I. Overview

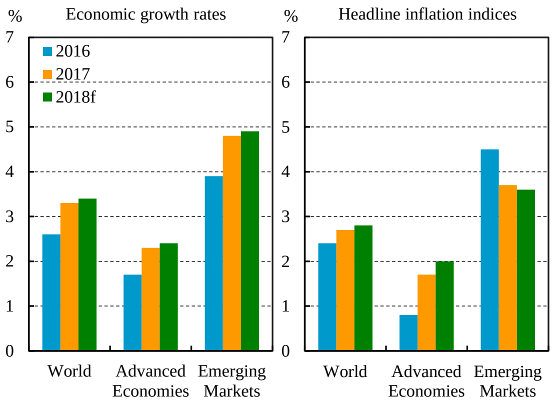
Potential macro environmental risk factors

Global economic recovery momentum enhanced, and the international financial system continued to improve

Global economy recovered steadily, and inflation rose moderately

As the recovery in global investment and trade took hold in 2017, the global economy improved steadily, and the global economic growth rate edged up to a five-year high of 3.3%. Among advanced economies, the acceleration of economic growth in the US was spurred on by an improvement in personal consumption expenditures and fixed investment. The economies in the euro area and Japan expanded steadily, supported by increasing demand in both domestic and export markets. Furthermore, growth rates in the euro area reached a 10-year high. Meanwhile, with rising commodity prices and global demand, as well as economic growth in Mainland China picking up pace for the first time in seven years, growth momentum in emerging economies increased. Looking ahead to 2018, IHS Markit predicts[1] global gross domestic product (GDP) growth to expand to 3.4%. Among them, economic growth in advanced economies is projected to rise to 2.4% driven by US tax reform. During the same period, the average growth rate in emerging economies is forecast to increase to 4.9% on the back of an improving economic outlook bolstered by a pickup in commodity prices (Chart 1.1).

Chart 1.1 Global economic growth rates and headline inflation indices



Note: Figures for 2018 are IHS Markit estimates.
Source: IHS Markit (2018/5/15).

[1] IHS Markit estimate on May 15, 2018.

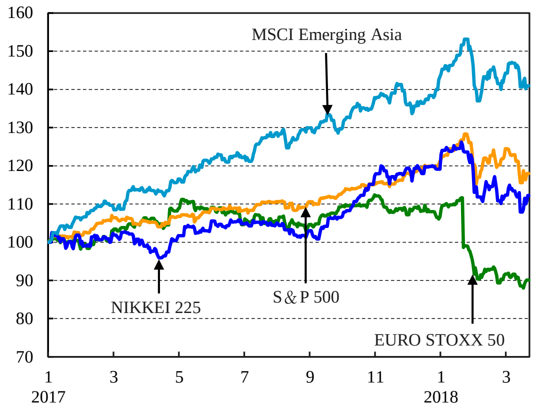
Regarding consumer prices, fluctuating food prices, as well as elevated commodity and oil prices, moderately pushed up global inflation. The global consumer price index (CPI) inflation rate rose to 2.7%. Among them, the headline inflation rate in advanced economies picked up to 1.7%, reflecting the upward trend of US inflation. On the other hand, the headline inflation rate in emerging economies reduced to 3.7% as a result of a more moderate inflation rate in Brazil.[2] IHS Markit predicts that the global headline inflation rate will continue rising to 2.8% owing to the recovery in the global economy and elevating commodity prices (Chart 1.1).

The global banking industry has regained its health, yet financial market risks elevated

In 2017, thanks to the strengthening global economic recovery, the international banking industry has regained its health. However, prolonged easy monetary policies have intensified the search for high-yield assets, leading to risks shifting from the banking sector to financial markets, which have experienced compressed risk premiums and volatility. Furthermore, private sector indebtedness significantly surged, resulting in rising medium-term vulnerabilities.

In most advanced economies, the banking industry has generally regained its health, but some banks still need to improve their balance sheets. In emerging economies, massive international capital inflows have pushed up asset prices and external debt. Meanwhile, nonfinancial sector debt mounted; thus, if the occurrence of unfavorable events trigger capital outflows and tighter financial conditions, it might jeopardize the stability of financial institutions and markets.

Chart 1.2 Performance of international equity indices



Notes: 1. January 1, 2017 = 100.
2. The EURO STOXX 50 Index is derived from 50 stock indices in 12 major economic bodies in the euro area.

Source: Bloomberg.

Global stock markets trended upwards in 2017 (Chart 1.2). With regard to the euro, Japanese yen and major Asian currencies, most of them displayed appreciating trends against the US dollar. Additionally, volatility and yields in

[2] On May 15, 2018, IHS Markit predicted the headline inflation rate of Brazil would decrease significantly to 3.4% in 2017 from 8.7% in 2016.

