

## I. Overview

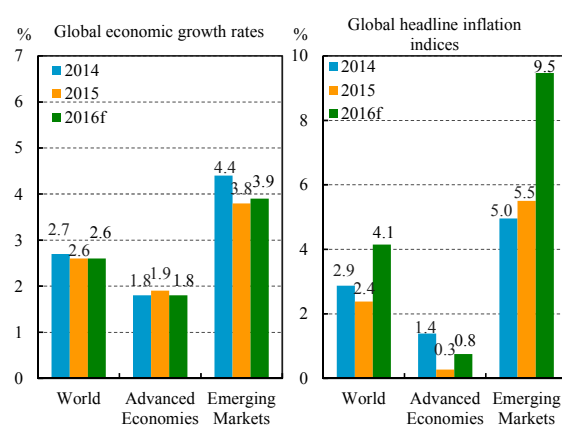
### Macro environmental factors potentially affecting financial sector

#### *Global economy saw a sluggish recovery, while international financial markets faced increased risks*

#### *Global recovery proceeded at a slow pace, and inflationary pressures receded*

In 2015, the recovery of the global economy was sluggish and advanced economies took divergent growth paths. In the US, the economy grew steadily. However, euro area growth remained weak. Moreover, economic growth in Japan was lower than expected. Affected by several unfavorable factors, growth momentum in emerging economies waned. From 2016 onwards, growth in the US may be less than expected owing to a strong dollar, which has caused a drop in exports. In the euro area and Japan, although they have continued applying monetary easing policies, growth momentum has still not gained traction. Meanwhile, growth in Mainland China and other emerging economies continued decelerating. In this setting, IHS Global Insight predicts<sup>1</sup> world real GDP growth to remain at 2.6% in 2016, the same as in 2015. Real GDP in advanced economies is projected to decrease slightly to 1.8%. The average growth rate in emerging economies is forecast to increase modestly to 3.9% (Chart 1.1).

**Chart 1.1 Global economic growth rates and headline inflation indices**



Note: Figures for 2016 are IHS Global Insight estimates.  
Source: IHS Global Insight (2016/4/15).

<sup>1</sup> IHS Global Insight estimate on 15 April 2016.

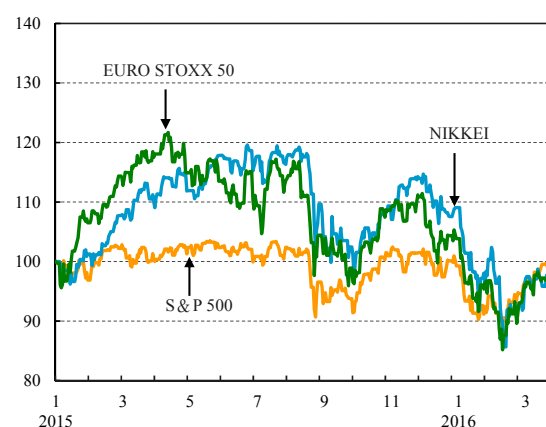
Regarding consumer prices, owing to a fall in the international prices of crude oil and cereals, the global consumer price index (CPI) inflation rate dropped to 2.4% in 2015, lower than the 2.9% recorded a year earlier. CPI inflation rates in advanced economies fell markedly and were lower than their targets, whereas the rates in emerging economies increased. IHS Global Insight predicts the headline inflation rate in advanced economies will merely increase to 0.8% and the global headline inflation rate will rise to 4.1%<sup>2</sup> in 2016 (Chart 1.1).

### **Global financial stability risks elevated**

In 2015, as uncertainties concerning the global economic outlook rose, coupled with a fall in crude oil prices as well as the slowdown of Mainland China's economy, financial stability risks elevated. Financial risks in some advanced economies have not fully receded. Though US banks had better performance, European banks faced poor asset quality, business model transformation, as well as the erosion of banks' profits as a result of negative interest rate policies (NIRPs). In the meantime, Japanese banks increased their foreign investments to improve investment returns. However, such operations might increase credit risks, and NIRPs could further erode banks' profits. In the third quarter of 2015, stock prices in the US, the euro area and Japan fluctuated dramatically. Although they rebounded in the fourth quarter, stock prices tumbled again in the first quarter of 2016 (Chart 1.2). Meanwhile, the US dollar was strong in 2015, while the euro depreciated and the Japanese yen continuously stayed at a low level. However, in the first quarter of 2016, the Japanese yen appreciated markedly after it temporarily depreciated.

