

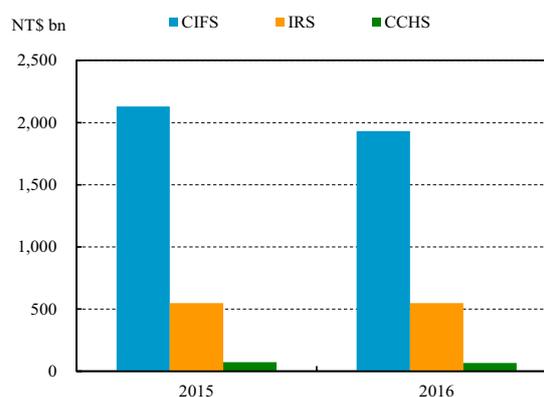
3.3 Financial infrastructure

3.3.1 Payment and settlement systems

Overview of three NTD systemically important payment systems (SIPs) in 2016

The three SIPs in Taiwan include the CBC Interbank Funds-Transfer System (CIFS), the Interbank Remittance System (IRS) and the Check Clearing House System (CCHS). In 2016, the daily average amount of funds transferred via the CIFS, the IRS and the CCHS were NT\$1,931 billion, NT\$548 billion and NT\$65 billion, respectively. Compared to the previous year, the funds transferred via the CIFS and the CCHS declined, while those via the IRS largely remained the same (Chart 3.59). In particular, the amount of funds transferred via the CBC's CIFS saw a marked decrease of NT\$198 billion in 2016. It was mainly because of lower issuance frequency of the CBC's certificates of deposit (CDs) which transfer funds through the CIFS.

Chart 3.59 Daily average amount of funds transferred via the three SIPs

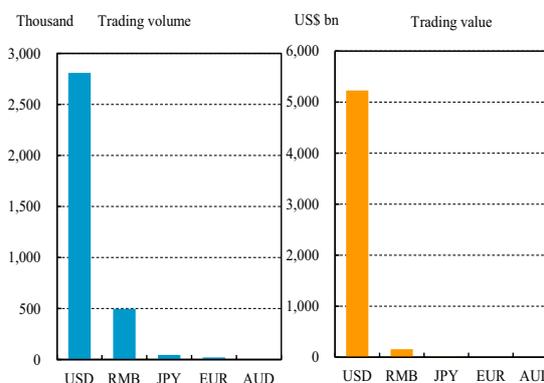


Source: CBC.

Overview of the foreign currency clearing platform

Since the foreign currency clearing platform was launched on March 1, 2013, it has successively provided US dollar, renminbi, Japanese yen, and euro remittance services, as well as PVP and DVP mechanisms for settlement services. In 2016, Australian dollar remittance was also integrated into this platform. By the end of 2016, the accumulated trading volume and value of funds transferred via this platform recorded

Chart 3.60 Trading volume and value in the foreign currency clearing platform



Note: Figures are from March 2013 to the end of 2016.

Source: CBC.

3.37 million and US\$5.4 trillion, respectively. The main trading currency on this platform was the US dollar, the average daily transaction value of which registered at US\$6.96 billion, while the renminbi was second to the US dollar with a transaction value of US\$0.23 billion (Chart 3.60).

After domestic remittance could be settled directly through the foreign currency clearing platform rather than through foreign third parties, remittance fees paid by the public decreased by a great amount of NT\$2.1 billion from the first day of platform operation to the end of 2016.

Measures in response to FinTech development

Concerns over the developments of distributed ledger technology

Blockchain, the distributed ledger technology behind Bitcoin, has gained public attention and become a popular issue in recent years. It provides a decentralized peer-to-peer (P2P) model that may change the current centralized structure of financial operation. Although the blockchain technology possesses advantages of high transparency and easy tracking, there still are some unsolved problems such as processing speed, transaction privacy, and compatibility with existing systems. Accordingly, large global financial institutions currently only carry out conceptual verification or small-scale experimentations in the areas of asset digitization, cross-border payments and trade finance. Broad application of the blockchain technology in finance will take time to achieve.

In view of this trend, the CBC established the Digital Finance Group in 2015 to actively explore the development of the blockchain technology, as well as to study other related issues such as electronic payment developments and virtual currencies (Box 2). Furthermore, to integrate financial industry resources on blockchain experimentations in Taiwan, the FISC, urged by the CBC, invited financial institutions to jointly establish the Financial Blockchain Research and Application Development Committee. This committee will carry out trial runs both in corporate and personal banking and report the trial run results at the end of 2017.

The CBC encourages the FISC to assist the financial industry to improve mobile payment services

In view of the increasing penetration rate of smart phones in Taiwan favoring mobile payment development, the CBC urged the FISC to actively assist financial institutions in

developing mobile payment services. As of the end of 2016, there were 24 financial institutions sharing a mobile payment platform built by the FISC to issue mobile credit cards and cash cards. Using mobile cards, consumers can make payments through 130 thousand domestic sensor-enabled card reading machines, using the near field communication (NFC)⁷⁸ functions of mobile devices.

