

# *Central Bank Operations*

## III. Central Bank Operations

### 1. Overview

For the year 2017, uncertainties still cast a shadow over the global economic outlook, while the domestic economy experienced steady expansion and the output gap remained negative. Current inflationary pressures and future inflation expectations stayed anchored, and Taiwan's real interest rate stood at an appropriate level. In light of the above developments, the CBC kept the policy rate unchanged to help safeguard price and financial stability and foster economic growth.

To further enhance the transparency of monetary policy decision making, the CBC announced that it would publish the meeting minutes six weeks after the Monetary Policy Meeting, beginning from June 2017. The minutes were first published on August 3, 2017, with contents including monetary policy considerations and interest rate decision, list of attendees, and voting results (with names).

In response to economic and financial conditions, the CBC continued to conduct open market operations by issuing certificates of deposit (CDs) to manage market liquidity, maintain reserve money at appropriate levels and sustain steady growth in monetary aggregates.

In addition, to increase the flexibility of open market operations and to meet financial institutions' portfolio diversification needs, the CBC issued 7-day CDs on a regular basis, starting from April 2017. On the other hand, the monthly amounts of 364-day CDs and 2-year CDs issued both increased by NT\$10 billion from May and August onwards, respectively. The outstanding amount of CDs issued by the CBC totaled NT\$7,880 billion at the end of the year, up by NT\$292 billion or 3.86% from the previous year end. With respect to money supply, reserve money rose at an average annual rate of 5.04%, while M2 growth averaged at a pace of 3.75% for the year as whole, within the CBC's target range of 2.5% to 6.5%.

Given that largely volatile high-value housing prices may raise banks' real estate-associated credit risks, the regulations governing high-value housing loans introduced by the CBC stayed in place. The CBC would continue to keep watch on banks' risk management of real estate lending and developments in the housing market in order to sustain financial stability.

In regard to foreign exchange management, the CBC steadily promoted the internationalization of capital markets and amended relevant foreign exchange regulations in continual cooperation with the Financial Supervisory Commission (FSC). To name a few, adjustments to forex business related regulations made by the CBC included allowing securities enterprises to engage in New Taiwan dollar spot foreign exchange transaction business and planning to expand the permissible scope of banks' electronic forex services.

In 2017, to advance the safety and efficiency of payment system operation, the CBC stepped up efforts to reinforce financial infrastructure and urged clearing institutions to strengthen payment system governance and information security. Meanwhile, the CBC continued to closely monitor the latest trends in financial technology and assisted financial institutions in developing innovative financial services such as electronic payments.

## 2. Monetary Management

### Keeping Policy Rates Unchanged to Maintain Price and Financial Stability

In 2017, the global economic outlook still faced uncertainties, while the domestic economy was on a mild recovery path and the output gap remained negative. Both inflationary pressures and future inflation expectations also stayed anchored. Based on the above assessment, the CBC kept policy rates unchanged in the course of the year so as to maintain price and financial stability and to promote economic growth.

At the end of 2017, the discount rate, the rate on accommodations with collateral, and the rate on accommodations without collateral remained at their current levels of 1.375%, 1.75%, and 3.625%, respectively.

### Conducting Open Market Operations to Sustain Steady Monetary Growth

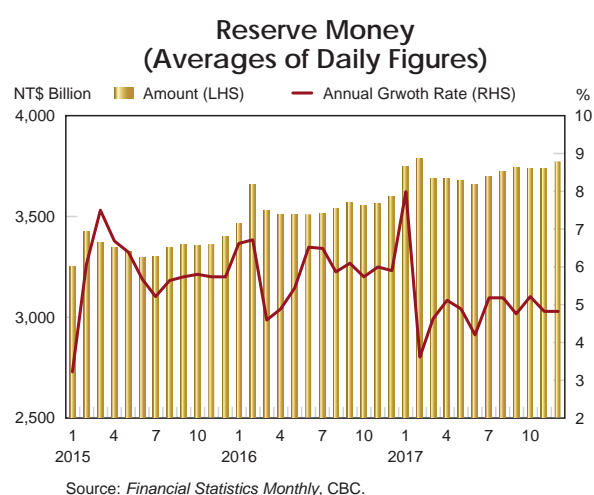
In 2017, the CBC continued to conduct open market operations by issuing certificates of deposit (CDs) to maintain reserve money and monetary aggregates at appropriate levels.

#### (1) Managing Market Liquidity

To increase the CBC's flexibility in open market operations and meet financial institutions' demand for asset allocation, the monthly amounts of 364-day CDs issued from May onwards and 2-year CDs issued from August onwards both increased by NT\$10 billion to NT\$170 and NT\$40 billion, respectively. Moreover, the CBC began to issue 7-day CDs on a regular basis from April 2017. The total outstanding amount of CDs issued by the CBC was NT\$7,880 billion at the end of the year.

#### (2) Slower Growth in Reserve Money

Reserve money grew at a slower pace for the year 2017, recording a growth rate of 5.04%, 0.88 percentage points lower than the previous year's figure. In terms of the monthly movements of reserve money, the annual growth rates of reserve money for January and February are often more volatile as the exact timing of the Lunar New Year holidays shifts on the Gregorian calendar each year. In 2017, they posted an average annual growth rate of 5.75% during



this period. Growth rates remained relatively stable from March onwards, and reached a yearly high of 5.23% in October and a yearly low of 4.22% in June.

On the demand side, reserve money, measured on a daily average basis, increased by NT\$179 billion over the previous year. Of the components, net currency increased by NT\$116 billion and the annual growth rate slightly decreased to 7.00% from 7.19% the previous year; reserves held by financial institutions expanded by NT\$63 billion with an annual growth rate decreasing to 3.32% from 4.84% the previous year. Currency held by the non-bank public grew moderately because the low interest rates paid on bank deposits enhanced the willingness to hold currency in hand. Meanwhile, the overall growth rate of banks' reserves decreased compared to the previous year as slower growth in transaction deposits reduced banks' demand for reserves.

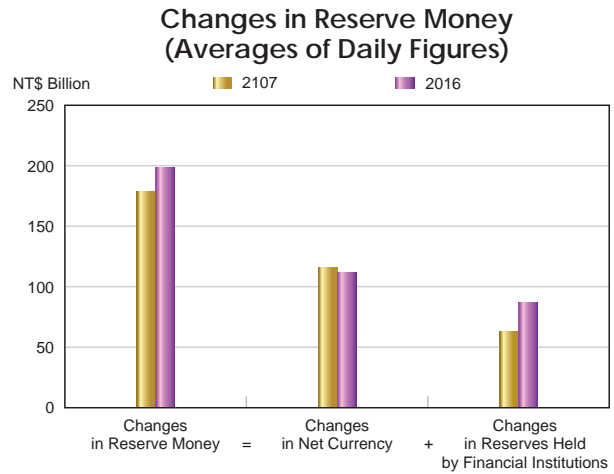
From the supply side perspective, reserve money increased by NT\$146 billion at the end of the year. The balance sheet of the CBC revealed the sources of changes in reserve money. The increase was mostly attributable to the growth in foreign assets held by the CBC and claims on financial institutions, while the decrease resulted largely from the increase in the issuance of CDs.