Financial risks in emerging markets mounted. The debt burdens of the corporate sectors in many emerging economies surged, and the debt servicing ability weakened. In addition, the default rates of energy-related enterprises ascended, affected by tumbling oil prices, posing severe challenges to the asset quality, profitability and capital levels of the banking industries of affected countries. Moreover, as US monetary policy normalized gradually, there were

**Chart 1.2 Performance of equity indices of US, Euro area and Japan**



Notes: 1. January 2015 = 100.

2. The EURO STOXX 50 Index is derived from 50 stock indices in 12 major economic bodies in the euro area.

Source: Bloomberg.

<sup>2</sup> The global headline inflation rate is predicted to increase in 2016. The main reason is that inflation in Venezuela is relatively high, and the inflation rate is expected to reach 502.8%, leading to a jump in inflation to 9.5% in emerging economies.

massive capital outflows from emerging economies, leading to a drop in most stock markets in emerging economies and considerable depreciation of local currencies, triggering turmoil in the financial markets.

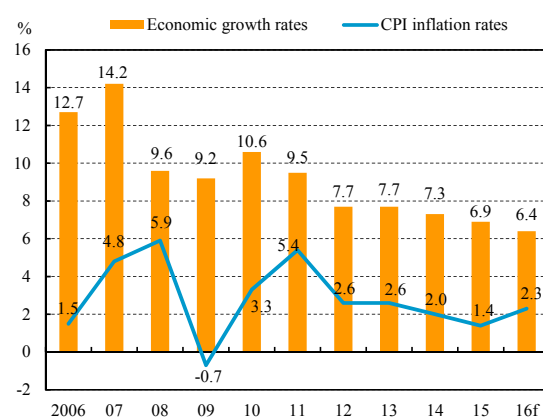
**Mainland China's economic growth momentum waned, while housing prices and the stock and foreign exchange markets sharply fluctuated**

Mainland China's economic growth rate dipped to 6.9% throughout 2015 from 7.3% a year before, lower than its official growth target of 7%. In 2016, in an effort to promote supply-side structural reforms by Mainland China's government, IHS Global Insight projects the economic growth rate to continue falling to 6.4%. Meanwhile, the CPI inflation rate of Mainland China stood at 1.4% in 2015, lower than the official goal of 3.0%. IHS Global Insight projects the annual CPI inflation rate of 2016 to increase to 2.3% (Chart 1.3).

The annual growth rate of housing prices reversed to rise after declining. Furthermore, in early 2016, first- and specific second-tier cities' housing prices markedly rose, while there was divergence in the property market with third- and fourth-tier cities facing the challenge of stock clearance. The stock and foreign exchange markets fluctuated significantly. In the first half of 2015, stock prices sharply rose. However, the detachment from fundamentals led to a dramatic fall in the market afterwards (Chart 1.4). The renminbi exchange rate continued to drop in 2015, on account of the implementation of reform of the mid-price of the renminbi against the US dollar.

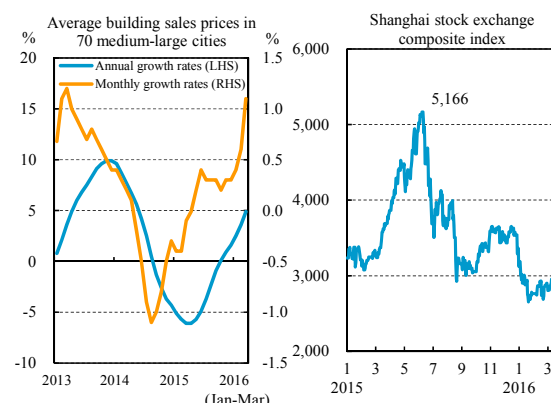
Meanwhile, the annual growth rate of aggregate financing to the real economy in 2015 decreased to 12.4% from 14.3% a year earlier, mainly resulting from a decline in off-balance

**Chart 1.3 Economic growth rates and CPI inflation rates of Mainland China**



Note: Figures for 2016 are IHS Global Insight projections.  
Sources: National Bureau of Statistics of China and IHS Global Insight (2016/4/15).