Moreover, in response to the development of cloud technology, the FISC assisted financial institutions to start VISA and MasterCard HCE⁷⁹ mobile credit card businesses. By the end of 2016, there were 14 financial institutions operating these businesses. In addition, to meet retailers' needs of using mobile point of sale (mPOS) devices, the FISC provided the mPOS electronic signature and receipt switching service, which accepts payment tools such as credit cards, cash cards and UnionPay cards and helps member banks to expand their mobile card acquiring business.

3.3.2 Implementation of the net stable funding ratio in Taiwan

To reinforce banks' liquidity risk management, the Basel Committee on Banking Supervision (BCBS) published *Basel III International Framework for Liquidity Risk Measurement, Standards and Monitoring* in 2010, developing the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) as globally consistent liquidity indicators. With a view to strengthening the liquidity risk management of domestic banks and keeping in line with international standards, the FSC and the CBC collaboratively promote the implementation of the LCR and the NSFR standards. Among them, the LCR standards were implemented in 2015, while the NSFR regulations, the *Standards Implementing the Net Stable Funding Ratio of Banks*, was jointly promulgated by the FSC and the CBC in December 2016. Furthermore, the NSFR standards, which set the statutory minimum ratio of 100%, will be effective on January 1, 2018. The key NSFR standards in Taiwan are summarized as follows:

- The definition of NSFR: the NSFR is a quantitative indicator for long-term liquidity, calculated by dividing the amount of available stable funding (ASF) by the amount of required stable funding (RSF). ASF is the portion of capital and liabilities expected to be reliable over the time horizon (over one year). RSF refers to the amount of stable funding required, which is a function of the liquidity characteristics and residual maturities of various assets and off-balance sheet exposures held by domestic banks.

⁷⁸ NFC is a set of short-range wireless communication technologies that makes contactless and point-to-point data transfers between electronic devices. Based on different card emulation modes, NFC can be classified into three solutions: secure element (SE), host card emulation (HCE) and Tokenizations.

⁷⁹ With HCE, customers are allowed to store their card account details in the merchants' secure cloud servers. HCE enables mobile applications to conduct payments by providing virtual representation of account identities.

$$\text{NSFR} = \frac{\text{Available amount of stable funding (ASF)}}{\text{Required amount of stable funding (RSF)}} \times 100\%$$

- Statutory minimum standards: the NSFR of domestic banks should not be lower than 100%. However, in view of the financial conditions and regulatory considerations, the FSC may adjust the ratio after consulting the CBC.
- Reporting mechanism: domestic banks should calculate and report the NSFR on a quarterly basis, and inform the FSC and the CBC immediately when the ratio falls below the statutory minimum.
- Exemption: local branches of foreign banks and Mainland China's banks, as well as those banks which are taken over, ordered to suspend operations or liquidated by the FSC, are exempted from the application of the NSFR.

3.3.3 Promoting financial technology development in Taiwan

To promote Taiwan's financial technology (FinTech) development and provide a broader, safer and more predictable experimentation environment under the consideration of financial market order and consumer protection, the FSC amended related regulations and proposed to establish an innovative experimentation mechanism. These efforts aim to encourage Taiwan's financial services and related industries to take advantage of innovative technology to enhance the efficiency of financial services and to facilitate the development of innovative financial activities.

Amending regulations to allow banks to invest in information service and financial technology enterprises

According to Article 74 of the *Banking Act* and other related regulations, banks may not invest in more than one entity engaging in the same line of business. However, to encourage FinTech development in Taiwan, the FSC amended related regulations in December 2016, stipulating that a bank investing in information service enterprises and financial technology enterprises is not subject to the restrictions if the main business activities of these enterprises are different from the other entity in the same business line the bank has invested.

In addition, the FSC expanded the business scopes of financial technology enterprises invested by banks to include risk management, anti-money laundering, cyber security, transaction security, consumer protection, and P2P lending platforms, in response to the latest

FinTech developments and in order to encourage the financial industry to exploit FinTech to enhance their risk management and provide innovative financial services.

Establishing the FinTech innovative experimentation mechanism

To encourage Taiwan's financial services and related industries to take advantage of innovative technologies to enhance efficiency, quality and inclusion of financial services, the FSC planned to establish a FinTech innovative experimentation mechanism and drafted the *Financial Technology Innovative Experimentation Act* in December 2016. The draft bill stipulates the application, review, supervision, management and consumer protection procedures for innovation experimentation, as well as regulatory adjustments and liability exemption during the experimentation period (Box 3). The draft bill was approved by the Executive Yuan and was forwarded to the Legislative Yuan for review in May 2017.

