I. Overview

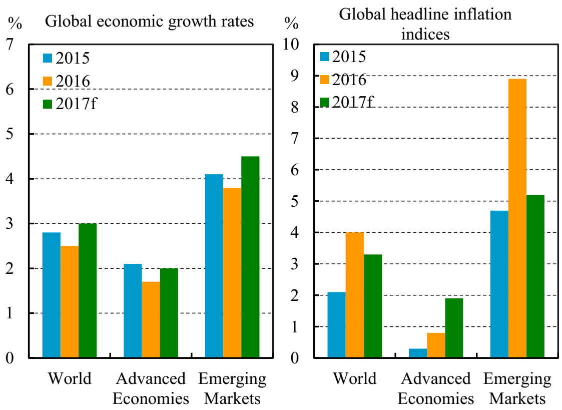
Macro environmental factors potentially affecting financial system

Global economy rebounded after experiencing deceleration, and international financial markets improved continually

Global economy resumed growth after experiencing deceleration, and inflation rose gradually

In 2016, the global economy saw its weakest growth since the subprime financial crisis, and the recovery of major economies was sluggish. The growth in the US was less-than-expected owing to decreases in inventory and energy sector investments. The recovery in the euro area and Japan, affected by various unfavorable factors, remained tepid. Moreover, growth momentum in emerging economies waned, reflecting decelerated economic growth in Mainland China and Latin American economies. IHS Global Insight predicts [1] world real GDP growth to rebound to 3.0% in 2017. Real GDP in advanced economies, driven by an acceleration in US growth, is projected to increase to 2.0%. Meanwhile, the average growth rate in emerging economies is expected to increase to 4.5%, thanks to a pickup in commodity and oil prices that is likely to bolster economic growth (Chart 1.1).

Chart 1.1 Global economic growth rates and headline inflation indices



Note: Figures for 2017 are IHS Global Insight estimates.
Source: IHS Global Insight (2017/5/15).

[1] IHS Global Insight estimate on May 15, 2017.

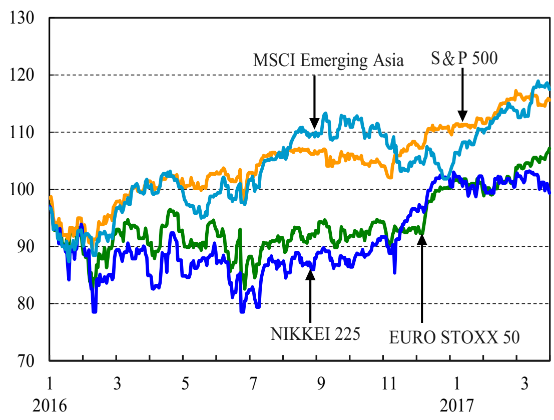
Regarding consumer prices, owing to the stabilization of commodity, oil and cereals prices, consumer price index (CPI) inflation rates in advanced economies increased marginally to 0.8% in 2016. Nonetheless, during the same period, the CPI for emerging economies hiked to 8.9%, reflecting a soaring inflation rate in Venezuela, and in turn pushed up the global CPI inflation rate to 4.0%. IHS Global Insight predicts the global headline inflation rate to fall to 3.3% in 2017, dragged by descending headline inflation in emerging economies[2] (Chart 1.1).

Global financial stability risks decreased, but prolonged low interest rates as well as political and policy uncertainties will present challenges

From 2016 onwards, commodity prices stabilized and economic conditions in several economies improved. Meanwhile, long-term interest rates rose gradually, enhancing the interest margins and long-term profitability of banks and insurance companies. Consequently, global financial stability risks decreased. However, political and economic policy uncertainties arising from protectionism and a possible change in US policy direction, as well as the prolonged low growth and low interest rate environment that has impaired the profitability of banks and solvency of insurance companies and pension funds, will continue to pose challenges for global financial markets.