(3) Overnight Call Loan Rate Broadly Stable

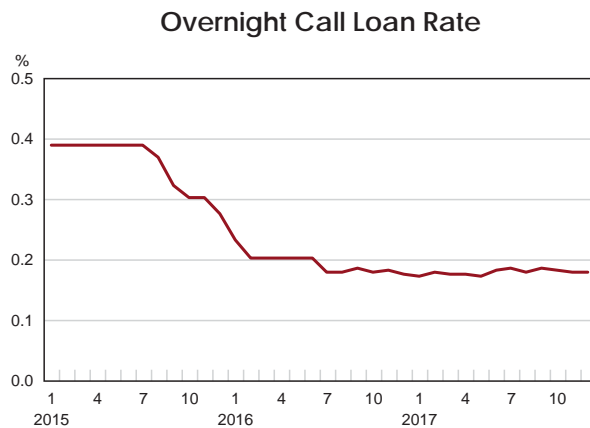
In 2017, the CBC continued to conduct open market operations to maintain excess reserves and the overnight call loan rate at appropriate levels. The annual average excess reserves of financial institutions reached NT\$46 billion, slightly higher than the NT\$44 billion of the previous year. The annual average overnight call loan rate remained broadly stable at around 0.180%.

(4) M2 Growth Slower but Within Target Range

The monetary aggregate M2 has served as the CBC's intermediate target for monetary policy since 1992. The M2 growth target range for 2017 was set at 2.5% to 6.5% and the midpoint was 4.5%. M2 recorded an annual growth rate of 3.75%, down by 0.76 percentage points from the previous year. The annual growth rates of



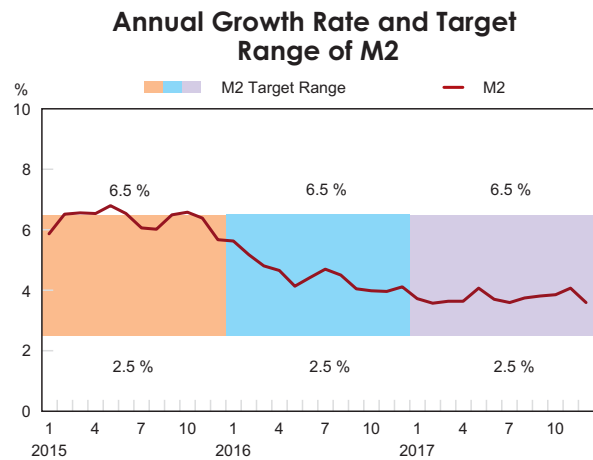
Source: Financial Statistics Monthly, CBC.



Source: Financial Statistics Monthly, CBC.

M2 in every month of the year remained within the CBC's target range.

In terms of monthly movements in 2017, the M2 growth rate trended down for the first two months, reflecting slower growth in foreign currency deposits and in bank loans and investments, and reached its yearly low of 3.56% in February. The M2 growth rate moved upward from 3.64% in March to 4.07% in May on account of faster growth in bank loans and investments and net foreign capital inflows. After slightly declining to 3.60% in July, the M2 growth rate returned to an uptrend in subsequent months and hit a yearly high of 4.07% in November, driven by higher growth in foreign currency deposits, stronger expansion in bank loans and investments, and net foreign capital inflows. However, softened growth in bank loans and investments and net foreign capital outflows in December brought down the pace of monthly M2 growth to 3.60%.

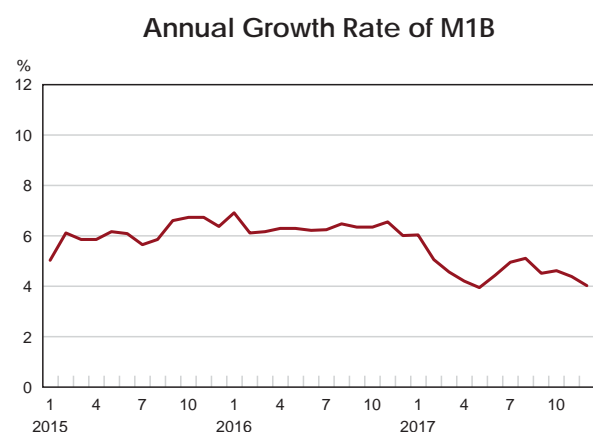


Source: Financial Statistics Monthly, CBC.

In terms of monetary aggregate M1B, it rose at an annual rate of 4.65% in 2017 (on a daily average basis), 1.68 percentage points lower than the previous year's figure. The slide was primarily caused by a deceleration in the growth of transaction deposits and a higher base in the previous year.

With regard to the monthly movements of M1B, its annual growth rate hit a yearly high of 6.05% in January on account of higher demand for funds prior to the Lunar New Year holidays. From February onwards, as growth in transaction deposits moderated, the M1B growth rate moved downward and hit an all-year low of 3.94% in May.

The M1B growth rate exhibited a steady uptrend from June to August owing to a faster growth in transaction deposits. In the following months, a shift of funds from transaction deposits to non-transaction deposits led the growth rate of M1B to decline. Later, weaker growth in bank loans and investments and net foreign capital outflows dragged the M1B annual growth rate down to 4.03% in December.



Source: Financial Statistics Monthly, CBC.

### Amending Relevant Regulations in Line with IFRS 9

In response to the development of the widely-applied International Financial Reporting Standards (IFRS), financial institutions in Taiwan are required to adopt the latest accounting standard, IFRS 9-Financial Instruments (IFRS 9), from 2018 onwards. In order to address the transition to IFRS 9, the CBC published amendments to the *Directions for Auditing Liquidity of Financial Institutions* on December 21, 2017, which would be effective from January 1, 2018. The regulations were adjusted to be in line with changes in the new accounting standard.

### Continuing with Macroprudential Policy on High-Value Housing Loans

Although housing market transactions slightly picked up in 2017, housing prices fluctuated within a narrow range and home buyers still held a conservative attitude toward the housing market outlook. However, given that largely volatile high-value housing prices could still raise banks' real estate-associated credit risks, the CBC decided to keep the loan-to-value (LTV) ratio capped at 60% on high-value housing loans.

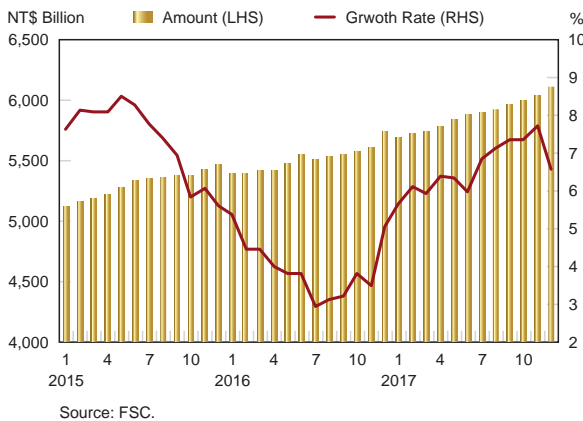
The CBC will continue to keep watch on banks' real-estate lending and developments in the housing market. Appropriate monetary policy actions will be adopted in a timely manner so as to achieve the operational objectives for the CBC to sustain financial stability.