3.3.4 Enhancing Taiwan's AML/CFT mechanism

To formulate a more comprehensive AML/CFT system and keep pace with the upcoming third round of the *APG Mutual Evaluation* process at the end of 2018, Taiwan has progressively adopted related response actions.

Enhancing the completeness of fundamental elements of the legal system

Enacting Terrorist Financing Prevention Act

To build a more comprehensive CFT system, and after consulting the international standard of FATF *Recommendations*, the *United Nations (UN) International Convention for the Suppression of the Financing of Terrorism*, and the *UN Security Council Resolutions* related to countering the proliferation of weapons of mass destruction and the financing of terrorism, Taiwan enacted the *Terrorist Financing Prevention Act* in July 2016. This *Act* stipulates that the Executive Yuan is the authority in charge of policy deliberations related to Taiwan's terrorism financing prevention policymaking and oversight. Furthermore, the Terrorism Financing Prevention Review Board has been established by the Ministry of Justice, which is the competent authority, to deliberate on the sanction list of terrorist groups and terrorists as well as related measures.⁸⁰

⁸⁰ The Minister of Justice is the chair and an ex-officio member of the Terrorism Financing Prevention Review Board. The other members are the deputy heads of the National Security Bureau, the Ministry of the Interior, the Ministry of Foreign Affairs, the Ministry of National Defense, the Ministry of Economic Affairs, the Financial Supervisory Commission, and the Central Bank.

Amending the Money Laundering Control Act

To set up a sound AML system, ensure orderly money flows, and align with international standards, Taiwan overhauled the *Money Laundering Control Act* in December 2016 according to the FATF *Recommendations*.⁸¹ The key amendments are as follows:

- To align Taiwan’s definition of elements of a money laundering crime with international regulations, the *Act* now stipulates that allowing another person to use one’s name or bank account to engage in money-laundering through a shell company or a real estate transaction is considered a crime.
- To lower the threshold for felony from crimes punishable by a minimum of not less than five years imprisonment to ones punishable by a minimum of not less than six months imprisonment.
- To increase transparency in money flows, financial institutions are obligated from all aspects to perform customer due diligence, to maintain records, and to report suspicious transactions. Financial lease businesses, as well as nonfinancial businesses and professions are also obligated to do the same.
- To better control borders and track the flow of money, the *Act* now additionally requires customs declarations for New Taiwan dollars and currencies issued by Hong Kong or Macau, gold over a certain value, and other objects that may potentially involve money laundering. Any untruthful declarations are subject to penalty or confiscation. In addition, items mailed or sent by express/cargo delivery must be declared to enhance the tracking and monitoring of cash flows as well.

Setting up an Anti-Money Laundering Office

The Anti-Money Laundering Office was established by the Executive Yuan in March 2017 to organize AML/CFT policies and execution strategies, to perform risk assessment, to monitor the preparations for the third round of the *APG Mutual Evaluation* in 2018, and to show Taiwan’s determination in carrying out AML task.

⁸¹ The amended *Money Laundering Control Act* came into force in June 2017, six months after promulgation.

Strengthening the regulations of the AML/CFT mechanism

The FSC has consulted the latest international standards and published related directions or orders in accordance with the newly amended *Money Laundering Control Act* and the *Terrorist Financing Prevention Act*. The three directions governing AML/CFT for banking, insurance, securities and futures sectors have been revised respectively. The key amendments for banking include:

- Enhancing board governance, the three-layers of defense for internal control, and training & education to foster a culture of AML/CFT compliance.
- Strengthening the management of overseas affiliates by bank headquarters through group-level AML/CFT programs and designated overseas personnel for AML/CFT.
- Enforcing the regulations of on-going account and transaction monitoring to help banks strengthen their ability to identify suspicious transactions.
- Requiring additional measures to be taken over people on the sanction list, politically exposed persons, and correspondent banking activities in order to reduce AML/CFT risks.

The CBC has also amended the *Directions Governing Banking Enterprises for Operating Foreign Exchange Business* in accordance with the rules of wire transfer prescribed by FATF, which requires banks to obtain the related information of remitter and beneficiary while operating inward and outward remittance activities of foreign exchange. The related transaction documents and records as well as all the information for verifying clients' identification should be kept for at least five years.

3.3.5 Synchronizing Taiwan's accounting standards with international norms by adopting IFRS 9 Financial Instruments

In response to the development of the International Financial Reporting Standards (IFRS), Taiwan will further synchronize its accounting standards with international norms by adopting IFRS 9 *Financial Instruments*, starting from January 1, 2018, as scheduled. General industries and financial industries such as financial holding, banking, insurance and securities sectors are required to apply this standard. IFRS 9 is significantly different from current accounting treatments of IAS 39 in the classification of financial assets and the recognition of expected credit losses, for example: (1) IAS 39 financial assets should be classified based on

the intention and ability of the entity,⁸² whereas IFRS 9 bases the classification of financial assets on the contractual cash flow characteristics and the entity's business model for managing the financial assets;⁸³ and (2) IAS 39 adopts an incurred loss model to recognize credit losses, whereas IFRS 9 bases the new impairment requirement on an expected credit loss model.

