and three debt securities. There are some 14 other ETFs with Chinese assets as underlyings but these are traded in euro. CEINEX introduced the first ETF derivatives (ETF futures with the Mainland stock index, CSI300, as the underlying index) on 20 February 2017; but the product is traded in euro. Following the ETF futures, the corresponding ETF options, also traded in euro, would be launched.

**JPX** had two RMB-traded bonds on its Pro-Bond Market as of end-2016, the first one was listed in July 2015. There were also a few China-related ETFs, but all traded in JPY.

**LSE** offered RMB-trading in two ETFs and over 100 bonds as of end-2016. The first RMB ETF was listed on in March 2015, followed by the second one later in September 2016. There were other China-related ETFs but these are traded in GBP or USD.

**SGX** had one dual-counter stock — a Chinese company (Yangzijiang Shipping Holdings Ltd) — traded in both Singapore dollar (SGD) and RMB, and 96 RMB-traded bonds as of end-2016. There were no RMB-traded ETFs but 6 China-related ETFs, five traded in USD and one in SGD.

**TWSE** implemented a *Dual-Currency Trading Mechanism for Exchange Traded Funds (ETFs)*, known as “DC-ETF(s)”, on 8 August 2016. This is the first time that TWSE opens up foreign currency counters for its securities products. By the end of 2016, there were two RMB-traded counters of DC-ETFs.

There are some other major exchanges found to have some China-related ETFs, but these are traded in their domestic currencies. They include Australian Securities Exchange (ASX), Korea Exchange (KRX), New York Stock Exchange (NYSE) and Nasdaq.

As for RMB bonds, it was found that over 400 offshore products were traded on other exchanges. These include Frankfurt Stock Exchange, MarketAxess, Luxembourg Stock Exchange, Taipei Exchange (Gretai Securities Market)<sup>11</sup>.

<sup>9</sup> Information search was done on selected world exchanges' official websites on a best-efforts basis and comprehensiveness and accuracy are not guaranteed.

<sup>10</sup> See Appendix 1 for the list of identified RMB-traded securities on HKEX and overseas exchanges.

<sup>11</sup> Source: Thomson Reuters, 6 January 2017. 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.

### 3.2 Derivative products

The RMB derivatives found to be traded on exchanges other than HKEX are confined to RMB currency futures and options only. These include CME Group and BM&FBovespa (BMFB) in Americas; SGX, ICE Futures Singapore (ICE SGP), Taiwan Futures Exchange (TAIFEX) and Moscow Exchange (MOEX) in Asia; Johannesburg Stock Exchange (JSE) in Africa; and Dubai Gold and Commodities Exchange (DGCX) in the Middle East<sup>12</sup>. No exchanges other than HKEX were found to have RMB-traded commodity contracts.

**CME Group** offers the largest number of RMB currency products among the identified exchanges — 8 futures and 2 options contracts on onshore RMB (CNY) or offshore RMB (CNH) as of end-2016. These are traded on the Group's two sister exchanges:

- **Chicago Mercantile Exchange (CME)** — 4 futures and 2 options. Two CNY futures (one standard and one mini contract) were delisted in May 2016.
- **CME Europe Exchange (CMED)** — 4 futures.

As of end-2016, **SGX** had 5 RMB currency futures on CNY or CNH paired with currencies USD, SGD and euro; **ICE SGP** had two RMB currency mini futures on CNY or CNH paired with USD; and TAIFEX had two futures and two options on offshore RMB paired with USD — one standard contract and one mini contract respectively for futures and options.

The other exchanges — **BM&FBovespa**, **DGCX**, **JSE** and **MOEX** — each had a RMB currency futures contract as of end-2016.

## 4. COMPARISON OF RMB PRODUCTS ON HKEX WITH WORLD EXCHANGES

### 4.1 Securities products

HKEX offers by far the largest number of RMB-traded securities, ahead of any other exchanges in the world<sup>13</sup>. **ETF is the most popular on-exchange RMB-traded product type in markets outside Mainland China.** Although there are also a considerable number of listings of RMB-denominated bonds, on-exchange trading is negligible, if any<sup>14</sup>.

Exchange	Equity	ETF	REIT	Debt	Total
<b>HKEX</b>	<b>2</b>	<b>41</b>	<b>1</b>	<b>135</b>	<b>179</b>
CEINEX	0	2	0	3	5
JPX	0	0	0	2	2
LSE	0	2	0	101	103
SGX	1	0	0	96	97
TWSE	0	2	0	0	2

Note: Compiled on a best-efforts basis.