### Facilitating SME Funding

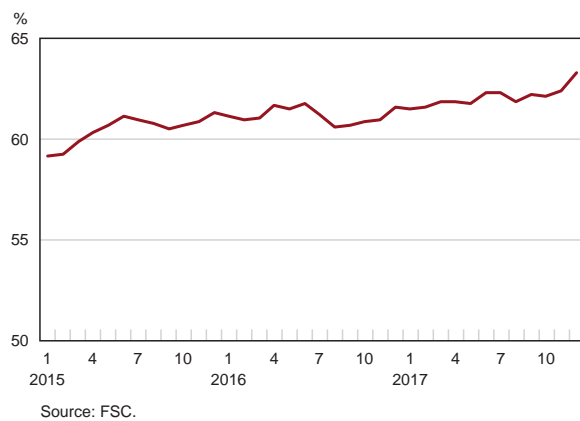
To sufficiently meet SME's funding needs, the Financial Supervisory Commission (FSC) continued to encourage lending to SMEs by domestic banks. Meanwhile, the CBC also urged commercial banks to increase lending to SMEs.

At the end of 2017, the outstanding loans extended to SMEs by domestic banks amounted to NT\$6,102 billion, increasing by NT\$376 billion or 6.56% from the end of the previous year. The ratio

Outstanding Loans Extended to SMEs



Ratio of Outstanding Loans Extended to SMEs to Those Extended to Private Enterprises



of the outstanding SME loans to those extended to private enterprises rose slightly from 61.56% at the end of 2016 to 63.28% at the end of 2017.

### **Accepting Redeposits from Financial Institutions**

Accepting redeposits from Chunghwa Post, the Agricultural Bank of Taiwan and commercial banks is another instrument for the CBC to influence banks' reserve positions to promote financial stability. At the end of 2017, the outstanding redeposits of Chunghwa Post and the Agricultural Bank of Taiwan stayed unchanged at NT\$1,624 billion and NT\$165 billion, respectively. Commercial banks' redeposits amounted to NT\$364 billion, decreasing by NT\$20 billion from the end of the previous year.



### 3. Foreign Exchange Management

Taiwan adopts a managed float exchange rate regime and the NT dollar exchange rate is in principle determined by market forces. In the event of excessive exchange rate volatility, the CBC would conduct "leaning against the wind" operations to stave off adverse implications for economic and financial stability. In 2017, the CBC continued employing a flexible exchange rate policy and maintaining the dynamic stability of the NT dollar exchange rate. The CBC is also committed to facilitating the order and development of the foreign exchange (FX) market.

In 2017, the CBC continued to implement the Real-Time Reporting System for Large-Amount Foreign Exchange Transactions to maintain an orderly market. Moreover, reinforced examination efforts were made to ensure that forward transactions were based only on actual transactions. The CBC also urged authorized banks to enhance their exchange rate risk management in order to reduce FX market exposure of individual banks and to contain systemic risk. The CBC continued to strengthen the inspection of foreign exchange business projects in order to maintain the order of the FX market.

#### Foreign Currency Call Loan and Swap Market Management

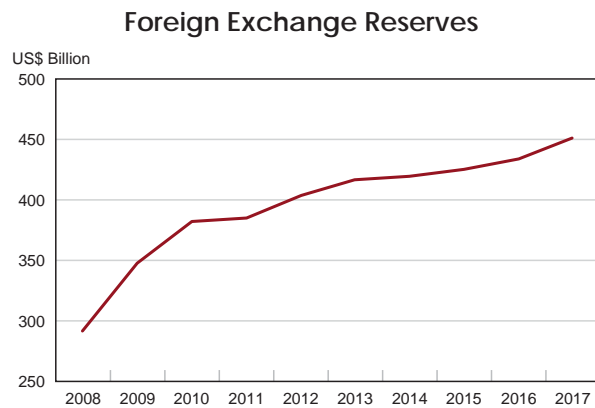
In order to provide the financial system with sufficient foreign currency liquidity to meet funding needs, including those for corporations to venture into overseas markets, the CBC provided seed funds for the Taipei Foreign Currency Call Loan Market, including US\$20 billion, €1 billion and ¥80 billion.

Furthermore, to facilitate smooth corporate financing and providing sufficient foreign currency liquidity within the banking system, the CBC continued to conduct foreign currency swap transactions with banks and offered foreign currency call loans to banks.

#### Foreign Exchange Reserve Management

The CBC manages its foreign exchange reserves based on the considerations of liquidity, safety, and profitability as well as fostering economic development. The CBC keeps watch on the global economic and financial situation and the financial conditions of the counterparties and adjusts the FX reserves as warranted.

At the end of 2017, total FX reserves stood at US\$451.5 billion, a US\$17.3 billion or 4.0% increase



Source: Department of Foreign Exchange, CBC.

from the end of 2016, mainly attributable to returns from FX reserve investments and an increase in the conversion value of non-US dollar assets, as they appreciated against the US dollar in 2017.

### Capital Flow Management

The CBC's FX management mainly relies on the market mechanism and capital can, in principle, flow freely in and out of Taiwan. As of 2017, foreign currency capital not involving NT dollar conversion has been able to flow freely. Additionally, there are no restrictions on financial flows involving NT dollar conversion for goods and service trade, nor for direct and securities investments approved by the competent authorities. However, regulation exists for short-term remittances. Annual remittances for an individual resident within US\$5 million and for a juridical person within US\$50 million can be settled by banks directly, while annual remittances above the aforementioned amounts require the approval of the CBC. Each transaction for a non-resident within US\$0.1 million can be settled by banks directly, whereas any transaction amount above that threshold requires the approval of the CBC.

Key measures with regard to the management of capital flows in 2017 included:

#### (1) Amending corresponding FX regulations

In line with the declaration procedures for electronic foreign exchange settlement and to maintain the powers of the declarants, the CBC amended the *Regulations Governing the Declaration of Foreign Exchange Receipts and Disbursement or Transactions* and its attachment the *Declaration Statement of Foreign Exchange Receipts and Disbursements or Transactions*, and *Directions for Banking Enterprises While Assisting Customers to Declare Foreign Exchange Receipts and Disbursements or Transactions*. The above amendments came into effect on March 29.

In order to provide clear guidance for and promote the effectiveness of securities firms' FX business operations, as domestic securities firms would be allowed to carry out spot FX transactions involving NT dollars, the CBC promulgated the *Directions for Domestic Securities Firms Approved to Conduct Foreign Business While Assisting Customers to Declare Foreign Exchange Receipts and Disbursements or Transactions*, effective March 29.

In view of the FSC's revision of the *Money Laundering Control Act*, the CBC urged securities companies to comply with the regulations on anti-money laundering and combating the financing of terrorism. The CBC also amended the *Regulations Governing Foreign Exchange Business of Securities Enterprises*, which went into effect on December 30.