The profitability of banks in certain advanced economies was weak and might face higher risks in the future. Though US banks had better performance, European banks' large stock of nonperforming assets might become a drag on their future profits. Meanwhile, Japanese banks reported weak performance because of narrowing interest spreads. Against this backdrop, stock prices in the US rose continually in 2016, while those in the euro area and Japan remained low in the first three quarters and rebounded in Q4 (Chart 1.2). Nevertheless, the Japanese yen, driven by mounting hedging needs, appreciated greatly in the first three quarters of 2016, while the

Chart 1.2 Performance of international equity indices



Notes: 1. January 1, 2016 = 100.
2. The EURO STOXX 50 Index is derived from 50 stock indices in 12 major economic bodies in the euro area.
Source: Bloomberg.

[2] On May 15, 2017, IHS Global Insight predicted the headline inflation rates of Latin America and Russia to decrease to 11.6% and 4.2% in 2017 from 29.3% and 7.0% in 2016, respectively, leading to a fall in the CPI inflation rate in emerging economies.

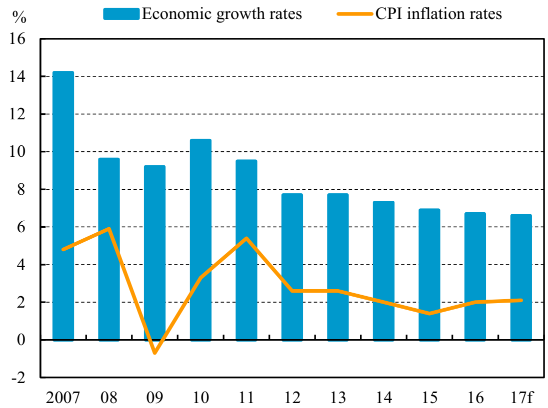
British pound and the euro depreciated after the Brexit referendum in June. Later in November, the outcome of the US presidential election and the Fed's interest rate hike pushed up the US dollar. Afterwards, the Japanese yen, the British pound and the euro depreciated markedly before they turned to appreciation in 2017 Q1.

In 2016, thanks to stabilization of commodity prices and improvements in economic conditions in several economies, the short-term financial risks in emerging markets abated. However, the overall financial stability risks remained high owing to elevated corporate leverage in several emerging economies and negative spillover effects stemming from political and policy uncertainties in major advanced economies. If international capital reverses to outflow and induces disorderly deleveraging in the future, corporates will see their funding costs increase and profits decrease, which may pose severe challenges to banks. Moreover, Mainland China, with a rising credit overhang and maturity mismatches between assets and liabilities in many of their financial institutions, faced moderate credit and liquidity risks. Underpinned by massive international capital inflows, stock prices in Asian economies rose in the first three quarters of 2016. However, the stock prices displayed a downtrend in Q4 owing to capital outflows triggered by the Fed's interest rate hike (Chart 1.2). In the meantime, their currencies depreciated after a period of appreciation.

Mainland China's economic growth momentum waned, while the renminbi depreciated considerably

Mainland China's economic growth rate dipped to 6.7% throughout 2016 from 6.9% a year before. IHS Global Insight predicts the growth rate to continue falling to 6.6% in 2017. Regarding consumer prices, the CPI inflation rate of Mainland China stood at 2.0% in 2016, lower than the official target of 3.0%. IHS Global Insight projects the annual CPI inflation rate of 2017 to increase to 2.1% (Chart 1.3).

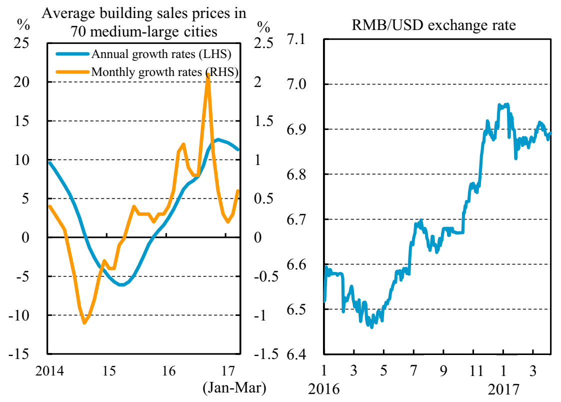
Chart 1.3 Economic growth rates and CPI inflation rates of Mainland China



Note: Figures for 2017 are IHS Global Insight projections.
Sources: National Bureau of Statistics of China and IHS Global Insight (2017/5/15).