With the adoption of IFRS 9, financial institutions should evaluate potential impacts and take preemptive actions as early as possible. To this end, the FSC has successively taken assisting measures, including: (1) setting up a joint taskforce on implementation of new IFRSs to tackle possible problems in practices arising from IFRS 9 adoption; (2) supporting the Bankers Association to develop the *Guidance on IFRS 9 Impairment Evaluation Methodology* and related evaluation examples and documents, as well as quarterly review of the implementation of insurance companies; and (3) helping insurance companies clarify the practical issues on the application of the overlay approach with the assistance of the joint taskforce on implementing new IFRSs.

In view of the possible greater effects of IFRS 9 adoption on the financial sector, financial institutions should make adequate preparation to address this impact, including a thorough understanding of the standards, evaluation of the accounting policy, investment policy and internal control systems to identify necessary adjustments, and enhancement of communication with those who are in charge of corporate governance. Financial institutions should make timely release of material information if the result of such evaluation indicates significant impacts on shareholders' rights.

3.3.6 Foreign exchange regulation amendments

Relaxing foreign exchange regulations of banks

In order to promote development of the financial services industry in the context of financial globalization and liberalization, the CBC continued to relax foreign exchange regulations of banks in 2016 as follows:

- To promote Taiwan's development into an offshore renminbi market and to carry out the internationalization and product diversification of the futures market, banks have been allowed to conduct declarations of foreign exchange settlement for transactions of

⁸² An entity is required to classify its financial assets into one of the following categories: financial assets at fair value through profit or loss, available-for-sale financial assets and held-to-maturity investments.

⁸³ An entity is required to classify its financial assets into one of the following categories: financial assets at amortized cost, fair value through other comprehensive income, and fair value through profit or loss.

renminbi/USD options listed on the Taiwan Futures Exchange (TFE) and conducted by the TFE or futures firms since June 27, 2016.

- In September 2016, the CBC revised the *Directions for Issuance of Foreign Currency-Denominated Negotiable Certificates of Deposit by Banks* to encompass the issuance of NCDs denominated in Australian dollars.

Relaxing foreign exchange regulations related to insurance companies

To help insurance enterprises to expand their business and capture business opportunities, the CBC amended the *Regulations Governing Foreign Exchange Business of Insurance Enterprises* twice in March and December 2016, including: (1) relaxing the regulation on business scope related to the subject matter insured of non-life insurance products denominated in foreign currencies to be stipulated separately by competent authorities; (2) regulating the application procedures and administrative compliance of insurance companies which participate in foreign currency syndicated loans; (3) announcing the exceptions for NTD receipt and payment that may be used for foreign currency-denominated non-life insurance policies and the relevant settlement matters.

Accordingly, the relevant settlement and payment matters of non-life insurance policies denominated in foreign currency conducted by insurance enterprises will become more accurate and convenient. In addition, the simplification of application documents for foreign exchange business conducted by insurance enterprises will also help boost the innovation of insurance products.

Relaxing foreign exchange regulations related to securities firms

In order to strengthen the competitiveness of securities firms, expand their business scope, and provide customers with additional services, the CBC continued to relax foreign exchange regulations of securities firms in 2016 as follows:

- The CBC revised the *Regulations Governing Foreign Exchange Business of Securities Enterprises* in March 2017, which allowed securities firms to conduct NTD spot foreign exchange transactions, expanded foreign exchange financial derivatives business, and simplified application procedures for several related businesses.
- In order to conform with the deregulation of NTD spot foreign exchange transactions, the CBC promulgated the *Directions for Domestic Security Firm Approved to Conduct*

Foreign Exchange Business while Assisting Customers to Declare Foreign Exchange Receipts and Disbursements or Transactions in March 2017. Accordingly, the operations for foreign exchange business by securities firms are expected to be more precisely regulated and effectively managed so as to facilitate compliance with the *Regulations Governing the Declaration of Foreign Exchange Receipts and Disbursements or Transactions*.

Given that securities firms are allowed to conduct the above-mentioned businesses, it will provide investors with more diversified financial services, help enhance the quality and quantity of securities businesses, and assist the long-term development of securities enterprises.

Box 2**Electronic payment developments in Taiwan and virtual currency issues**

Taiwan has already established a comprehensive electronic payment and clearing system to ensure the security and efficiency of large-value payments. Moreover, in recent years, under the cooperation between government and private sectors and gradual change in consumer payment behavior, electronic retail payment services are experiencing a vigorous development with increasing diversity.