**Chart 1.4 Mainland China's building sales prices in 70 medium-large cities and Shanghai stock exchange composite index**



Sources: Thomson Reuters and Bloomberg.

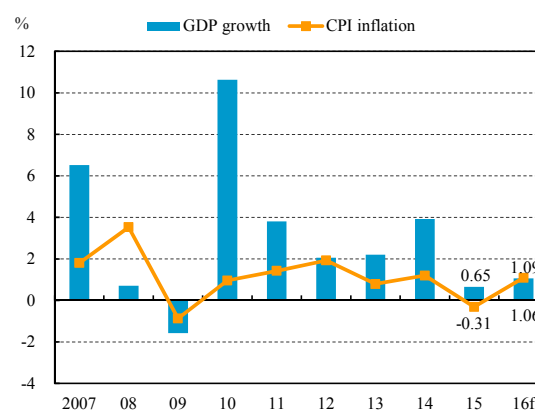
sheet financing caused by Mainland China's financial institutions deleveraging and the government strengthening supervision on shadow banking. Moreover, credit risks surged as the NPL ratio edged up to 1.67% at the end of 2015. With local government debts coming due, various measures were successively launched.

### **Domestic economic growth slowed, while consumer prices rose mildly**

Owing to sluggish momentum in foreign trade, the annual economic growth rate was merely 0.65% for 2015, significantly lower than the 3.92% of the previous year. Meanwhile, the average CPI inflation rate registered -0.31%, whereas the core CPI inflation rate rose moderately and reached 0.79%. It is expected that in 2016, external demand will remain weak, accompanied by mild internal demand. As a result, the DGBAS forecasts<sup>3</sup> Taiwan's economic growth rate to increase slightly to 1.06% for the whole year and projects the annual CPI inflation rate to increase to 1.09% (Chart 1.5).

Taiwan's external debt shrank to US\$159 billion at the end of 2015 while foreign exchange reserves remained at a sufficient level of US\$426 billion, implying that the capacity to service external debt remained robust. Fiscal deficits fell, decreasing to 0.67%<sup>4</sup> of annual GDP in 2015. The outstanding public debt at all levels of government in 2015 expanded, and the ratio of outstanding public debt to annual GDP registered 37.11%.<sup>5</sup> The Ministry of Finance kept implementing the *Fiscal Health Plan* to improve the structures of fiscal revenue and expenditure, and control the scale of public debt.

**Chart 1.5 Economic growth rates and CPI inflation rates of Taiwan**



Note: Figures for 2016 are DGBAS projections on 27 May 2016.  
Source: DGBAS.

<sup>3</sup> The figures are based on a DGBAS press release on 27 May 2016.

<sup>4</sup> As a comparison, fiscal deficits in EU member nations are not allowed to exceed 3% of GDP, according to the *Maastricht Treaty* and the subsequent *Stability and Growth Pact*.

<sup>5</sup> As a comparison, outstanding debt in EU member nations is not allowed to exceed 60% of GDP, according to the *Maastricht Treaty* and the subsequent *Stability and Growth Pact*.

## Non-financial sectors

### Corporate sector

In 2015, resulting from the slowdown of recovery in the global economy and declining exports in Taiwan, the profitability of Taiwan Stock Exchange (TWSE) listed and over-the-counter (OTC) listed companies slightly fell. However, their leverage ratios declined somewhat (Chart 1.6), and short-term debt servicing capacity enhanced.

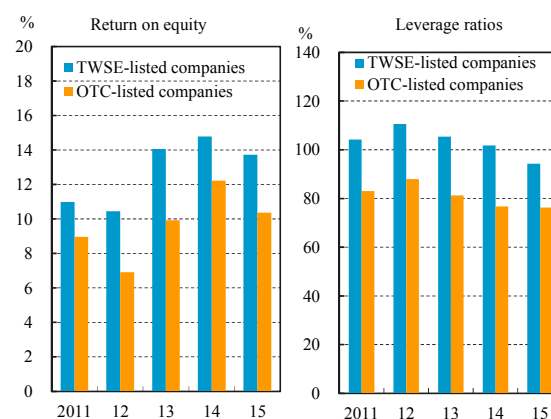
The NPL ratio of corporate borrowing continued to decline to 0.33% at the end of 2015, the lowest level on record, reflecting sound credit quality for the corporate sector. As a result of a slowdown in global economic growth and the crowding-out effect caused by industrial supply chain localization in Mainland China, the corporate sector's profit outlook faces challenges.