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

<sup>12</sup> See Appendix 2 for the list of identified RMB derivatives on HKEX and overseas exchanges.

<sup>13</sup> As far as known from available data and information.

<sup>14</sup> 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.

Table 1 above gives a comparison of the number of RMB-traded securities products on HKEX with exchanges in the world found to offer RMB-traded securities; and Table 2 below gives a comparison of their trading in RMB ETFs. The average daily turnover (ADT) of RMB ETFs on HKEX in 2016 was RMB 37 million, higher than the other exchanges, even on a per-security basis.

Exchange	Total (RMB mil)	ADT (RMB mil)
<b>HKEX</b>	<b>9,140</b>	<b>37.0</b>
CEINEX*	74	0.3
LSE	0.5	0.0
TWSE	141	1.4

\* RMB products are traded on DB platforms.

## 4.2 Derivative products

RMB currency futures have become the most popular RMB-traded derivatives in the world, with at least 8 other exchanges offering them in addition to HKEX. Contracts in 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 currencies such as SGD had negligible or no trading in the past two years (according to the official sources of the exchanges examined). Table 3 below gives the number of RMB derivatives on HKEX and exchanges in the world found to offer RMB derivatives.

Exchange	Currency		Commodity		Total		Grand total
	Futures	Options	Futures	Options	Futures	Options	
<b>HKEX</b>	<b>5</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>11</b>
BMFB	1	0	0	0	1	0	1
CME Group <sup>(1)</sup>	8	2	0	0	8	2	10
DGCX	1	0	0	0	1	0	1
ICE SGX	2	0	0	0	2	0	2
JSE	1	0	0	0	1	0	1
MOEX	1	0	0	0	1	0	1
SGX	5	0	0	0	5	0	5
TAIFEX	2	2	0	0	2	2	4
<b>Total</b>	<b>26</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>32</b>	<b>4</b>	<b>36</b>

(1) Offered by Chicago Mercantile Exchange (CME) — 4 futures and 2 options, and by CME Europe Exchange (CMED) — 4 futures.

Note: Compiled on a best-efforts basis.

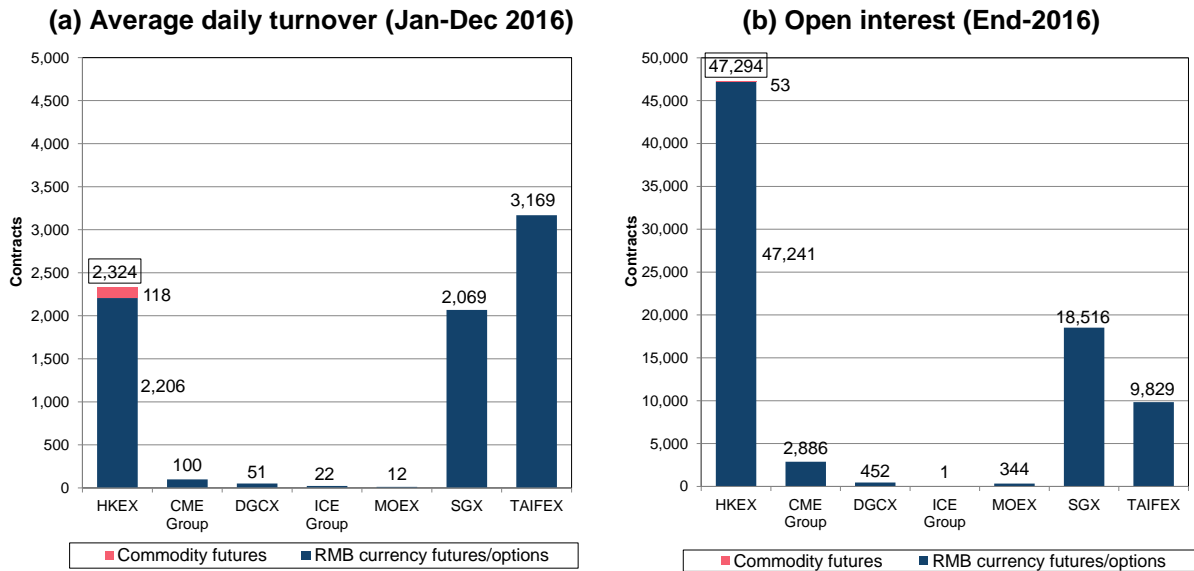
Source: HKEX for HKEX data, the respective exchanges' websites for others.