1. Electronic payment developments in Taiwan

Currently, Taiwan's diversified payment instruments under electronic payment and clearing systems can be divided into three categories, including: (1) electronic funds transferring through bank accounts; (2) credit cards and cash cards for retail consumption; and (3) electronic money with both top-up and consumption functions. In 2016, the total transactions by these three electronic payment instruments reached NT\$615 trillion, 36 times the size of GDP.

1.1 Electronic funds transfers

The transaction amount of electronic funds transferring through bank accounts is enormous, occurring mainly through the CBC Interbank Funds Transfer System (CIFS) and the Interbank Remittance System (IRS) operated by the Financial Information Service Co., Ltd (FISC). In 2016, the total amounts settled through the CIFS and the IRS were NT\$477 trillion and NT\$135 trillion, respectively.

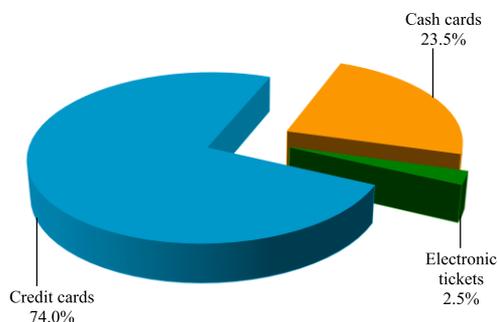
1.2 Credit cards and cash cards

With financial payment services gaining popularity in Taiwan, electronic payment instruments such as credit cards and cash cards are widely used. Total consumption via credit and cash cards in Taiwan was NT\$3 trillion in 2016, with credit cards accounting for about 74% of it.

1.3 Electronic money

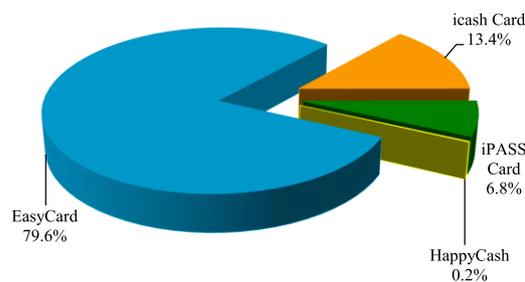
While the transaction amount of electronic funds transferred, credit cards, and cash cards have seen enormous growth, the value of consumption paid for by electronic money remains low (Chart B2.1). Electronic money includes electronic tickets such as EasyCard and stored-value accounts of electronic payment institutions (EPIs) approved by the FSC. Currently, the electronic tickets including EasyCard, icash Card, iPASS Card and HappyCash Card are mainly issued by non-banks.¹ In 2016, the total consumption

Chart B2.1 Consumption by electronic money in 2016



Sources: FSC and FISC.

Chart B2.2 Consumption by electronic tickets in 2016



Sources: FSC and FISC.

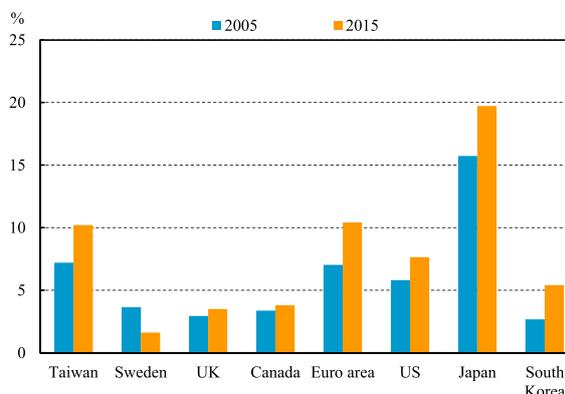
amount paid for by electronic tickets was NT\$74.5 billion, with EasyCard contributing nearly 80% (Chart B2.2). Until recently, the FSC has approved five non-bank EPIs including O’ Pay, GAMA Pay, Pay2go, Interpay and ezPay, yet their trading volumes remained small.

2. The CBC has continuously assisted the development of electronic payment

In recent years, the banknote issuance to GDP ratio has shown an upward trend in most countries, except for Sweden. Even in economies with well-developed electronic payment systems such as the US, South Korea, the euro area and Japan, the public is still using cash frequently. This shows that cash continues to be an important payment instrument for retail consumers (Chart B2.3).²

Taiwan has diversified and convenient electronic payment instruments. However, apart from credit cards, most of the public are used to paying by cash for daily purchases. In order to promote electronic payment, the CBC has urged the FISC to assist in the development of payment instruments such as cash cards payment and mobile payment. In particular, for mobile payment, the FISC will provide a full scope of payment services for bank account transferring,

Chart B2.3 Banknote issuance to GDP ratio in major countries



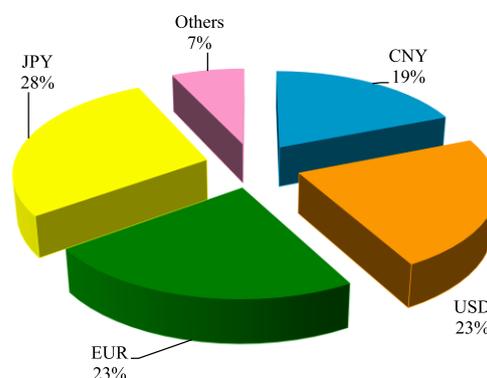
Sources: AREMOS database and CPMI (2016).