#### (2) Promoting the internationalization of Taiwan's capital market

In 2017, the CBC approved the fund-raising by domestic and foreign institutions through bond issuance, as shown in the following table:

### CBC-Approved Fund-Raising by Domestic and Foreign Institutions

Institution	Method	Number	Amount
Foreign companies	IPO on TWSE & TPEX and registration on the Emerging Stock Board	22	NTD 17.9 billion
	NTD convertible bonds	8	NTD 7.7 billion
	International bonds	64	USD 37.8 billion RMB 1.6 billion ZAR 2.2 billion NZD 0.008 billion
Domestic companies	Overseas convertible bonds	3	USD 0.6 billion

Note: TWSE (Taiwan Stock Exchange) ; TPEX (Taipei Exchange) .  
Source: Department of Foreign Exchange, CBC.

In addition, on March 13, the CBC relaxed the restriction on investment by overseas Chinese and foreign investors, allowing them to invest in the private placement of convertible corporate bonds, exempt from the 30% cap on their investment in government bonds, corporate bonds, financial bonds, money market instruments, and money market funds.

#### (3) Approving residents' investments in foreign securities

In 2017, the CBC approved the following investments in foreign securities by residents:

### Residents' investments in Foreign Securities Approved by the CBC

Institution	Method/Instrument	Amount
Securities investment trust enterprises (SITEs)	79 domestic SITE funds (including 50 NTD-foreign multiple currency SITE funds)	NTD 1,798.1 billion (including multiple currency funds: NTD 1,090 billion)
	2 SITE private funds	NTD 8.0 billion
	7 domestic futures trust funds for qualified persons	NTD 140.0 billion
Life insurance companies	Non-discretionary money trusts managed by financial institutions	USD 0.7 billion
	Investment for their own accounts	USD 3.2 billion
	Lowering overseas investment hedge positions	USD 1.0 billion
Five major government pension funds and employment insurance fund	Investment for their own accounts	USD 4.8 billion

Source: Department of Foreign Exchange, CBC.

## Management of the FX Business of Financial Institutions

### (1) Authorized FX banks

Pursuant to the *Central Bank of the Republic of China (Taiwan) Act* and the *Foreign Exchange Regulation Act*, the CBC reviews, authorizes and supervises banks to conduct FX business accordingly. In 2017, the CBC continued to approve bank branches as authorized FX banks and loosened restrictions on FX derivative product business in order to facilitate authorized FX banks' competitiveness and services quality. Related developments in 2017 are as follows:

At the end of 2017, there were 3,445 authorized FX banks in total, which included 39 head offices and 3,368 branches of domestic banks, 35 branches of 26 foreign banks, three branches of Mainland Chinese banks, as well as 4,691 authorized money exchangers, post offices, and financial institutions authorized to engage in basic FX business.

In 2017, the CBC continued to simplify and upgrade the process of banks' FX business via electronic and communications equipment. On September 14, the CBC announced the plan to revise the *Regulations Governing Foreign Exchange Business of Banking Enterprises*, which will allow banks to open digital FX deposit accounts online for clients. The CBC also planned to amend the *Directions Governing Banking Enterprises for Operating Foreign Exchange Business* and the *Directions Governing Authorized Banks for Operating Foreign Exchange Business Through Electronic and Communications Equipment*.

### (2) Insurance companies

Up to the end of 2017, 21 insurance companies were allowed to engage in foreign currency insurance business including both traditional and investment-linked foreign currency insurance products. The 2017 foreign currency premium revenue was US\$31.8 billion, an increase of US\$8.9 billion or 38.7% over the previous year.

### (3) Securities firms, securities investment trust and consulting firms, and futures firms

In order for a timely review and improvement of FX business of the securities industry, the *Regulations Governing Foreign Exchange Business of Securities Enterprises* was revised twice within 2017:

On March 27, the CBC gave the greenlight for securities firms to carry out NT dollar FX spot business, expanded the permitted scope of FX derivative business, and simplified the application procedures for several types of FX business.

On December 28, the CBC further allowed securities firms that accept orders to trade foreign securities with receipt payment settled in foreign currency, to keep customers' settlement funds in

the customers' separate accounts ledger. The CBC also allowed securities firms to, with the CBC's approval, obtain the settlement funds upon maturity in NT dollars when conducting repo trades of foreign currency securities.

The approved cases granted by the CBC for securities firms, investment trust and investment consulting firms and futures firms to manage FX business as of 2017 are shown in the following table.

### Approved cases for securities firms, bills finance firms and futures firms to manage FX business in 2017

Institution	FX Business	Number
Securities firms	Agents for foreign bond trading	1
	Underwriting international bonds	1
	Domestic agent for private placement of foreign currency- denominated funds	1
	Brokerage trading of onshore and offshore securities	1
	Proprietary foreign securities trading neither belonging to investment with their own funds nor for hedging needs	4
	Non-discretionary individually managed money trust wealth management	1
	Foreign currency discretionary investments in foreign securities	1
	Domestic foreign currency ETF liquidity providers	1
Bills finance firms	Foreign currency bills certification, underwriting, brokerage and dealing	1
investment trust and investment consulting firms	Mandated institution of private offshore funds	1
	Foreign currency discretionary investments in foreign securities	4
	Conducting public offer or private placement of foreign currency- denominated funds	2
Futures firms concurrently operating as leverage transaction merchants	Foreign currency margin trading	1

Source: Department of Foreign Exchange, CBC.

#### (4) Offshore Banking Units (OBUs)

At the end of 2017, the number of OBUs was 61, and total OBU assets reached US\$202.95 billion, which was US\$16.92 billion or 9.1% more than the end of the previous year. The sum of OBU post-tax net profit was US\$2.7billion, an increase of US\$0.4 billion or 17.3% from a year ago.

**(5) Offshore Securities Units (OSUs)**

At the end of 2017, 18 OSUs were approved and established, and total OSU assets reached US\$5.11 billion, which was US\$1.52 billion or 42.6% more than the previous year end. The total OSU pretax net profits in 2017 were US\$9.29 million, an increase of US\$41.1 million or 79.5% from 2016.

**(6) Offshore Insurance Units (OIUs)**

Up to the end of 2017, 20 insurance firms were approved to establish OIUs. Total OIU assets reached US\$0.47 billion, which was US\$0.26 billion or 125.7% more than the previous year end. Total OSU profits turned into a net post-tax loss of US\$14.3 million in 2017, a decrease of US\$15.9 million from the net profits of US\$1.6 million of 2016.

**RMB Exchange Business**

Since February 6, 2013, when authorized FX banks or DBUs began to conduct RMB business, domestic RMB business has been flourishing. By the end of 2017, there were 67 DBUs and 59 OBUs engaging in RMB business. The balance of RMB deposits amounted to RMB322.3 billion; RMB remittances totaled RMB1,332.9 billion in 2017; and RMB settlement through the Taipei Branch of the CBC of China totaled RMB4,033.1 billion.