In 2016, driven by Mainland China's easy monetary policy, massive capital flew into its housing market, leading to a steep rise in housing prices of the first- and second-tier cities. In the beginning of 2017, the upward trend continued, causing housing prices of the third- and fourth-tier cities to rise. In response to that, Mainland China's government implemented diverse control policies in different cities[3] to stabilize housing prices. In the first half of 2016, the renminbi exchange rate depreciated after appreciating. Moreover, owing to the combined effect of capital outflows and expectations of the renminbi's depreciation, the renminbi depreciated more in the second half of the year. In 2017 Q1, the renminbi rebounded slightly (Chart 1.4). In addition, the Shanghai Stock Exchange (SSE) Composite index stayed low and fluctuated within a narrow range triggered by capital outflow.

Chart 1.4 Building sales prices of Mainland China and renminbi exchange rate



Sources: Thomson Reuters and CBC.

Meanwhile, the annual growth rate of aggregate financing to the real economy in 2016 rose to 12.8% from 12.4% a year earlier, mainly resulting from increases in mortgage and off-balance sheet financing. Moreover, credit risks elevated as the NPL ratio of commercial banks edged up to 1.74% at the end of 2016. With local government debts coming due, debt-swap programs and debt-ceiling measures were successively launched in response.

Domestic macro environment

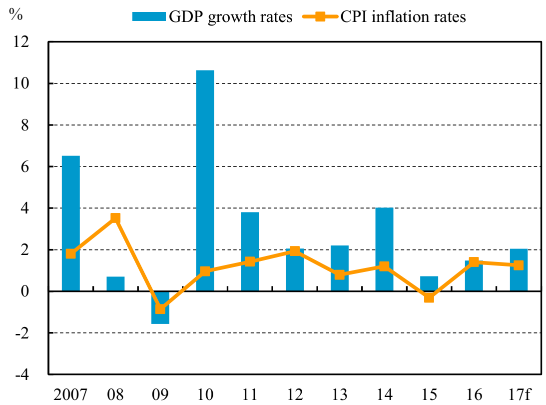
Domestic growth momentum picked up, while consumer prices rose mildly and the external debt servicing capacity remained sound

Bolstered by expanding exports as well as moderately growing private consumption and investment, the annual domestic economic growth rate registered 1.48% in 2016, higher than the 0.72% of the previous year. Meanwhile, domestic prices rose mildly throughout 2016, reflecting the fact that the average CPI inflation rate increased to 1.4% from the -0.31%

[3] The control policies refer to restrictions on home purchases, mortgages, and sales implemented in cities with surging house prices. The policies include: (1) limiting the quantity and size of housing units purchased by residents with or without household registrations; (2) raising the down payment for a mortgage; (3) prohibiting individuals or legal persons from transferring properties within a specified period after acquiring the property ownership certificates.

recorded a year earlier. It is expected that, in 2017, external demand will continue picking up, and private consumption will grow mildly. Meanwhile, the government will carry out its *Forward-looking Infrastructure Development Program* to boost investment momentum. As a result, the DGBAS forecasts[4] Taiwan's economic growth rate to increase continually to 2.05% in 2017. The CBC projects the annual CPI inflation rate to post 1.25%,[5] indicating prospects of mild inflation (Chart 1.5).

Chart 1.5 Economic growth rates and CPI inflation rates of Taiwan



Note: Figure for economic growth rate in 2017 is DGBAS projection on May 26, 2017; figure for CPI in 2017 is CBC estimate on March 23, 2017.
Sources: CBC and DGBAS.

Taiwan's external debt increased slightly to US$172.2 billion at the end of 2016 while foreign exchange reserves remained at a sufficient level of US$434.2 billion, implying a robust capacity to service external debt. Regarding the government's fiscal position, the amount of the fiscal deficit saw an expansion, increasing to 0.79%[6] of annual GDP in 2016. The outstanding public debt at all levels of government in 2016 grew but at a slower pace than GDP. Consequently, the ratio of outstanding public debt to annual GDP declined marginally to 36.46%.[7] The Ministry of Finance continued implementing the *Fiscal Health Plan* and *Central Government Debt Improvement Plan* to improve the structures of fiscal revenue and expenditure, and control the scale of public debt.