Chart B2.4 Bitcoin price



Source: bitcoin charts.

Chart B2.5 Bitcoin trading in different currencies



Note: Figures are for March 2017.
Source: bitcoin charts.

fee and tax payment, and shopping, and establish a secure and convenient identity authentication mechanism.

3. Virtual currency issues

From 2009 onwards, driven by the development of internet technology, many virtual currency systems have been created. One of the most notable examples is bitcoin, which applies the blockchain technology to build a decentralized P2P network.

3.1 Bitcoin price fluctuated significantly

According to CoinMarketCap, there are over 650 kinds of virtual currencies as of the end of March 2017, with total market value of about US\$25 billion. Within them, bitcoin accounts for 67.1% of total market value. In March 2017, the bitcoin price is about US\$1,100 per unit, with circulation of more than 16 million units. In the past, the renminbi was the main bitcoin trading currency, accounting for over 80% of the total. However, after Mainland China's government strengthened the supervision on bitcoin trading platforms to prevent the public from using bitcoin to circumvent capital control, the renminbi bitcoin trading market saw a significant decline in trading volume and extremely high price volatility (Chart B2.4). As a result, in March 2017, the Japanese yen became the largest trading currency in the bitcoin market, accounting for 28%, while the US dollar and the euro each accounted for 23%, and the renminbi only made up 19%³ (Chart B2.5).

3.2 Virtual currencies are not currencies

From a legal and economic point of view, the IMF considers virtual currencies not yet satisfying the definition and characteristics⁴ of a currency. In addition, according to an ECB survey, owing to low usage and very limited linkage with the real economy, bitcoin will not impact the operation of monetary policy and financial markets.⁵ The ECB also considered bitcoin to be more like a value transfer instrument rather than a payment instrument.

Moreover, the US Securities and Exchange Commission (SEC) rejected the listing of a bitcoin exchange-traded fund (ETF) on the Bats exchange in March 2017, since it was considered inconsistent with the *Securities and Exchange Act* requirement that the rules of a national securities exchange should be designed to prevent fraudulent and manipulative acts, as well as to protect investors and promote public interest. Currently, the virtual currency regulations in the international arena are focusing on the supervision of its trading platforms. For example, the platforms should register or obtain a license to prevent from hiding users' identities through the network of virtual currencies and conducting illegal actions such as money laundering and terrorist financing.

3.3 The CBC reminded the public to pay attention to virtual currency investment risk and initiated research on digital currency issues

Considering that bitcoin has the characteristics of high price volatility, high speculation and significant investment risk, the CBC and the FSC jointly issued a press release on December 30, 2013, stating that virtual currencies such as bitcoin are highly speculative commodities and reminding investors of the related risk-taking issue. The FSC also issued a press release on January 6, 2014, requiring financial institutions not to receive or cash out bitcoin, as well as not to provide bitcoin-related services on ATMs. The Ministry of Justice is also paying attention to anti-money laundering issues relating to bitcoin.

With respect to the issue of applying new technologies to introduce digital currencies, the CBC has set up a Digital Finance Group to conduct related research. To date, no central bank has issued digital currency yet. Although some central banks, such as the Bank of England and the People's Bank of China, have initiated some research on digital currencies, technique, business model, security and privacy protection issues remain unsolved. In March 2017, Jerome H. Powell, a governor on the board of the US Federal Reserve System, publicly expressed his conservative attitude about central banks issuing digital currencies. His reason was mainly that bitcoin technology development in the

short run still cannot prevent global hacker attacks, and users' serious privacy concerns about digital currencies could arise if public transactional records were in the hands of a central bank or government.⁶

4. Conclusion

In addition to continuing to promote the development of domestic electronic payment, the CBC has set up a group to monitor the latest developments and study the emerging technologies including blockchain, to keep in step with evolving financial technology trends. Moreover, the CBC has planned to run proof of concept tests with the collaboration of the academia and related industries, in order to assess the feasibility of applying emerging technologies to financial services.

Notes: 1. The stored value balance in non-banks was NT\$6.94 billion, while that in banks was NT\$0.04 billion.

2. See CPMI (2016), *Statistics on Payment, Clearing and Settlement Systems in the CPMI Countries – Figures for 2015*, BIS, December.