RMB investment tools have become even more diversified. RMB investment business conducted by financial institutions as of the end of 2017 is shown in the following table.

**RMB Business Conducted by Financial Institutions**

Unit: RMB Billion

Business Items	Amount
Deposit balance (include NCDs, end of 2017)	322.3
Total remittances (February 2013 to December 2017)	8,222.0
Total settlement through the Taipei Branch of the CBC of China (February 2013 to December 2017)	18,707.6
Total value of 109 RMB-denominated bonds issued (up to the end of 2017)	72.4
Accumulated premium receipts from RMB-denominated investment-linked insurance business (up to the end of 2017)	3.4
Accumulated premium receipts from RMB-denominated traditional insurance business (up to the end of 2017)	2.7

Source: Department of Foreign Exchange, CBC.

**Foreign Currency Clearing Platform**

The CBC has consigned the Financial Information Service Co. to set up a foreign currency clearing platform, which was inaugurated in 2013. The platform offers services for domestic and

cross-border remittances (including cross-strait) of the US dollar, the renminbi, the Japanese yen and the euro, and domestic remittances of the Australian dollar. The platform adopts a payment-versus-payment (PVP) mechanism among banks, a liquidity-saving mechanism for foreign currency remittances, and a delivery-versus-payment (DVP) mechanism for foreign currency bonds and bills.

### The Development of Domestic Foreign Currency Settlement Business

Currency	Domestic Participating Units	Settlements in 2017	
		Transactions	Amount
US dollar	70	1,171,805	USD 1,867.8 billion
Renminbi	61	232,081	RMB 363.0 billion
Yen	42	30,635	JPY 1,108.7 billion
Euro	41	19,995	EUR 4.8 billion
Australian dollar	29	14,235	AUD 1.4 million

Source: Department of Foreign Exchange, CBC.

## 4. Payment and Settlement Systems

The CBC Interbank Funds-Transfer System (CIFS) is the backbone of Taiwan's payment and settlement system, linking payment and remittance systems operated by the Financial Information Service Co., Ltd. (FISC), the Taiwan Clearing House (TCH), the National Credit Card Center of R.O.C. (NCCC), the Taiwan Depository and Clearing Corporation (TDCC), the Taipei Exchange (TPEX), and the Taiwan Stock Exchange Corporation (TWSE), as well as the Central Government Securities Settlement System (CGSS), together to construct a comprehensive system.

In addition, the CBC monitors major payment systems based on the *Principles for Financial Market Infrastructures* released by the Bank for International Settlements (BIS) to ensure sound operation of these systems and to promote stability of the financial system.

### Operation of Payment and Settlement Systems

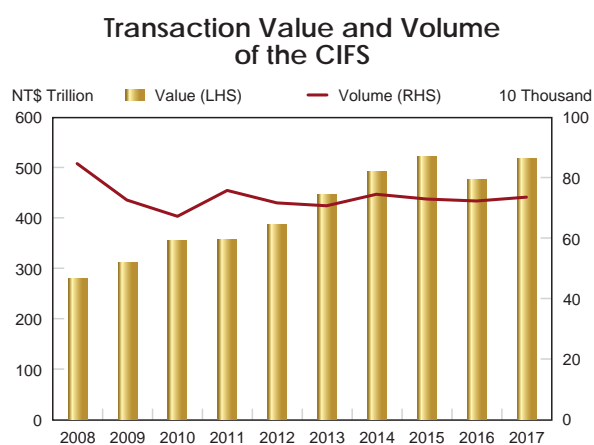
#### (1) Funds Transfers via the CIFS

The CIFS is a large-value electronic funds-transfer system. In addition to dealing with funds settlements in financial markets, open market operations, and interbank funding, the CIFS also provides interbank final settlement services to each clearing institution.

At the end of 2017, participants of the CIFS included 67 banks, eight bills finance companies, and seven other institutions including Chunghwa Post, the FISC, the TCH, the TWSE, the TPEX, the TDCC, and the NCCC. In the year 2017, the number of transactions via the CIFS was 734,895, with the total amount of funds transferred reaching NT\$517 trillion. Meanwhile, the daily average number of transactions via the CIFS was 2,963, with a daily average amount of funds transferred standing at NT\$2,086.5 billion, increasing by 7.60% over the previous year.

#### (2) Transactions via the CGSS

The CGSS was established in September 1997. It is a system for issuance, transfer, redemption, and interest payment of book-entry central government securities. Since its inception, central government bonds have been issued in book-entry form. In October 2001, treasury bills were included in this system and have been issued in book-entry form ever since.



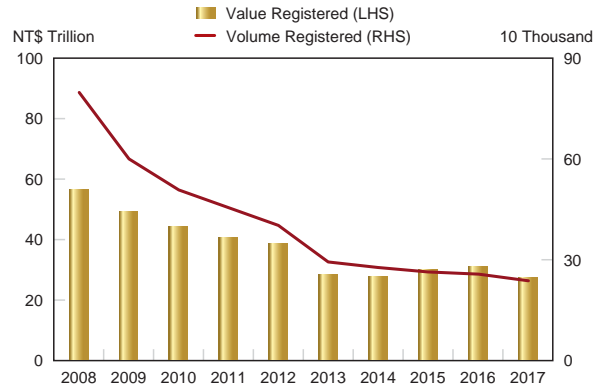
Source: Department of Banking, CBC.



The CGSS linked up with the CIFS in April 2008. Since then, fund settlements, principal redemptions, and interest payments have been handled through the CIFS using a delivery-versus-payment (DVP) mode. The DVP mode, promoted by the BIS, is an arrangement in a securities settlement system to ensure that securities delivery occurs almost at the same time as the funds transfer, effectively mitigating potential risks during the transaction process.

As of the end of 2017, there were 17 clearing banks with 1,687 branches that handled the registration of central government securities transfers. During 2017, 238,000 transfers with a total amount of NT\$27.4 trillion were processed by this system.

**Transaction Value and Volume of the CGSS**



Source: Department of Treasury, CBC.

**Monitoring Payment and Settlement Systems**

The CBC monitors the payment and settlement systems on a periodic basis to maintain their safety and efficiency. In 2017, the CBC's monitoring activities in this regard included the following:

- (1) Continuing to monitor the operation of the payment and settlement systems. In 2017, 15 applications for the CIFS operation time extensions were filed by participating institutions because of their own system malfunctions or other contingencies. The CBC required these institutions to submit improvement plans.
- (2) Requiring payment system operators and payment instrument issuers to provide detailed information on their operations and activities on a regular basis.
- (3) Supervising clearing institutions to perform regular drills on operating backup systems and implementing contingency plans in case of emergency to ensure business continuity. The FISC conducted its drill in July 2017, while the TDCC held its drills in May and November.
- (4) Inviting the Financial Supervisory Commission (FSC), the FISC, the TDCC, and the TCH to jointly hold conferences on "Promoting Sound Operation of the Payment Systems" with themes of "Payment System Operation Review and Major Improvements" in May and "Building Information Security Awareness and Maintaining System Security" in December, in order to urge clearing institutions to keep strengthening the governance of payment systems and information security.