### Household sector

At the end of 2015, total household borrowing saw a slight expansion and reached NT\$13.76 trillion, equivalent to 82.46% of annual GDP. As total disposable income grew at a faster pace in 2015, the ratio of household borrowing to total disposable income shrank to 1.30 at the end of the year, reflecting a lessening of the household debt burden (Chart 1.7).

The NPL ratio of household borrowing stabilized at 0.23% at the end of 2015, remaining at a 16-year low, indicating that household credit quality remained satisfactory. Moreover, the decreasing domestic unemployment rate and steady growth of regular earnings should help improve the debt servicing capacity of households.

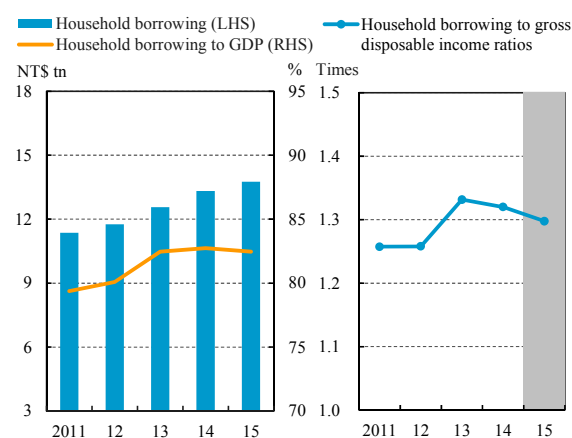
**Chart 1.6 Return on equity and leverage ratios in corporate sector**



Notes: 1. Figures are from consolidated financial statements, and those from 2012 forward are on the TIFRSs basis, while those of prior years are on the ROC GAAP basis.  
2. Return on equity = net income before interest and tax/average equity.  
3. Leverage ratio = total liabilities/total equity.

Source: TEJ.

**Chart 1.7 Household indebtedness**



Note: Gross disposable income in shadow area is CBC estimate.  
Sources: CBC, JCIC and DGBAS.

## Real estate market

At the end of 2015, the total number of building ownership transfers for transaction declined by -8.53% compared to that of the previous year, showing that the trading volume in the real estate market kept contracting. This was caused by a heavier tax burden on real estate owners, and the uncertainty surrounding property tax reforms. With subdued housing market transactions, the Sinyi housing price index (for existing buildings) and Cathay housing price index (for new constructions) declined in 2015 (Chart 1.8).

In 2015, since mortgage interest rates decreased slightly, the mortgage burden ratio for Taiwan was 35.81% in Q4. The house price to income ratio during the same period was 8.51. Among all areas, the mortgage burden and house price to income ratios in Taipei City were the highest, reaching 66.26% and 15.75, respectively, implying a still-heavy debt burden.

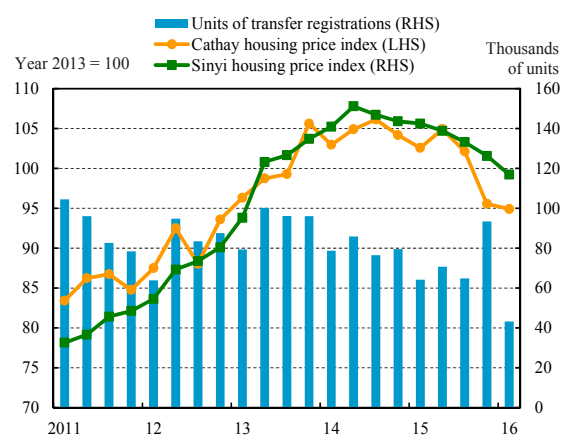
## Assessment of the financial sector

### Financial markets

#### Bill and bond issuance in the primary market expanded, but trading volume in the secondary market fell

The outstanding amount of bill issuance in the primary market at the end of 2015 slightly increased by 2.22%. However, trading volume in the secondary market decreased by 2.97% owing to a contraction of bills finance companies replacing repurchase (RP) transactions with