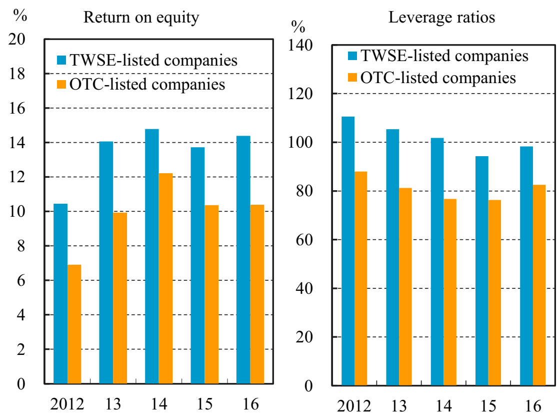
Corporate sector saw better profitability and sound credit quality

In 2016, thanks to a rebound of international raw material prices and expanding exports in Taiwan, the profitability of Taiwan Stock Exchange (TWSE) listed and over-the-counter (OTC) listed companies enhanced. Although their leverage ratios elevated (Chart 1.6) and short-term debt servicing capacity fell, both remained at a heathy level.

[4] The figures are based on a DGBAS press release on May 26, 2017.
[5] The CBC estimate on March 23, 2017.
[6] 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*.
[7] 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*.

The NPL ratio of corporate loans continued to decline to 0.32% at the end of 2016, the lowest level on record, reflecting sound credit quality for the corporate sector. However, pressure from intense global competition, trade protectionism, and the crowding-out effect caused by industrial supply chain localization in Mainland China may have impacts on future operation and investment growth of domestic corporates, which warrants close attention.

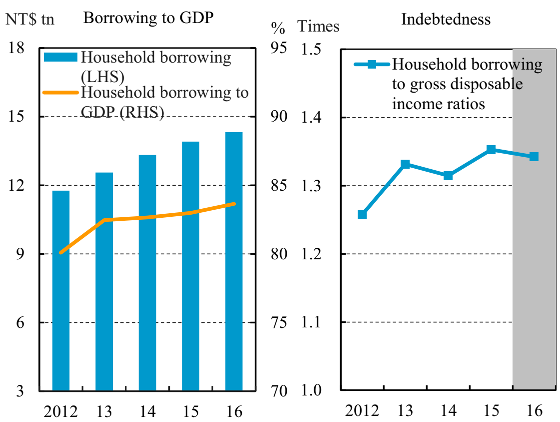
Chart 1.6 Return on equity and leverage ratios in corporate sector



Notes: 1. Return on equity = net income before interest and tax/average equity.
2. Leverage ratio = total liabilities/total equity.
Source: TEJ.

Household debt burden alleviated slightly and credit quality remained sound

Chart 1.7 Household indebtedness



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

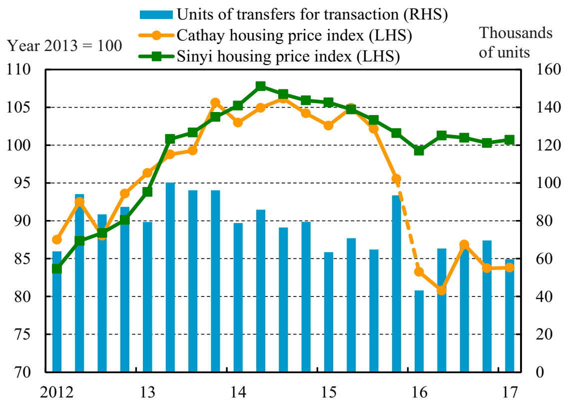
In 2016, total household borrowing continued to grow at a slower pace and reached NT$14.32 trillion at the end of the year, equivalent to 83.65% of annual GDP. As total disposable income grew at a faster pace in 2016, the ratio of household borrowing to total disposable income shrank to 1.34 at the end of the year, reflecting a lessening of the household debt burden (Chart 1.7).

At the end of 2016, the NPL ratio of household borrowing elevated slightly but only to a low level of 0.25%, indicating satisfactory credit quality. Moreover, the domestic unemployment rate and interest rate on loans remained low, which could help sustain the debt servicing capacity of households.