## Keeping Watch on Financial Technology Trends and Assisting Financial Institutions to Develop Innovative Services

In response to rapid advancement in financial technology (fintech) in recent years, the CBC continued to keep close watch on the development of financial technology and undertook the following actions:

- (1) Forming a digital finance research group within the CBC and holding meetings to discuss fintech-related issues on blockchain technology, regulatory technology, big data, and artificial intelligence.
- (2) Assisting in boosting the adoption of electronic payments domestically and supporting the FISC in its collaboration with financial institutions to promote electronic payment services, such as introducing Taiwan Pay.
- (3) Instructing the TCH to carry out outsourced research programs with a focus on the applications of blockchain technology in financial services.
- (4) Urging the FISC to cooperate with financial institutions in establishing an interconnected financial blockchain platform and conducting trial cases based on the plan formulated by the "Financial Blockchain Research and Application Development Committee."
- (5) Closely watching the development of virtual currencies like Bitcoin and related global regulatory actions.

### Box

## The Development of Electronic Payments in Taiwan

In order to construct a comprehensive framework of the payment and settlement systems in Taiwan, the CBC has carried out numerous reforms since 1995. In recent years, the CBC has also promoted the development of electronic payment services. Currently, large-value payments are all made electronically. With regard to retail payments, through joint efforts by the government and the private sector, a variety of electronic payment instruments have been brought into use to meet consumers' payment needs.

### 1. Assisting in Building a Sound Electronic Payment System

#### 1.1 Establishing the CBC Interbank Funds-Transfer System (CIFS)

The CIFS is a large-value electronic funds-transfer system, commencing service in 1995. Since 2002, the CIFS has been comprehensively transformed into a Real-Time Gross Settlement (RTGS)<sup>1</sup> system in order to improve the efficiency of interbank funding and reduce settlement risk of large-value transactions.

<sup>1</sup> RTGS is a mechanism in which all payments are processed and settled continuously in real time (without deferral) and on a gross basis (transaction by transaction) when the banks involved hold sufficient account balances.

## 1.2 Making the CIFS the Hub of Taiwan's Payment and Settlement Systems

The CIFS, as the backbone of domestic payment systems, has gradually connected to clearing systems of bills, government bonds, and securities with the adoption of a delivery-versus-payment (DVP)<sup>2</sup> mechanism since 2003. It also deals with interbank settlements of credit card transactions. From February 2014, the CIFS linked with the foreign currency clearing platform to provide payment-versus-payment (PVP)<sup>3</sup> settlements for foreign exchange swap transactions between the NT dollar and other foreign currencies. This helped ensure the security and efficiency of the overall financial payment system.

## 2. Promoting the Use of Electronic Payment Instruments

There are three types of payment instruments under Taiwan's electronic payment system, including (1) electronic funds transfers through bank accounts, (2) credit cards and cash cards for retail payments, and (3) electronic money for storing value and making payments. In 2017, the amount of electronic payment transactions totaled NT\$664.5 trillion, 38 times as large as nominal GDP of the same period.

### Electronic Payment Transactions

Unit: NT\$100 Million; %

	2017		2016	
	Amount	Share	Amount	Share
Electronic Funds Transfers (via bank accounts)	<b>6,610,554</b>	<b>99.48</b>	<b>6,150,218</b>	<b>99.48</b>
CIFS	5,174,477	77.87	4,770,355	77.16
FISC	1,408,519	21.20	1,353,090	21.89
TCH	27,558	0.41	26,773	0.43
Credit Cards and Cash Cards	<b>33,807</b>	<b>0.51</b>	<b>31,221</b>	<b>0.51</b>
Credit Cards	26,232	0.39	24,222	0.39
Cash Cards	7,575	0.11	6,999	0.11
Electronic Money	<b>820</b>	<b>0.01</b>	<b>745</b>	<b>0.01</b>
Banks	0.2	0.00	0.2	0.00
Non-banks	820	0.01	745	0.01
<b>Total</b>	<b>6,645,181</b>	<b>100.00</b>	<b>6,182,184</b>	<b>100.00</b>

Sources: CBC, FSC, and FISC.

<sup>2</sup> DVP is a settlement mechanism aiming to ensure that the delivery of securities occurs only if the corresponding transfer of funds occurs in order to prevent settlement risk.

<sup>3</sup> PVP refers to a mechanism for synchronous payments between two different currencies and is used worldwide to control foreign currency settlement risk. To take NTD/USD swaps as an example, PVP ensures that a final transfer of USD (or NTD) occurs only if a final transfer of NTD (or USD) takes place.

### 2.1 Electronic Funds Transfers through Bank Accounts

Large amounts of electronic funds were transferred via bank accounts, mainly processed through the CIFS, the Interbank Remittance System (IRS) operated by the FISC, and the Automated Clearing House (ACH) system run by the TCH. In 2017, the total amounts transferred through the three systems above were NT\$517.4 trillion, NT\$140.9 trillion, and NT\$2.8 trillion, respectively.

### 2.2 Credit Cards and Cash Cards

Card-based payment has been a common non-cash payment method in Taiwan. Among electronic payment instruments, credit cards and cash cards are widely used by domestic consumers. In 2017, the total amount of transactions was NT\$3.4 trillion, of which transactions made via credit cards accounted for 77.6%.

### 2.3 Electronic Money

Electronic money includes electronic stored value cards provided by electronic stored value card issuers and electronic payment accounts (e-payment accounts) managed by electronic payment institutions. As the e-payment account business which allows the public to deposit their stored value funds has only been introduced for a short period of time, the transaction amount remained low, and electronic stored value cards still made up the majority of electronic money transactions.

Electronic stored value cards were primarily issued by non-bank institutions. At the end of 2017, the number of effective electronic stored value cards issued by non-banks reached 93.42 million with stored value amounting to NT\$8.02 billion, far higher than the 20 thousand effective cards issued by banks with stored value of NT\$40 million.

### Electronic Stored Value Cards Issued

Unit: 10 thousand; NT\$100 Million

Year	By Banks		By Non-banks	
	Effective Cards	Balance of Stored Value	Effective Cards	Balance of Stored Value
2014	46	0.5	5,753	51.9
2015	122	0.6	6,854	60.7
2016	8	0.5	8,101	69.4
2017	2	0.4	9,342	80.2

Source: FSC.

Electronic stored value cards issued by non-banks mainly include EasyCard, icash card, iPASS card, and HappyCash card. The amount of annual retail sales paid with these cards totaled NT\$82 billion in 2017, with EasyCard contributing the largest share of 75.4%.

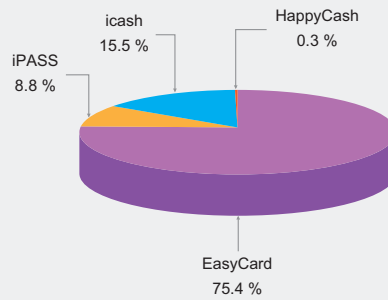
### 3. Supporting the Development of Electronic Payments

In recent years, currency issuance to GDP ratios have exhibited uptrends in most countries, except for Sweden and China. Meanwhile, cash is still frequently used even in countries with well-developed electronic payment systems, such as the US, South Korea, the euro area, and Japan, indicating that cash remains an important payment instrument for consumers.