3. Website data of CoinMarketCap and bitcoin charts, retrieved on February 18, 2017.

4. See IMF (2016), *Virtual Currencies and Beyond: Initial Considerations*, IMF Staff Discussion Notes, No.16/3.

5. See ECB (2015), *Virtual Currency Schemes - A Further Analysis*, ECB Publication, February.

6. See the speech by Jerome H. Powell, the governor of the Fed, on March 3, 2017, *At Blockchain: The Future of Financial and Capital Markets?*

Box 3

Establishment and development of FinTech innovative experimentation mechanism

In response to financial technology (FinTech) development, the British Financial Conduct Authority (FCA) published the Regulatory Sandbox report in 2015, providing an experimentation environment for FinTech innovative products, services or business models. Thereafter, Singapore, Hong Kong and Australia successively established similar experimentation mechanisms. By definition, a regulatory sandbox is a supervisory approach that provides a safe space where innovative products, services and business models can be tested practically under a specific, risk-controllable and risk-recognizable environment with legal exemptions during the experimentation period.

For the purpose of encouraging Taiwan's financial services and related industries to take advantage of innovative technologies, as well as enhancing efficiency and quality of financial services, the FSC promulgated the draft bill of the *Financial Technology Innovative Experimentation Act*, to build an experimentation mechanism similar to a financial regulatory sandbox. The aim is to promote Taiwan's FinTech innovation while ensuring financial market order and consumer protection at the same time. The following are the latest developments of financial regulatory sandboxes in major economies and its implementation progress in Taiwan.

1. The latest developments in major countries

Currently, most of the countries that have set up regulatory sandboxes have the legal systems of common law. Among them, the UK, Singapore and Australia have more concrete and detailed sandbox regulations, mainly because judges of common law systems are bound to the precedents, known as the doctrine of stare decisis. Therefore, the competent authorities could set up standards or plans based on their legal mandate without going through legislative procedures. By contrast, in countries with statutory legal systems such as Japan, South Korea and Taiwan, legislative authorization is necessary if such an experimentation mechanism is to be set up.

The UK was the first country to propose a regulatory sandbox, with the British FCA publishing the Regulatory Sandbox report in November 2015. Singapore, Hong Kong and Australia followed suit shortly after. Singapore essentially followed the UK's principles, while Australia provided start-ups a 12-month testing period after notifying the competent authority. In Hong Kong, the competent authority does not stipulate specific operational guidelines, but provides application review and assistance on a case

by case basis. The FinTech experimentation mechanisms in these countries are summarized in Table B3.1.

In addition to the aforementioned economies, other Asian countries also made some progress in establishing their own financial regulatory sandboxes. Thailand and Malaysia issued related guidelines or frameworks in 2016,¹ and Indonesia launched a FinTech office in charge of promoting FinTech development in November of the same year. South Korea's Financial Services Commission (FSC) established a FinTech Bridge with the British FCA to enhance bilateral cooperation. Japan enacted the *Industrial Competitiveness Enhancement Act* to encourage firms to develop experimental business and services in the fields where existing regulatory scope is unclear, and will revise relevant existing regulations according to the experimental results.

Table B3.1 Comparison of innovative experimentation mechanisms in major countries

Items	The UK	Singapore	Australia	Hong Kong
The competent authority	Financial Conduct Authority (FCA)	Monetary Authority of Singapore (MAS)	Australian Securities and Investments Commission (ASIC)	Hong Kong Monetary Authority (HKMA)
Titles of guidelines (Release date)	Regulatory Sandbox (2015.11)	FinTech Regulatory Sandbox Guidelines (2016.11)	Regulatory Guide 257 (2017.2)	FinTech Supervisory Sandbox (2016.9)
Applicable firms	Authorized and unauthorized financial firms	Financial institutions and non-financial institutions	Non-financial institutions	Authorized financial institutions
Review period	3 months	<ul style="list-style-type: none"> • 21 work days for document review • Qualified applications will step to an evaluation stage without a stipulated time period 	Testing period commences 14 days after the ASIC is notified	Not stipulated
Testing period	3-6 months	6 months (extension possible)	12 months (no extension)	Case by case
Size of clients	Small scale (limited number of clients)	50 clients	<ul style="list-style-type: none"> • 100 retail clients • No limits for wholesale clients 	Limited number of clients (not specified)
Application criteria	<ul style="list-style-type: none"> • Firms involved in FinTech • Genuine innovation • Beneficial to customers 	<ul style="list-style-type: none"> • Proposing financial products or services that are unavailable currently 	<ul style="list-style-type: none"> • The maximum exposure is AUD\$5 million for all clients and AUD\$10,000 for 	<ul style="list-style-type: none"> • Clear definitions about the scope and phases of the trial

	<ul style="list-style-type: none"> • When experiment is needed • Providing related research reports 	<ul style="list-style-type: none"> • Applying new technology to financial products and services 	<ul style="list-style-type: none"> • Adequate compensation arrangements • Establishing mechanisms to solve consumer disputes • Conforming to requirements of information disclosure and business conduct 	<ul style="list-style-type: none"> • Customer protection measures • Risk management mechanisms • Preparedness and follow-up monitoring
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Sources: ASIC (2017), FCA (2015), HKMA (2016) and MAS (2016).