**HKEX was the top among world exchanges in respect of the average daily notional trading value (US\$219 million) and year-end open interest of RMB currency derivatives (47,294 contracts) in 2016.** SGX and TAIFEX had considerable trading volume in their RMB currency derivatives, probably in relation to the degree of economic activities of Singapore and Taiwan with China<sup>15</sup>. On the face, TAIFEX had a higher contract volume of its RMB derivatives in 2016 than HKEX. However, this was concentrated on the mini contracts and the

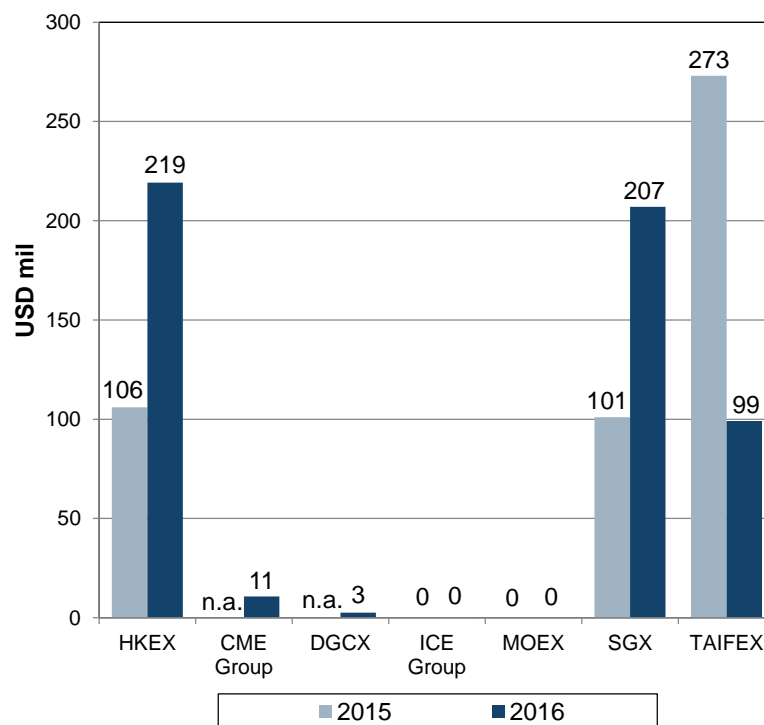
<sup>15</sup> According to People's Bank of China's RMB Internationalisation Report 2015 (June 2015), Singapore and Taiwan had the biggest RMB trade settlement amount following Hong Kong.

relatively high notional trading value achieved by TAIFEX in 2015 did not sustain in 2016. As for SGX, the contract volume and notional trading value were relatively high in 2016, while the open interest as at end-2016 was less than 40% of that on HKEX. (See Figure 12.)