Real estate market saw contracting trading volume and sliding housing prices, while mortgage burden remained heavy

In 2016, since the real estate market remained gloomy, and the property tax burden became heavier, the total number of building ownership transfers for transaction declined by 16.12% compared to that of the previous year, showing that the trading volume in the real estate market kept contracting. In 2016, housing prices declined slowly as both the Sinyi housing price index (for existing residential buildings) and Cathay housing price index (for new residential buildings) in Q4 remained lower than the highest points recorded in 2014 (Chart 1.8). However, the real estate market showed signs of stabilization in 2017 Q1.

Chart 1.8 Building ownership transfers for transaction and real estate price indices



Notes: 1. For comparison purposes, the two indices use the same base year of 2013.
2. Cathay housing price index changed its compilation method in 2016 Q1, using a new definition of standard housing units and amending the bargaining rate estimation techniques.

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

In 2016, housing prices and mortgage interest rates trended downwards, and the growth of household disposable income slowed. As a result, in Q3, the debt servicing ratio for housing loans and the house price to income ratio for Taiwan declined year on year to 38.49% and 9.35, respectively. Among all areas, the debt servicing ratio for housing loans and the house price to income ratio in Taipei City were the highest, reaching 63.71% and 15.47, respectively, implying a still-heavy debt burden.

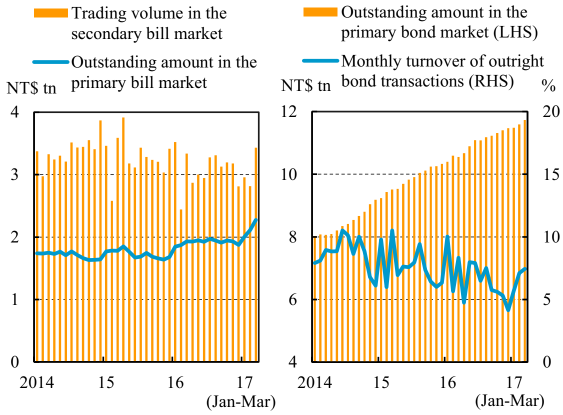
Financial system assessment

Financial markets

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

The total amount of bills outstanding in the primary market at the end of 2016 increased markedly by 11.67% year on year. However, trading volume in the secondary market decreased by 6.16% over the same period. It reflected the fact that most of the bills underwritten by bills finance companies were immediately sold outright to banks in the secondary market after issuance, while banks that purchased the bills generally adopted a buy-and-hold strategy to those positions. In 2017 Q1, the amount of bill issuance in the primary market continued to expand while trading volume in the secondary market remained roughly flat. Meanwhile, the total amount of bonds outstanding at the end of 2016 ascended by 11.0% year on year. The reason was mainly that the issuance of international bonds grew sharply. However, trading volume in the secondary bond market contracted, owing to an amplified concentration of bonds held by life insurance companies and banks. In December 2016, the monthly turnover ratio of outright transactions of the major bonds[8] in the secondary market dipped to a new low of 4.14% but rebounded slightly in 2017 Q1 (Chart 1.9).

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.

As for market rates, the interbank overnight call loan rate stayed low in 2016, affected by the two policy rate cuts of the CBC. The yield on Taiwan's long-term 10-year government bonds also tumbled to a record low of 0.63% in August, but rebounded after the Fed signaled a possible interest rate hike. In 2017 Q1, the yield fluctuated within a narrow range. Looking forward, considering that global economic and financial conditions have changed dramatically and long-term interest rates in Taiwan may follow the movement of US government bond yields and trend upwards, the related interest rate risk warrants close attention.

Stock indices trended up amid falling volatility

In 2016, thanks to the pickup in major international stock markets and domestic economic growth, the Taiwan Stock Exchange Weighted Index (TAIEX) of the TWSE market trended upwards after fluctuating and registered 9,254 at the end of the year, posting an increase of 10.98% year on year. In 2017 Q1, the TAIEX continued its upward path, buoyed by the fact that the US stock market continued hitting new highs and massive foreign capital flew into domestic markets (Chart 1.10).