2. Implementation progress in Taiwan

To facilitate the development of FinTech innovation in Taiwan, a number of legislators put forward several drafts of law amendments related to regulatory sandbox establishment at the end of 2016. The Finance Committee of the Legislative Yuan also proposed to amend eight pieces of financial laws² such as the *Banking Act* and the *Insurance Act* to incorporate articles related to FinTech innovative experimentation mechanisms after a review meeting held in December 2016. However, to ensure the thoroughness of legislation, the FSC formulated a draft of the *Financial Technology Innovative Experimentation Act* after discussing with related agencies, with inputs from financial and technology industries as well. This draft has been approved by the Executive Yuan and was submitted to the Legislative Yuan for review in May 2017.

The aforementioned draft covered FinTech innovation experimentation application, review, participant protection, regulatory adjustments and exemption of legal liabilities during the experimentation period, as summarized in Table B3.2.

Table B3.2 Contents of the *Financial Technology Innovative Experimentation Act*

Items	Contents
Applicable clients	Natural person, sole proprietorship or partnership company and juristic person can apply for the permit of engaging in the experimentation.
Review mechanism	<ul style="list-style-type: none"> • The competent authorities should convene meetings to review the application and experimentation outcomes. The reviewers include experts, scholars and related agencies coming from finance, technology and other related areas. • When required documentation is submitted, the reviewing process should be completed within 60 days. The review criteria include innovations, financial service efficiency, complete risk assessment and participant protection.
Experimentation period	The experimentation period is six months and the applications can be

	extended for an additional six months. If the applicants need to adjust business qualification in accordance with the regulatory requirements, they may apply for another six months of experimentation.
<ul style="list-style-type: none"> Participant protection 	<ul style="list-style-type: none"> Applicants should provide protective measures and opt-out mechanisms for participants and stipulate experimentation scope as well as rights and obligations in the contracts consented by participants. Any civil dispute arising between applicants and participants will be mediated by the Financial Ombudsman Institution.
<ul style="list-style-type: none"> Regulatory measures after experimentation 	<ul style="list-style-type: none"> Applicants should inform the competent authority to convene an appraisal meeting within one month after the experimentation is finished. The appraisal meeting should accomplish the evaluation process within 60 days. Taking into account the experimentation process, the competent authority should review and revise financial regulations as necessary, as well as providing assistance to the applicants for their startup, strategic cooperation or referral to other consulting units.
<ul style="list-style-type: none"> Exemption from applicable regulations and legal obligations 	<ul style="list-style-type: none"> The competent authority and other agencies could agree to grant exemption from applicable regulations and administrative directives. The draft provides the exemption from criminal and administrative obligations in special licensed financial businesses within the scope of experiments authorized by the competent authority.

Source: Executive Yuan.

3. Conclusion

- (1) As FinTech development has evolved rapidly in recent years, difficulties regarding financial law or regulation adoptions faced by some innovative business models might hinder the development of the innovative activities. Establishing innovative experimentation mechanisms is expected to provide innovative financial products and services in a safe experimentation environment by offering legal exemption, with the benefit of encouraging financial innovation.
- (2) Currently, those countries that established innovative experimentation mechanisms have formulated related operational guidelines and started to accept applications. However, their effectiveness and impacts on banks still warrant close attention.
- (3) Development of financial technology innovation could raise the accessibility, usage and quality of financial services and promote financial inclusion. However, when encouraging innovative experimentation, the competent authority should enhance consumer protection, maintain fair competition in the market and ensure they do not undermine financial stability.

Notes: 1. The Bank of Thailand issued the *FinTech Regulatory Sandbox Guidelines draft* in September 2016. Bank Negara Malaysia also issued *Financial Technology Regulatory Sandbox Framework* in October 2016.

2. The eight pieces of financial Laws include *Banking Act, Insurance Act, Securities and Exchange Act, Futures Trading Act, Trust Enterprise Act, Securities Investment Trust and Consulting Act,*

Act Governing Issuance of Electronic Stored Value Cards and The Act Governing Electronic Payment Institutions.

- References:
1. The *Financial Technology Innovative Experimentation Act* draft, which was sent by the Executive Yuan to the Legislative Yuan for review on May 5, 2016.
 2. Australian Securities and Investments Commission (2017), *Regulatory Guide 257*, February.
 3. FCA (2015), *Regulatory Sandbox*, November.
 4. Hong Kong Monetary Authority (2016), *FinTech Regulatory Sandbox*, Press Release, September.
 5. Monetary Authority of Singapore (2016), *FinTech Regulatory Sandbox Guidelines*, November.