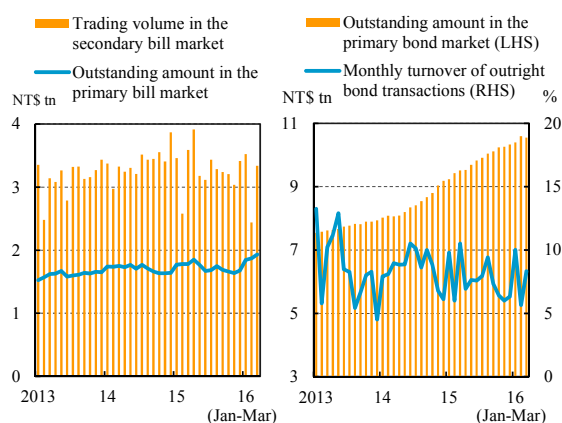
**Chart 1.8 Building ownership registrations and real estate price indices**



Note: For comparison purposes, the two indices use the same base year of 2013.

Sources: MOI, Cathay Real Estate and Sinyi Real Estate Inc.

**Chart 1.9 Primary and secondary bill and bond markets**



Notes: 1. Bonds include government bonds, international bonds, corporate bonds and financial debentures.

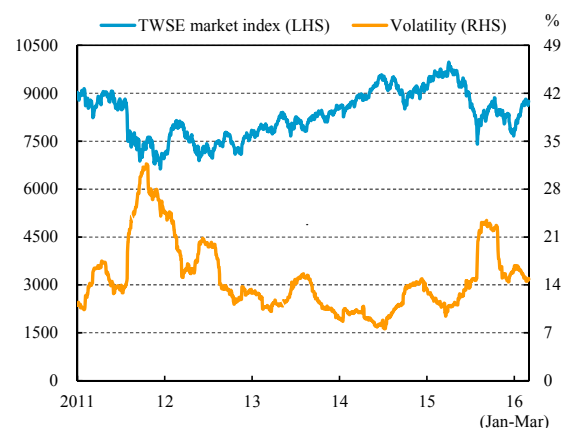
2. Monthly turnover = trading value in the month/average bonds issued outstanding.

Average bonds issued outstanding = (outstanding at the end of the month + outstanding at the end of last month)/2.

Sources: CBC and FSC.

call loans. Meanwhile, the outstanding amount of bond issuance at the end of 2015 ascended by 12.30% year on year. The reason was mainly that the outstanding amount of foreign currency-denominated international bonds grew sharply. However, liquidity in the secondary bond market was insufficient, owing to an amplified concentration of bonds held by life insurance companies and banks. The monthly turnover ratio of outright transactions of the main bonds<sup>6</sup> in the secondary market remained roughly flat (Chart 1.9).

**Chart 1.10 TWSE market index and volatility**



Note: Volatility refers to the annualized standard deviation of 60-day daily index returns.  
Sources: TWSE and CBC.

As for market rates, the secondary market rates of short-term commercial paper sharply dropped in 2015, affected by the CBC cutting policy rates twice, in September and December 2015. The yield on Taiwan's long-term 10-year government bonds also tumbled and diverged from the rising trend of US government bond yields. With a weakening domestic economy and major advanced countries implementing monetary easing policies, Taiwan government bond yields will have a tendency to fall and are unlikely to rise in the near future.

### **Stock indices descended after hitting a historical high, while volatility reversed to fall after rising up**

The Taiwan Stock Exchange Weighted Index (TAIEX) of the TWSE market experienced a decline after trending up gradually and closed at a fifteen-year high in late April. The TAIEX registered 8,338 at the end of 2015, posting a decrease of 10.41% year on year. In early 2016, international stock markets deteriorated and the TWSE market also slumped. Afterwards, thanks to stabilization measures implemented by Taiwan's government, as well as the gradual rally in European and US stock markets, the TAIEX turned to trend up (Chart 1.10).

In 2015, volatility in the TWSE market amplified. Later, it turned to drop to 14.48% at the end of December. In 2016, volatility stood at 14.85% at the end of March (Chart 1.10).

<sup>6</sup> It includes government bonds, international bonds, corporate bonds, and financial debentures.