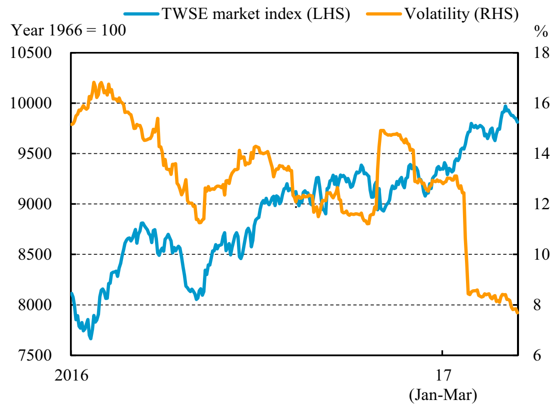
[8] It includes government bonds, international bonds, corporate bonds, and financial debentures.

In 2016, volatility in the TWSE market dropped gradually from the high level of 16.82% registered in the beginning of the year to 12.94% at the end of the year. In 2017, volatility fell continually to 7.69% at the end of March (Chart 1.10).

The NT dollar exchange rate fluctuated upwards, and its volatility remained relatively stable compared to other currencies

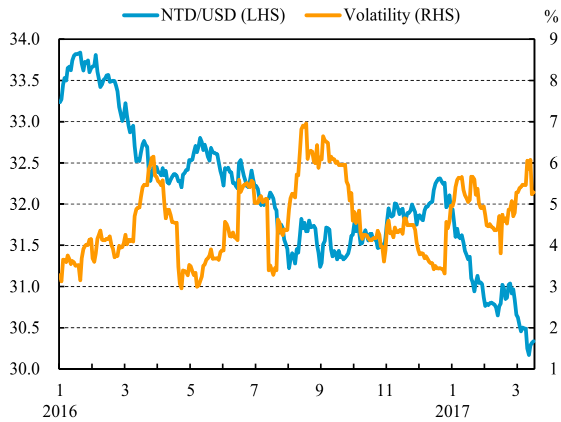
In the first three quarters of 2016, owing to massive foreign capital inflows, the NT dollar exchange rate appreciated against the US dollar, reaching a high level of 31.225 on August 10. In Q4, owing to the expectations that the US might increase fiscal expenditure and the Fed's interest rate hike in December, the NT dollar exchange rate turned to depreciation against the US dollar. At the end of 2016, the NT dollar exchange rate stood at 32.279, with annual appreciation of 2.44%. In 2017 Q1, affected by continuous foreign capital inflows, the NT dollar exchange rate returned to appreciation, posting 30.336 against the US dollar at the end of March (Chart 1.11).

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.

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.

Volatility in the NT dollar exchange rate against the US dollar fluctuated between 2.96% and 6.96% in 2016, and registered an annual average of 4.52%. In 2017 Q1, volatility moved between 3.32% and 6.07% (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.

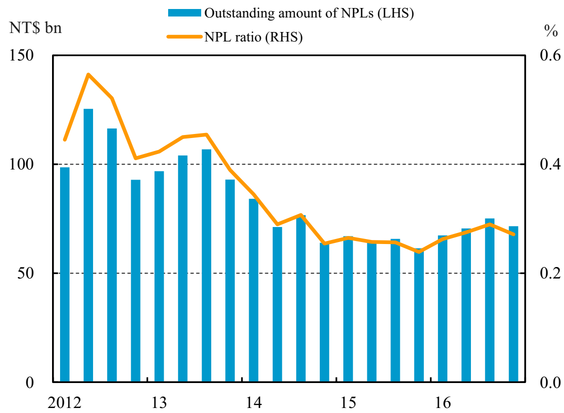
Financial institutions

Domestic banks maintained healthy asset quality and profitability, and reported a higher average capital adequacy ratio

In 2016, customer loans of domestic banks grew steadily. In terms of borrowers of loans, the credit concentration of corporate loans increased slightly whereas that of real estate loans descended marginally. As of the end of 2016, the NPL ratio of domestic banks slightly increased year on year but still held at a sound level (Chart 1.12), while loan loss reserves remained ample. Meanwhile, the aggregate amount of exposure to Mainland China contracted continually. At the end of 2016, the ratio of the aggregate amount of such exposure to banks' net worth decreased to 51%, within the statutory limit and with no domestic bank exceeding the limit.