**Figure 12. Trading and open interest of RMB derivatives on HKEX and selected exchanges (2016)**



**(c) Average daily notional trading value of RMB currency derivatives (2016 vs 2015)**



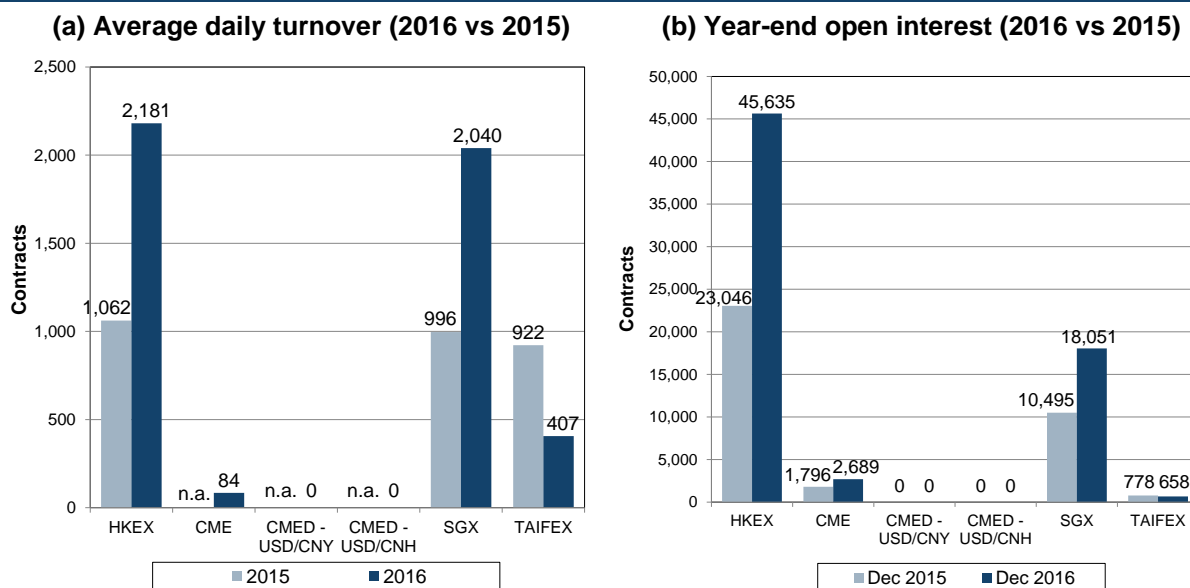
n.a.: Not available

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

Among RMB currency futures, four other exchanges offer similar products with the same contract size as the HKEX's standard futures, USD/CNH futures. HKEX also took the lead in trading of the standard contract. (See Figure 13.)



**Figure 13. Trading and open interest of the standard USD/RMB contracts on HKEX and selected exchanges (2016 vs 2015)**



n.a.: Not available

Note: Standard contract size is USD100,000. Unless otherwise stated, currency pair is USD/Offshore RMB (CNH).

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

(See Appendix 3 on the average daily volume in 2016 of each RMB currency product on the different exchanges.)

## 5. HKEX AS AN OFFSHORE RMB PRODUCT TRADING AND RISK MANAGEMENT CENTRE

HKEX has achieved a leading position in the listing and trading of RMB products among world exchanges outside Mainland China. RMB ETFs are by far the most well received offshore RMB securities product. While offshore RMB ETFs have achieved modest trading, offshore RMB currency derivatives have gained momentum — a global notional trading value of about US\$134 billion (~RMB935 billion), over 60% growth compared to about US\$83 billion (~RMB539 billion) in 2015<sup>16</sup>.

Upon the RMB exchange rate mechanism reform in August 2016 and the increasing marketisation of the exchange rate system in China, there is increasing market acceptance of an increased volatility in the RMB exchange rate. According to the Society for Worldwide Interbank Financial Telecommunication (SWIFT) statistics, the RMB has ranked the top 5<sup>th</sup> or 6<sup>th</sup> most active currency for international payments by value — a share of 1.68% in January 2017 (6<sup>th</sup> position) compared to a share of 2.31% in December 2015 (5<sup>th</sup> position). In the offshore FX market, RMB is said to have the potential to be in the top five most traded currencies<sup>17</sup> and RMB FX risk management tools such as swaps and options have become increasingly popular. In addition, there is a growing diversity in the client base of the RMB currency — all types of banks, institutional investors like Qualified Foreign Institutional Investors (QFIIs), speculators like hedge funds and retail investors in addition to the pioneer group of commercial corporations doing business with China. RMB currency futures and options add to the suite of hedging tools for these investors in RMB FX trading.

<sup>16</sup> Source: HKEX and respective exchanges' websites, as per analysis given in section 4.

<sup>17</sup> By Executive Director of FX products at CME Group, quoted in "China's offshore RMB endgame, Part III: From shadow banking to cyberspace", *Global Capital Euroweek*, 24 April 2015.

Exchanges around the world rush in to offer various risk management instruments for the RMB, to a certain extent, to support the increasing economic activities in RMB with China. HKEX stands out as the leading exchange in RMB products, especially in RMB derivatives, owing to a number of reasons:

### (1) Geography

According to the Bank of International Settlement (BIS) Triennial Survey, Hong Kong contributed the largest proportion (39%) of total over-the-counter (OTC) trading in RMB FX instruments outside Mainland China<sup>18</sup>. This was followed by Singapore (22%) and the US (12%). Given China's **One-Belt-One-Road (OBOR) strategy** put forward by the Chinese leaders in 2013, China's current and near future economic development with the rest of the world would focus on the Asian area. OBOR consists of the Silk Road Economic Belt (SREB) and 21<sup>st</sup> Century Maritime Silk Road (MSR) initiatives. The SREB runs through Central Asia, West Asia, the Middle East to Europe, with extension to South Asia and Southeast Asia. The MSR runs through Southeast Asia, Oceania and North Africa.