**The NT dollar exchange rate reversed from appreciation to depreciation, but volatility remained relatively stable compared to other currencies**

In early 2015, owing to inflows of international hedge funds into Asian emerging countries, the NT dollar exchange rate appreciated upwards against the US dollar, reaching a yearly high of 30.541 on 22 May. Thereafter, the Fed signaled an interest rate hike and the PBC adjusted downwards the mid-price of the renminbi against the US dollar, leading to the depreciation of Asian currencies, including the NT dollar, against the US dollar. At the end of 2015, the NT dollar exchange rate stood at 33.066, with annual depreciation of 4.08%. In early 2016, the sharp depreciation of the renminbi leading to greater fluctuations in the exchange rates of other Asian currencies, coupled with the divergence of monetary policies in major advanced economies and heightened geopolitical tensions, affected market stabilization. Reflecting this, the NT dollar exchange rate continually depreciated against the US dollar in January, yet later resumed appreciation (Chart 1.11).

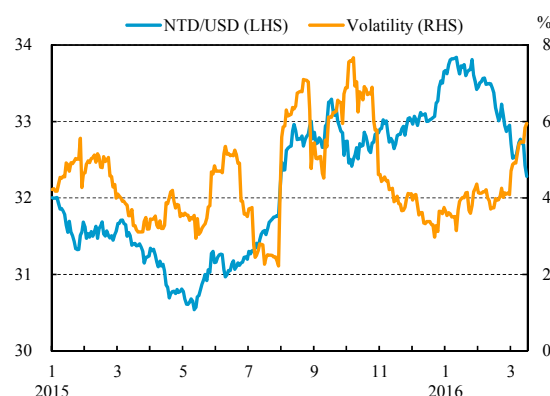
Volatility in the NT dollar exchange rate against the US dollar fluctuated between 2.22% and 7.67% in 2015, and registered an annual average of 4.54%. In the first quarter of 2016, volatility fluctuated between 3.13% and 5.95% (Chart 1.11). However, the NT dollar exchange rate was relatively stable compared to volatility in the exchange rates of major currencies such as the Japanese yen, euro, Korean won and Singapore dollar against the US dollar.

## Financial institutions

### Domestic banks

In 2015, the NPL ratio of domestic banks touched a new low of 0.24%, implying satisfactory asset quality (Chart 1.12), along with ample loan loss reserves. The credit concentration of corporate loans continually declined, while the concentration of credit exposure in real estate loans has also been addressed. The aggregate amount of exposure to Mainland China

**Chart 1.11 Movements of NT dollar exchange rate against US dollar**



Note: Volatility refers to the annualized standard deviation of 20-day daily returns.

Source: CBC.



descended. At the end of 2015, the ratio of the aggregate amount of such exposure to banks' net worth decreased to 60%, within the statutory limit and with no domestic bank exceeding the limit.

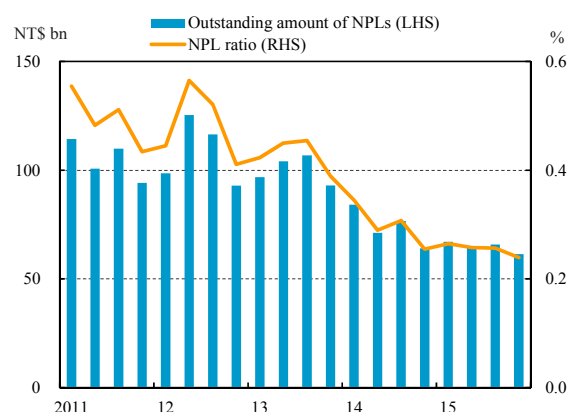
The aggregate net income before tax of domestic banks was NT\$320.6 billion in 2015, decreasing slightly by 0.03% year on year. The average return on equity (ROE) and return on assets (ROA) also fell to 10.65% and 0.73%, respectively, representing a decline in profitability (Chart 1.13). Meanwhile, as a result of capital injection and accumulated earnings of banks, the average capital adequacy ratio continuously rose to 12.93% at the end of 2015. The rise in the ratio was in favor of reinforcing domestic banks' loss absorbing capacity. The estimated Value at Risk (VaR) for market risk exposures of domestic banks rose, but had limited influence on capital adequacy.

### Life insurance companies

Life insurance companies reported a net income before tax of NT\$137.6 billion in 2015, hugely increasing by 19.35% over the previous year (Chart 1.14). This was chiefly driven by incremental expansion of interest income spurred by continuous growth in foreign bond and international bond investments, as well as cash dividends deriving from investment portfolios.