Despite diversified electronic payment instruments offered in Taiwan, most people still use cash as a major payment method.

To increase the adoption of electronic payments, the CBC has urged the FISC to assist in the development of payment instruments such as cash card payments and mobile payments. For mobile payments, the Executive Yuan has set a policy target of reaching a 90% penetration rate by 2025. In order to help achieve that goal, the FISC introduced Taiwan Pay, a QR code-based mobile payment service, in September 2017 and will continue to develop a more secure and convenient identity authentication mechanism.

Shares of Electronic Stored Value Cards Issued by Non-banks in 2017



Source: FSC.

## 5. Currency Issuance

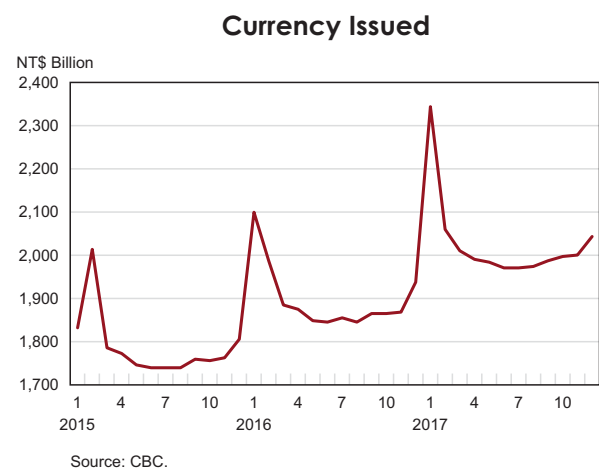
As the sole agency with the authority to issue banknotes and coins, the CBC is committed to providing the public with a stable and reliable currency in order to facilitate economic activity.

During 2017, the CBC ensured a stable currency supply in response to currency demand, which is dependent on domestic economic conditions, seasonal factors, and the development of noncash payment instruments. In addition, the CBC issued commemorative coin sets to mark national events.

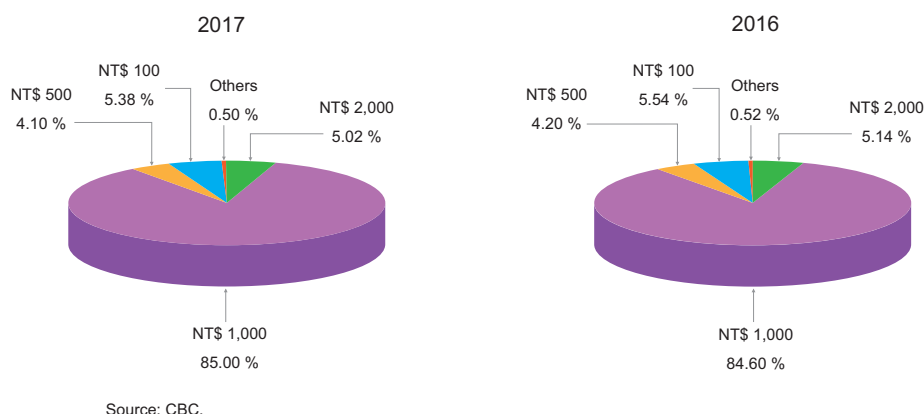
### Currency Issuance Increased to Meet Currency Demand

In 2017, the CBC provided an adequate amount of currency in response to currency demand. The currency issued peaked at NT\$2,344.6 billion on January 26, the business day before the Lunar New Year holidays, reflecting a temporary seasonal surge in cash demand. At the year end, the outstanding amount of currency issued was NT\$2,042.2 billion, rising by NT\$104.1 billion or 5.37% over the previous year end.

At the end of 2017, the composition of NT dollar banknotes in circulation by denomination was similar to the end of 2016. The majority of circulating banknotes went for the NT\$1,000 note with a share of 85.00%. The NT\$100 and NT\$2,000



### Composition of NT Dollar Banknotes Issued ( Year-End Figures )

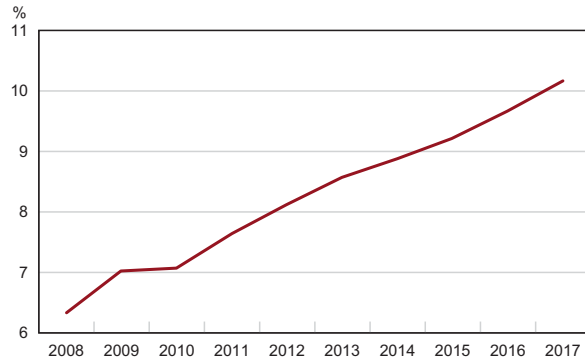


notes came in second and third with shares of 5.38% and 5.02%, respectively.

### Currency in Circulation to GDP Moved Up

As the domestic interest rates stayed at relatively low levels, the public's demand for currency remained high. The ratio of currency in circulation to GDP has continued to rise steadily since 2010 and reached 10.16% in 2017, 0.50 percentage points higher than the 9.66% of the previous year.

**The Ratio of Currency Held by the Public to GDP**



Sources: 1. CBC.  
2. DGBAS, Executive Yuan.

### Two Commemorative Coin Sets Were Issued

The CBC may also issue gold and silver coins and commemorative notes and coins from time to time, such as for important ceremonies, national holidays, major international events or other significant national events. During 2017, the CBC issued a casting set of coins for the Chinese Zodiac Year of the Rooster, and the sixth coin set of the National Parks of Taiwan series - Kinmen National Park.



Source: CBC.

## 6. Fiscal Agency Functions

The CBC, as banker to the central government, fulfills its responsibilities by managing the treasury deposit account (TDA), handling central government agency deposit accounts, and undertaking the issuance, transfer and registration, redemption, and interest payment of central government bonds and treasury bills.

### Managing the Treasury Deposit Account

The CBC manages the TDA on behalf of the Ministry of Finance (MOF), processing receipts and disbursements of the central government. In order to provide convenient services for government agencies and taxpayers, the CBC delegates the handling of treasury business to 14 financial institutions and their 360 branches, including three overseas branches located in New York, Los Angeles, and Paris. In addition, there are another 4,734 tax collection agencies set in financial institutions. In 2017, the CBC received a total of NT\$3,215.9 billion in treasury deposits, a decrease of NT\$123.3 billion or 3.69% over the previous year. Payments made on behalf of the national treasury were NT\$3,223.5 billion, falling by NT\$111.0 billion or 3.30% from 2016. At the end of 2017, the TDA balance was NT\$19.8 billion, a decline of NT\$7.5 billion or 27.47% from the previous year end.

Amid a rising wave of financial digitalization, the CBC established an online national treasury fee payment mechanism, which was launched in June 2017. This service enables the public to make electronic payments of charges and fees to the national treasury on a 24/7 basis.