To support infrastructural projects and economic activities in OBOR, further internationalisation and the use of RMB is expected. It is therefore expected that trading needs of RMB futures for risk management purposes would be the highest in Asia. As Hong Kong is the international financial centre at the centre of OBOR, RMB products and services, both on-exchange and off-exchange, are expected to further prosper.

### (2) RMB liquidity pool and RMB businesses in Hong Kong

Since offshore RMB business was offered firstly in Hong Kong back in 2004, Hong Kong has become the global hub for RMB trade settlement, financing and asset management. As noted in section 4.2 above, Hong Kong served the biggest amount of RMB trade settlement in 2015. The dim-sum bond market in Hong Kong is now the largest outside Mainland China<sup>19</sup>.

Offshore RMB services in Hong Kong now embrace RMB retail and corporate banking, RMB capital markets, RMB money and FX market and RMB insurance. These services are supported by the formation of a large RMB liquidity pool, which together are conducive to the development of a wide range of RMB products. The expanded variety and usage of RMB products and services in need by customers or investors in turn would boost or help sustain the RMB liquidity pool.

Despite the shrinkage of global offshore RMB liquidity pool in the recent wave of RMB depreciation, HK maintains the largest offshore RMB deposits in the world: RMB 522.5 billion (end-January 2017), compared to RMB 310.7 billion in Taiwan (end-January 2017) and RMB 126 billion in Singapore (end-December 2016)<sup>20</sup>. A large RMB pool supports all RMB activities and active RMB securities and derivatives markets.

### (3) International investor base

Hong Kong is a well-known international financial centre and participants in HKEX's markets come from all over the world. According to HKEX's surveys, international investors contributed 39% of the securities market trading (same as local investors) and 28% of the derivatives market trading (larger than the 21% from local investors) in value

<sup>18</sup> In terms of daily average notional turnover value in USD. Source: Triennial Survey statistics on turnover, BIS website.

<sup>19</sup> Quoted in "Hong Kong — The global offshore Renminbi business hub", Hong Kong Monetary Authority, January 2016.

<sup>20</sup> Source: HKMA, Bank of China (Hong Kong) Offshore RMB Express 2017 No. 3, Monetary Authority of Singapore website.

terms<sup>21</sup>. Active international investor participation contributes to the international pricing of RMB products.

#### (4) Infrastructural efficiency

The efficient and robust market infrastructure in Hong Kong is fundamental in supporting the activity and continuous development of RMB business and services in Hong Kong. This includes the HKMA's SWIFT-based **RMB Real Time Gross Settlement (RTGS) system** that facilitates market participants from all over the world to handle RMB transactions both with Mainland China and among the offshore markets. While governed by Hong Kong laws<sup>22</sup>, the RMB RTGS system in Hong Kong is directly linked up with Mainland China's National Advanced Payment System (CNAPS), enabling the system to handle RMB transactions with Mainland China. There are also linkages with HKD, USD and euro RTGS systems. The RMB RTGS system not only processes RMB interbank payments on an RTGS basis, but also handles RMB bulk clearing and settlement of payment items similar to those handled by the Hong Kong dollar RTGS system. Statistics from SWIFT show that the value of RMB settlement handled by banks in Hong Kong accounted for some 70% of the total offshore RMB payments conducted vis-à-vis Mainland China and within the offshore market globally<sup>23</sup>.

RMB RTGS system is accompanied by the **RMB Liquidity Facility** provided by the HKMA to enhance short-term liquidity in the offshore RMB market, which may be affected due to seasonal factors or capital market activities. The facility provides short-term funding need (intraday, overnight, 1-day, 1-week) to banks. In addition, from 27 October 2016, nine banks are appointed as Primary Liquidity Providers (PLPs) for the offshore RMB market.