The average risk-based capital (RBC) ratio declined slightly to 298.03% at year-end 2015, but remained at a high level (Chart 1.14). The funds of life insurance companies are mainly invested in securities and the proportion of foreign portfolio investments increased. In response, life insurance companies should reinforce market risk management continuously.

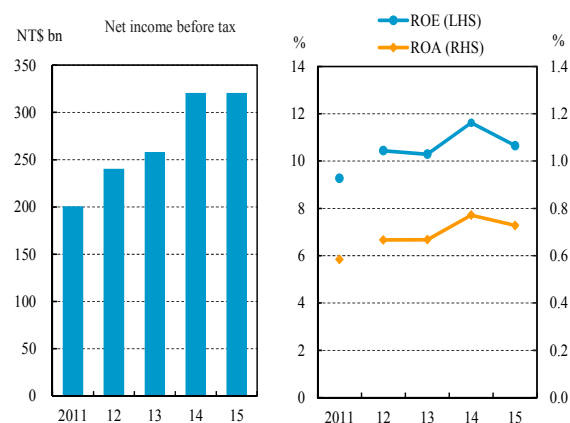
**Chart 1.12 NPL ratio of domestic banks**



Note: Excludes interbank loans.

Source: CBC.

**Chart 1.13 Profitability of domestic banks**



Notes: 1. Figures from 2012 forward are on the TIFRSs basis, while those of prior years are on the ROC GAAP basis.  
2. ROE = net income before tax/average equity.  
3. ROA = net income before tax/average total assets.

Source: CBC.

## Bills finance companies

The outstanding guarantees business undertaken by bills finance companies increased moderately at the end of 2015, while credit quality remained satisfactory. The liquidity risk of bills finance companies remained high as a maturity mismatch between assets and liabilities still persisted.

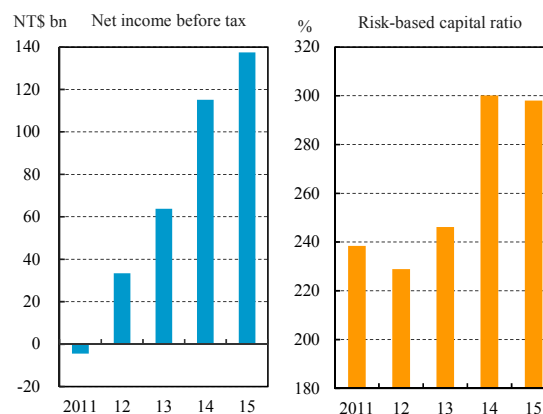
Nonetheless, bills finance companies posted a combined net income before tax of NT\$10.3 billion in 2015, with an increase of 11.79% year on year. The average capital adequacy ratio increased to 14.41% (Chart 1.15), while the individual ratio for each bills finance company was higher than 13%.

## Financial infrastructure

**The foreign currency clearing platform has been broadly completed and has helped promote the development of electronic payment services to ensure transaction security**

In 2015, all three systemically important payment systems (SIPs)<sup>7</sup> in Taiwan were functioning smoothly. The foreign currency clearing platform, which was promoted and established by the CBC, has been broadly completed, currently providing US dollar, renminbi, Japanese yen and euro remittance services, as well as incorporating real-time gross settlement (RTGS), payment versus

**Chart 1.14 Net income before tax and risk-based capital ratios of life insurance companies**

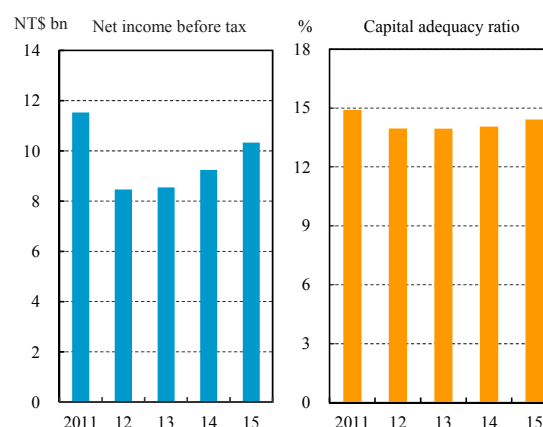


Notes: 1. Figures for net income before tax from 2012 forward are on the TIFRSs basis, while those of prior years are on the ROC GAAP basis.