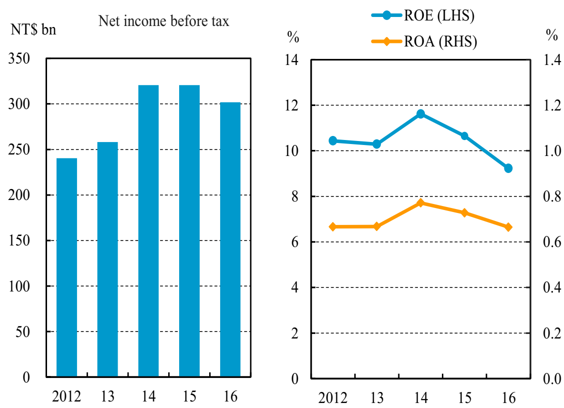
The net income before tax of domestic banks was NT$301.9 billion in 2016, decreasing by 5.85% year on year. The average return on equity (ROE) and return on assets (ROA) remained sound; however, they fell respectively to 9.23% and 0.66% (Chart 1.13). At the end of 2016, the average capital adequacy ratio of domestic banks continually rose to 13.33% with satisfactory capital quality, which may help reinforce their loss-absorbing capacity.

Chart 1.12 NPL ratios of domestic banks



Note: Excludes interbank loans.
Source: CBC.

Chart 1.13 Profitability of domestic banks



Notes: 1. ROE = net income before tax/average equity.
2. ROA = net income before tax/average total assets.
Source: CBC.

Life insurance companies saw decreasing profitability, but their financial condition still exhibited sound fundamentals

Life insurance companies reported a net income before tax of NT$106.5 billion in

2016, decreasing by 22.58% over the previous year (Chart 1.14). This was chiefly driven by foreign exchange losses deriving from the appreciation of the NT dollar exchange rate against the US dollar, as well as increases in commission expenses and policy provisions for new insurance policies.

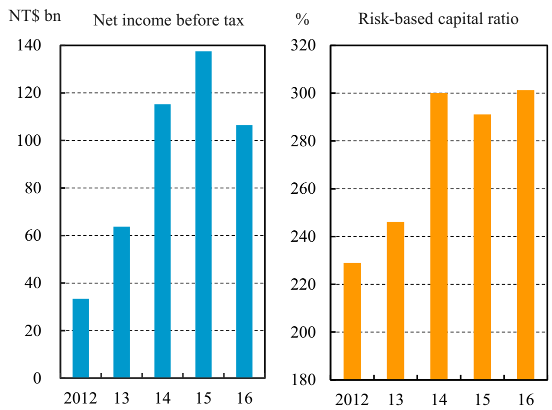
In 2016, life insurance companies strengthened their capital positions through operating profits and issuance of subordinated debt. As a result, the average risk-based capital (RBC) ratio elevated to 301.25% at the end of the year (Chart 1.14), implying sound financial fundamentals. As for their market risks, foreign exchange markets exhibited heightened volatility recently. Consequently, life insurance companies with large unhedged foreign currency positions might face higher foreign exchange risk.

Bills finance companies reported higher net income before tax, but liquidity risk warrants close attention

In 2016, short-term interest rates continued to stay low, attracting corporates to raise funds through money markets. Against this backdrop, the outstanding guarantees business undertaken by bills finance companies increased continually at the end of 2016, while credit quality remained satisfactory. Considering that maturity mismatches between assets and liabilities persisted in bills finance companies, their liquidity risk warrants close attention.

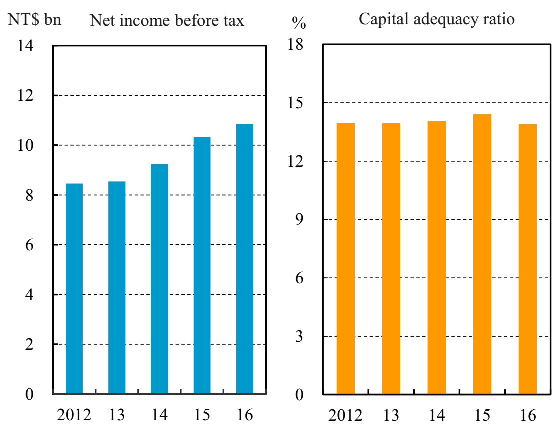
Nonetheless, thanks to the widening spread in yielding operations and an increase in underwriting revenue, bills finance companies

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



Note: Figures for risk-based capital ratios exclude insurance companies taken into receivership by the FSC.
Source: FSC.