Apart from the strong support from Hong Kong's overall financial system for the offshore RMB market, the **exchange's infrastructure** also offers efficient support. HKEX's derivatives clearing house, HKFE Clearing Corporation Ltd (HKCC), offers central clearing for exchange-traded derivatives. HKCC is CPSS-IOSCO<sup>24</sup> compliant and operates under an internationally recognised regulatory regime and the protection of Hong Kong laws. International participants are subject to lower capital charges come with HKCC's "Qualifying Central Counterparty (CCP)" status under Basel III. In late September 2016, HKCC relaxed its cash collateral policy, allowing Clearing Participants (CPs) to satisfy their RMB margin requirement of up to RMB1 billion<sup>25</sup> by any acceptable cash and/or non-cash collateral. This policy relaxation helps reduce investors' funding costs when trading RMB-denominated derivative products. In addition, Hong Kong has an equivalent infrastructure in the OTC derivatives with the launch of **OTC Clear** by HKEX in 2013. The services of OTC Clear now cover certain interest rate swaps (IRS), non-deliverable IRS (NDIRS), cross-currency IRS (CCS) and non-deliverable currency forwards (NDF).

The above platforms form a solid foundation for further development of RMB derivatives in Hong Kong.

<sup>21</sup> Source: HKEX's Cash Market Transaction Survey 2014/15 and Derivatives Market Transaction Survey 2014/15.

<sup>22</sup> Settlement finality is protected by the Clearing and Settlement Systems Ordinance in Hong Kong.

<sup>23</sup> Quoted in HKMA's "Hong Kong — The Global Offshore Renminbi Business Hub", January 2016.

<sup>24</sup> Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO).

<sup>25</sup> Beyond which HKCC CPs must satisfy their RMB margin requirement by RMB cash.

As stated in the Chinese Government's work report delivered on 5 March 2017, the RMB would be a significant currency in the international monetary system and RMB exchange rate would be at a basically steady level. An offshore market with a rich supply of RMB products and risk management instruments is fundamental to support the internationalisation of RMB and at the same time maintaining a steady exchange rate level. Towards this end, HKEX's RMB product suite will continuously be enriched, both in the securities and derivatives markets, to serve the growing investor needs as the RMB steadily progresses on its internationalisation. In addition to the recently launched USD/CNH options and T-bond futures, other RMB risk management tools would possibly be introduced in the future. HKEX is well positioned to be the offshore RMB product trading and risk management centre for global investors.

## APPENDIX 1. LIST OF RMB-TRADED EQUITIES, ETFS AND REITS ON HKEX AND OVERSEAS EXCHANGES (END-2016)

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	82808	E Fund Citi Chinese Government Bond 5-10 Years Index ETF	
ETF	82811	Haitong CSI300 Index ETF	
ETF	82822	CSOP FTSE China A50 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	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	83074	iShares Core MSCI Taiwan Index ETF	
ETF	83081	Value Gold ETF	
ETF	83095	Value China A-Share ETF	
ETF	83100	E Fund CSI 100 A-Share 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	83127	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	83139	iShares RMB Bond 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	83162	iShares MSCI China A International Index ETF	
ETF	83168	Hang Seng RMB Gold ETF	
ETF	83170	iShares Core KOSPI 200 Index ETF	
ETF	83180	ChinaAMC CES China A80 Index ETF	
ETF	83188	ChinaAMC CSI 300 Index ETF	
ETF	83199	CSOP China 5-Year Treasury Bond ETF	
REIT	87001	Hui Xian Real Estate Investment Trust	
Overseas exchange		Type	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-2016)

Exchange	Product	Contract size	Trading currency*	Settlement
HKEX	RMB Currency Futures - USD/CNH Futures	USD100,000	CNH	Deliverable
	RMB Currency Futures - EUR/CNH Futures	EUR 50,000	CNH	Cash settled
	RMB Currency Futures - JPY/CNH Futures	JPY 6,000,000	CNH	Cash settled
	RMB Currency Futures - AUD/CNH Futures	AUD 80,000	CNH	Cash settled
	RMB Currency Futures - CNH/USD Futures	RMB 300,000	USD	Cash settled
	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	
BMFB	Chinese Yuan Futures	CNY 350,000	BRL	Cash settled
CME	Standard-Size USD/Offshore RMB (CNH) Futures	USD 100,000	CNH	Deliverable
	E-micro Size USD/Offshore RMB (CNH) Futures	USD 10,000	CNH	Deliverable
	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
CMED	Euro/Chinese Offshore Renminbi (EUR/CNH) Physically Deliverable Futures	EUR 100,000	CNH	Deliverable
	U.S. Dollar / Chinese Renminbi (USD/CNY) Cash Settled Futures	USD 100,000	CNY	Cash settled
	U.S. Dollar / Chinese Offshore Renminbi (USD/CNH) Physically Deliverable Futures	USD 100,000	CNH	Deliverable
	Euro/Chinese Renminbi (EUR/CNY) Cash Settled Futures	EUR 100,000	CNY	Cash settled
DGCX	US Dollar / Chinese Yuan Futures	USD 50,000	CNH	Cash settled
ICE	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
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
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