### Handling Central Government Agency Deposits

Central government agencies are required to make their deposits with the CBC or other delegated banks. However, the delegated banks are required by law to redeposit 60% of the deposits with the CBC, except those in interest-bearing accounts. At the end of 2017, the balance of central government agencies' deposits with the CBC amounted to NT\$156.8 billion, decreasing by NT\$16.6 billion or 9.57% over 2016. Deposits with other delegated banks were NT\$534.7 billion at the end of 2017, expanding by NT\$8.4 billion or 1.60%. Among them, redeposits with the CBC registered NT\$8.6 billion, contracting by NT\$2.4 billion or 21.82% from the end of 2016.

### Managing Central Government Bonds

As a fiscal agent, the CBC provides services related to the issuance, transfer and registration, redemption, and interest payment of central government bonds. The CBC also conducts the auctions of central government bonds. There are 57 domestic dealers qualified to directly participate in the auctions, including 24 banks, 19 securities companies, eight bills finance companies, five insurance



companies, and Chunghwa Post.

In 2017, the CBC conducted 16 issues of central government bonds in book-entry form worth NT\$400.0 billion and paid NT\$347.5 billion in principal and NT\$107.3 billion in interest for central government bonds. At the end of 2017, the outstanding amount of central government bonds was NT\$5,594.8 billion, slightly increasing by NT\$52.5 billion or 0.95% from the previous year end.

### **Managing Treasury Bills**

The CBC also handles the auctions of treasury bills. Currently, direct bidders include banks, insurance companies, securities companies, bills finance companies, and Chunghwa Post.

In 2017, the CBC conducted eight issues of book-entry treasury bills with a total amount of NT\$220.0 billion. At the end of 2017, the outstanding amount of treasury bills was NT\$25.0 billion, decreasing by NT\$65.0 billion or 72.21% from the previous year end.

## 7. Financial Inspection

Pursuant to the objectives and duties stipulated in *The Central Bank of the Republic of China (Taiwan) Act*, the CBC conducts targeted examinations to ensure that monetary, credit, and foreign exchange policies are implemented effectively. The CBC has also established an off-site monitoring system and a financial stability assessment framework to systematically monitor and assess potential risks and their possible sources. Once sources of problems are identified, the CBC then adopts appropriate policies in a timely manner to achieve the operational goal of financial stability.

### On-Site Examination

Targeted examinations in 2017 included commercial banks' required reserves, disclosure of housing loan information, large amounts (or quantities) of returned checks, liquidity coverage ratio, counterfeit money detection, foreign exchange remittances, non-delivery forwards transactions, foreign currency exchange, foreign exchange transfer messages, and correctness of reporting to the CBC, etc.

### Follow-up on Examination Findings

Based on the findings from the CBC's targeted examinations as well as the results of the Financial Supervisory Commission's financial examinations that are related to the CBC's operations or regulations, the CBC continued to track whether the financial institutions under inspection had improved their operations to ensure the effectiveness of the CBC's policies.

### Strengthening Off-Site Monitoring

To respond to changing financial conditions and regulatory amendments and to fully understand the dynamics of financial institutions' business operations, the CBC constantly reviews and revises all relevant reporting forms and contents of statistical data submitted by financial institutions. Developments related to off-site monitoring in 2017 included the following:

- (1) Modifying the declaration format and content of the one-stop declaration window in accordance with the new version of International Financial Reporting Standard 9 (IFRS 9).
- (2) Modifying formats and contents of the table of *Term to Maturity and Term Structure of NT Dollar Liquidity* to fully understand liquidity risks faced by financial institutions. Domestic banks, local branches of foreign and Mainland Chinese banks are required to report this table.
- (3) Modifying the tables of *Loan by Borrower and by Usage*, *Credit by Collateral*, *Guarantee by type of Recipient*, *Domestic Banks Credit to Mainland Area*, and *Country Risk Exposure* to meet

the need for financial supervision.

- (4) Adjusting domestic bank capital adequacy indicators, such as minimum required ratio and its grading criteria of the *Regulatory Capital to Risk-weighted Assets Ratio*, *Tier 1 Capital Ratio*, and *Common Equity Ratio*.
- (5) Adjusting minimum required criteria of the *Liquidity Coverage Ratio* for the analysis of domestic bank compliance and liquidity conditions.
- (6) Adjusting financial holding company observation indicators, screening standards, and grading principles to meet higher standards of capital adequacy ratio and liquidity coverage ratio of commercial bank subsidiaries.
- (7) Adjusting the statutory limit on (longer-term) internal financing of credit departments of farmers' and fishermen's associations.

### **Improving Information Transparency of Financial Institution Operations**

The CBC regularly compiles and publishes financial institution statistics, such as *Condition and Performance of Domestic Banks (Quarterly)* and *Major Business Statistics of Financial Institutions*, as well as the latest financial regulations. It also discloses related information on its website to strengthen operational transparency of financial institutions, and to reinforce market self-discipline.

### **Financial Stability Assessment**

The CBC compiles financial soundness indicators and develops credit and market risks models. We continued to regularly publish the *Financial Stability Report* to help financial authorities, financial institutions, and the financial community understand current situations and sources of risks and to promote cross-border communication and information sharing.

### **International Cooperation in Financial Supervision**

In 2017, the CBC continued to actively engage in international cooperation related to financial supervision, such as attending the eighth SEACEN Meeting of Deputy Governors in Charge of Financial Stability and Banking Supervision.

## 8. Participation in International Activities

Endeavors to take part in international activities continued in 2017. As a member, the CBC hosts conferences, provides training courses, and attends numerous forums, including the annual meetings organized by the Asian Development Bank (ADB), the Central American Bank for Economic Integration (CABEI), and the South East Asian Central Banks (SEACEN) group. In addition, the CBC also maintains close relationships with the Inter-American Development Bank (IDB), the European Bank for Reconstruction and Development (EBRD), the Bank for International Settlements (BIS), and the Asia/Pacific Group on Money Laundering (APG). Furthermore, the CBC strengthens its ties with other central banks and related institutions to exchange views and share policy experience on macroeconomic and financial issues.

The CBC is a member of SEACEN. In December 2017, the CBC attended the 53rd annual conference of governors held in Bangkok, Thailand. At this conference, the CBC shared views on the risks to the financial system arising from monetary policy normalization, geopolitics, and technological innovations, and explored their implications for central banks. Moreover, monetary policy challenges stemming from the low inflation environment, the build-up of financial imbalances, and the issue of incorporating financial stability considerations into the monetary policy framework were also discussed among member banks.

Meanwhile, the CBC participated in the meetings held by other international organizations, such as the IDB's annual meeting of the Board of Governors held in Asunción, Paraguay, from March 30 to April 2, the CABEI's Ordinary Meeting of the Board of Governors in Antigua, Guatemala, on April 27 and 28, the ADB's annual meeting in Yokohama, Japan, from May 4 to 7, the EBRD's annual meeting of the Board of Governors held in Nicosia, Cyprus, from May 9 to 11, the BIS' annual general meeting in Basel, Switzerland, on June 24 and 25, and the APG's annual meeting in Colombo, Sri Lanka, from July 17 to 21.