2. Kuo Hua Life Insurance Company, which was taken into receivership by the Taiwan Insurance Guaranty Fund in August 2009 and merged into TransGlobe Life Insurance Company in March 2013, is excluded. Figures from 2014 onwards are exclusive of Singfor and Global Life Insurance companies, which were taken into receivership on 12 August 2014 and merged into Cathay Life Insurance Company on 1 July 2015.

Source: FSC.

**Chart 1.15 Net income before tax and capital adequacy ratios of bills finance companies**



Note: Figures for net income before tax from 2012 forward are on the TIFRSs basis, while those of prior years are on the ROC GAAP basis.

Source: CBC.

<sup>7</sup> The three SIPs include the CBC Interbank Funds-Transfer System (CIFS), the Interbank Remittance System (IRS) and the Check Clearing House System (CCHS).

payment (PVP) and delivery versus payment (DVP) mechanisms for settlement services. Furthermore, the platform links with Euroclear, Clearstream and the settlements systems in Mainland China, Japan and euro area.

In order to promote the sound development of domestic mobile payments, the Financial Information Service Co., Ltd. (FISC), the Taiwan Clearing House (TCH) and financial industry jointly established a payment service provider trusted service manager (PSP TSM) platform. Moreover, following the trend of cloud computing developments, the PSP TSM platform extended its function to include host card emulation (HCE)<sup>8</sup> and established the tokenization<sup>9</sup> authentication mechanism in 2015 to ensure transaction security. To effectively respond to cyber-attacks, following the requirements of the Bank for International Settlements (BIS), the CBC and related authorities have assessed the conformity of several important payment systems including the CBC Interbank Funds Transfer System (CIFS) with the *Principles for Financial Market Infrastructures*. The CBC's assessment confirmed that the CIFS has complied with the principles.

### **Other financial regulatory reforms**

The FSC has implemented four waves of supervisory reinforcements because banks engaging in complex high-risk derivatives had numerous disputes with investors. Mechanisms handling customer disputes have been established and these measures will promote customer protection and the healthy development of financial markets. Furthermore, the *Financial Institutions Merger Act* was amended in December 2015 to simplify the merger procedures and provide tax preference to enhance the merger incentives for financial institutions. To promote development of the financial service industry, the CBC continued to relax foreign exchange regulations of financial institutions in 2015.

## **Taiwan's financial system remained stable**

In 2015, global and domestic economic growth slowed, while the volatility of international financial markets amplified. Against this backdrop, domestic financial markets operated smoothly and the profitability of financial institutions remained satisfactory with sound asset quality. Meanwhile, the capital adequacy ratio of domestic financial institutions increased continuously and the loss absorbing capacity was adequate. The three major payment systems

<sup>8</sup> With HCE, customers are allowed to store their card account details in the merchants' secure cloud servers. HCE enables mobile applications to offer payments by providing virtual representation of account identities.

<sup>9</sup> Tokenization is a process to tokenize data by using the tokenization system. The service provides protection for customers by replacing the actual card account numbers with token numbers at the merchants with proximity sensors for online commerce. Because information transmitted is replaced with tokens, merchants will not know the real card account numbers, and data will not be exposed during transmission. It will effectively lower the risk of card account numbers being retrieved by others or the risk of fraud.

functioned along an orderly trajectory. By and large, the financial system in Taiwan remained stable.

The upcoming events emanating from the evolution of domestic and international economic and financial conditions that may have impacts on Taiwan's real economy and financial system necessitate increased vigilance. Above all, the spillovers from the divergence in the monetary policies of advanced economies, the rise in financial risks of emerging economies, and subdued economic growth of Mainland China deserve special attention. In response, the CBC will pay close attention and formulate adequate monetary, credit and foreign exchange policies to mitigate these impacts. Meanwhile, in the hope of facilitating the soundness of financial institutions and promoting financial stability, the FSC will persist in revamping financial regulations and enhancing financial supervisory measures, including: (1) continually reinforcing banks' risk management for conducting complex financial derivatives business; (2) establishing an off-site monitoring mechanism for detecting material risks of financial institutions; (3) strengthening risk management and increasing the risk-bearing capability of the insurance industry; and (4) increasing financial institution and securities market transparency.