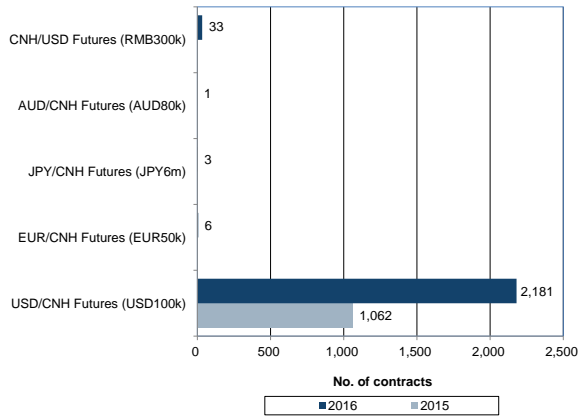
\* CNH = Offshore RMB; CNY = Onshore RMB

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

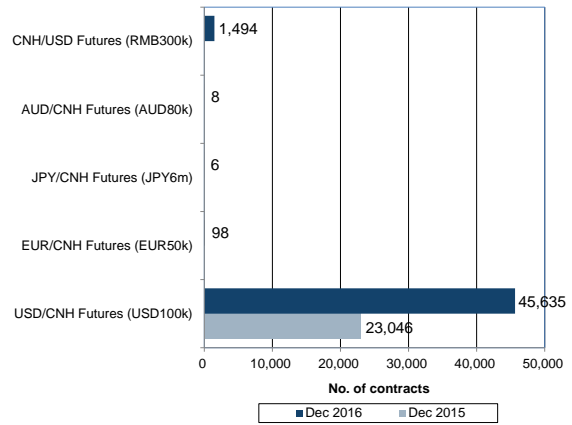
### APPENDIX 3. AVERAGE DAILY TRADING VOLUME AND YEAR-END OPEN INTEREST OF RMB CURRENCY PRODUCTS ON HKEX AND KEY OVERSEAS EXCHANGES (2016 VS 2015)

#### HKEX

(a) Average daily trading volume



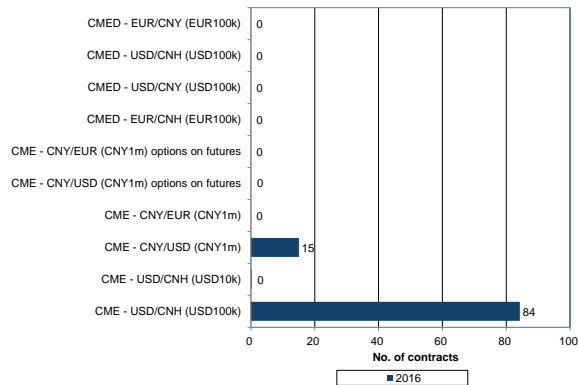
(b) Year-end open interest



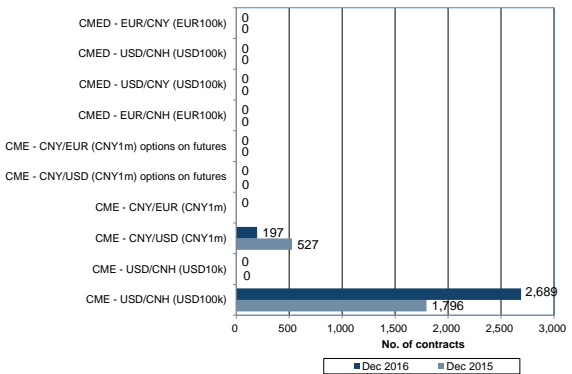
Note: EUR/CNH, JPY/CNH, AUD/CNH and CNH/USD futures contracts were launched on 30 May 2016.