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



Source: CBC.

posted a net income before tax of NT$10.9 billion in 2016, increasing by 5.13% year on year. Their average capital adequacy ratio declined to 13.90% (Chart 1.15), due to an increase in total risk-weighted assets driven by mounting non-government bond investment positions. However, individual ratios for each bills finance company remained higher than 12%.

Financial infrastructure

The CBC continued to expand the functions of the foreign currency clearing platform and responded proactively to FinTech developments

In 2016, all three systemically important payment systems (SIPSs)[9] in Taiwan were functioning smoothly. The CBC continued to expand the functions of the foreign currency clearing platform, currently providing US dollar, renminbi, Japanese yen, euro and Australian dollar remittance services. The remittances transferred via the platform were processed without intermediary banks, which have saved approximately NT$2.1 billion of remittance fees for customers as of the end of 2016.

Moreover, in response to the developments of FinTech, the CBC not only established the Digital Finance Group dedicated to researching issues related to blockchain and virtual currencies, but also urged the Financial Information Service Co., Ltd. (FISC) to invite financial institutions to jointly establish a committee aiming at conducting financial blockchain research and experimentation. In addition, the FISC actively assisted local financial institutions in providing mobile payment services for online fund transfers, bill and tax payments, and shopping, as well as establishing safe and convenient identity authentication mechanisms.

Other financial regulatory reforms

To strengthen banks' liquidity risk management and follow international standards, in December 2016, the FSC, together with the CBC, promulgated the *Standards Implementing the Net Stable Funding Ratio of Banks*, which will be implemented from January 1, 2018. In addition, to promote sound domestic FinTech development, the FSC amended related regulations and planned to set up a FinTech innovation experiment mechanism, with an aim

[9] The three SIPSs include the CBC Interbank Funds-Transfer System (CIFS), the Interbank Remittance System (IRS) and the Check Clearing House System (CCHS).

to encourage the domestic financial services industry as well as other related industries to apply technology innovations to enhance the effectiveness of financial services.

In order to reinforce the mechanism of AML/CFT, Taiwan's government promulgated the *Money Laundering Control Act* as well as the *Terrorism Financing Prevention Act*[10] in 2016. In March 2017, the Anti-Money Laundering Office was established, demonstrating Taiwan's resolution to fight against money laundering. Moreover, to continue converging with the *International Financial Reporting Standards* (IFRS), entities in Taiwan will adopt the IFRS 9 *Financial Instruments* from 2018 onwards. Considering that the IFRS 9 is expected to have a wide range of impacts, the affected entities shall be well-advised to evaluate potential impacts and develop responsive measures. In addition, to promote development of the financial services industry, the CBC continued to relax foreign exchange regulations of financial institutions in 2016.

Taiwan's financial system remained stable

In 2016, domestic economic growth picked up, while consumer prices rose mildly. Against this backdrop, domestic financial markets operated smoothly. The profitability and asset quality of domestic financial institutions deteriorated slightly but still remained at a healthy level. Meanwhile, the capital adequacy ratio of most domestic financial institutions increased. The three major payment systems also 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 possible US policy outcomes, the timetable of the Fed's interest rate hikes, the rise of protectionism, the Brexit negotiation process, the political and economic conditions of the euro area, and the spillovers from Mainland China's economic transformation and financial risks deserve special attention. In response, the CBC will pay close attention and formulate adequate monetary, credit and foreign exchange policies to mitigate the impacts. Meanwhile, the FSC will persist in revamping financial regulations and enhancing financial supervisory measures in the hope of facilitating the soundness of financial institutions and promoting financial stability.

[10] "Terrorism financing" referred to in the *Terrorism Financing Prevention Act* are activities that provide financing to terrorist activities, terrorist groups, or individual terrorists.