#### CME Group

(a) Average daily trading volume



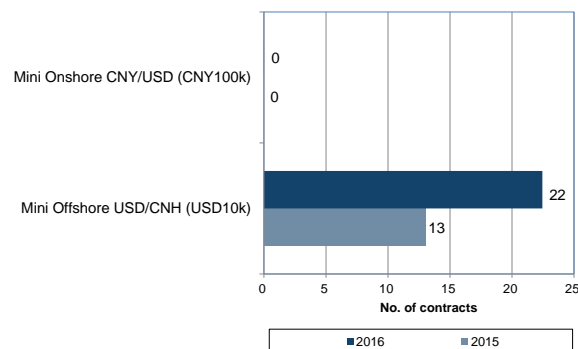
(b) Year-end open interest



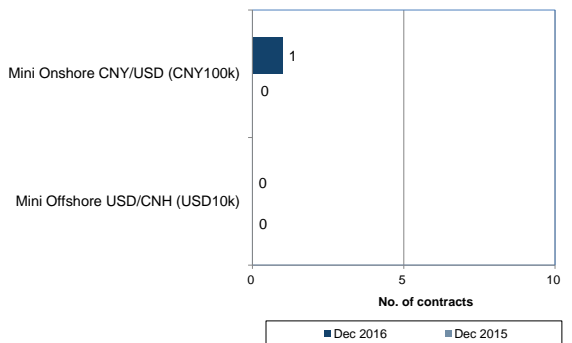
Note: 2015 data is not available.

#### ICE Futures Singapore

(a) Average daily trading volume



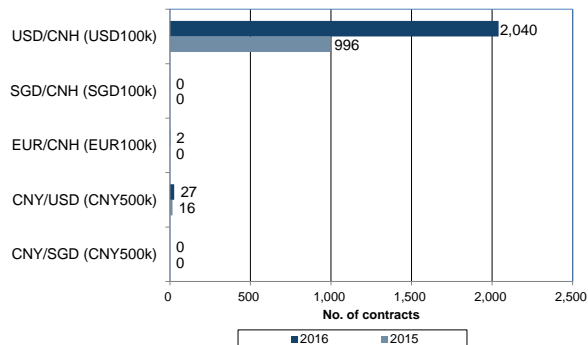
(b) Year-end open interest



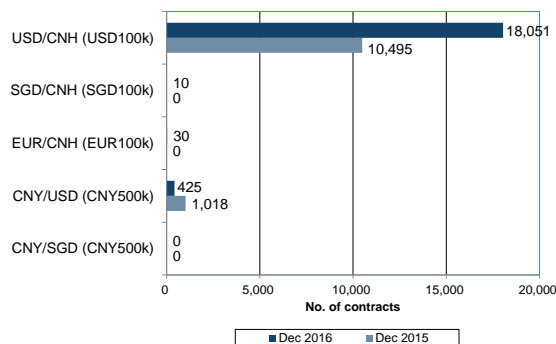
### APPENDIX 3. AVERAGE DAILY TRADING VOLUME AND YEAR-END OPEN INTEREST OF RMB CURRENCY PRODUCTS ON HKEX AND KEY OVERSEAS EXCHANGES (2016 VS 2015) (CONT'D)

#### Singapore Exchange

(a) Average daily trading volume

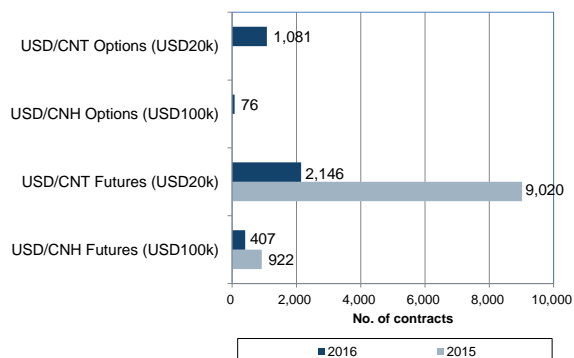


(b) Year-end open interest

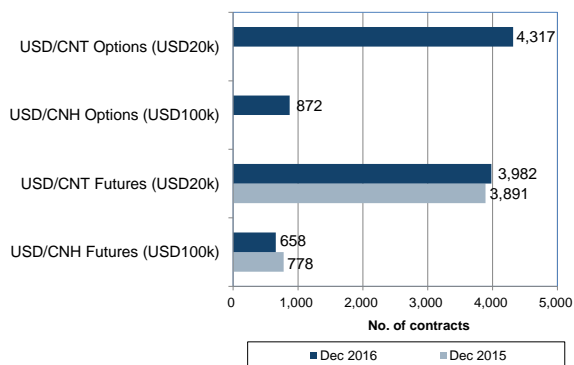


#### TAIFEX

(a) Average daily trading volume



(b) Year-end open interest



Note: USD/CNH FX Options and USD/CNT FX Options were launched on 27 June 2016.

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

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