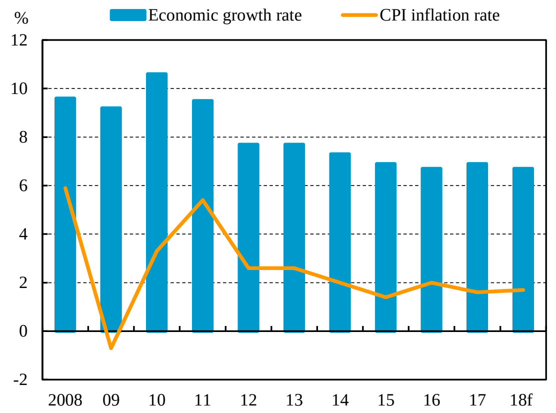
bond markets dropped significantly over the same period. Nevertheless, volatility in global financial markets saw a considerable rise in early February 2018. Among them, global stock markets plunged following a sharp fall in US stock indices (Chart 1.2). In the future, tightening monetary policies by major central banks, coupled with mounting fears of a possible correction of rocketing asset prices as well as intensified trade tensions and geopolitical disputes, may induce dramatic fluctuations in asset prices, jeopardizing the stability of global financial markets.

Mainland China's economic growth accelerated and the renminbi appreciated significantly

Mainland China's economic growth picked up to 6.9% throughout 2017 from 6.7% a year before. Nevertheless, IHS Markit predicts the growth rate to slightly fall to 6.7% in 2018 owing to domestic and international factors. Regarding consumer prices, the CPI inflation rate of Mainland China stood at 1.6% in 2017, lower than the 2.0% of the previous year. IHS Markit projects the annual CPI inflation rate of 2018 to increase marginally to 1.7% (Chart 1.3).

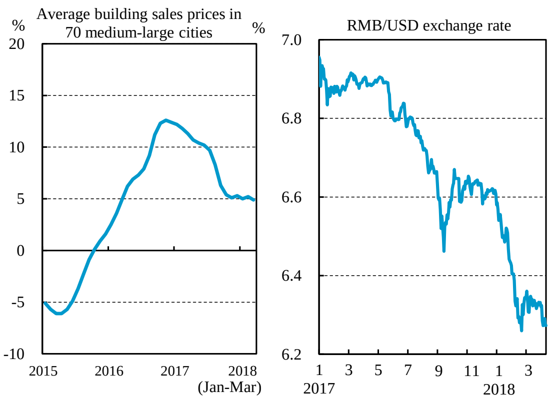
In 2017, the annual growth rate of housing prices in Mainland China declined significantly. Meanwhile, the renminbi has appreciated substantially against the US dollar from May 2017 onwards and this trend has continued until 2018 Q1 (Chart 1.4). In addition, the Shanghai Stock Exchange (SSE) Composite Index fluctuated upwards in 2017, but plunged in February 2018 owing to a marked fall in US stock indices. Afterwards, the SSE composite index rebounded and stabilized.

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



Note: Figures for 2018 are IHS Markit projections.
Sources: National Bureau of Statistics of China and IHS Markit (2018/5/15).

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



Sources: Thomson Reuters Datastream and CBC.

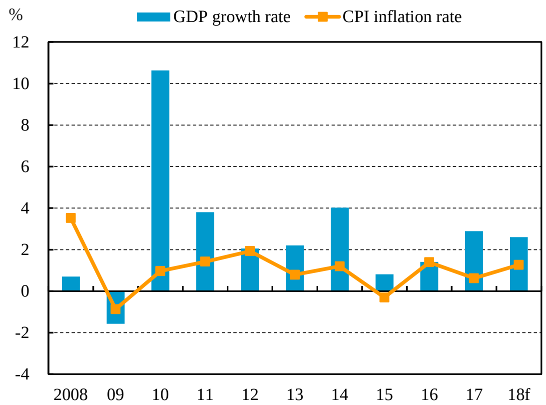
To cope with the growing non-performing loans (NPLs) of commercial banks, Mainland China's government successively launched various preemptive measures for monitoring local government debt so as to reduce their default risk. However, the elevating debt in Mainland China's non-financial sector still warrants close attention.

Domestic macro environment

Domestic economy recovered steadily, while consumer prices rose mildly and external debt servicing capacity remained sound

In 2017, bolstered by strongly expanding exports, coupled with private consumption growth driven by the improvement of employment conditions, the annual economic growth rate in Taiwan rose to 2.89%, noticeably higher than the 1.41% of the previous year. Meanwhile, domestic prices rose mildly throughout 2017. The annual CPI inflation rate registered 0.62%, lower than the 1.39% of the previous year. Taking a glance into 2018, growth in both private investment and consumption are expected to increase and the continued steady growth of the global economy will likely be beneficial to maintaining Taiwan's export growth momentum. Nevertheless, uncertainties stemming from rising trade protectionism and geopolitical tensions may partially curb domestic growth momentum. As a result, the Directorate-General of Budget, Accounting and Statistics of the Executive Yuan (DGBAS) forecasts Taiwan's annual economic growth rate to slightly moderate to 2.60%[3] in 2018. The CBC projects the annual CPI inflation rate to ascend to 1.27%,[4] indicating prospects of mild inflation (Chart 1.5).

Chart 1.5 Economic growth rate and CPI inflation rate of Taiwan



Note: Figure for economic growth rate in 2018 is DGBAS projection on May 25, 2018; figure for CPI in 2018 is CBC estimate on March 22, 2018.
Sources: CBC and DGBAS.

Taiwan's external debt increased to US$181.9 billion at the end of 2017, but FX reserves remained at a sufficient level of US$451.5 billion, implying a robust capacity to service external debt. Meanwhile, the amount of the

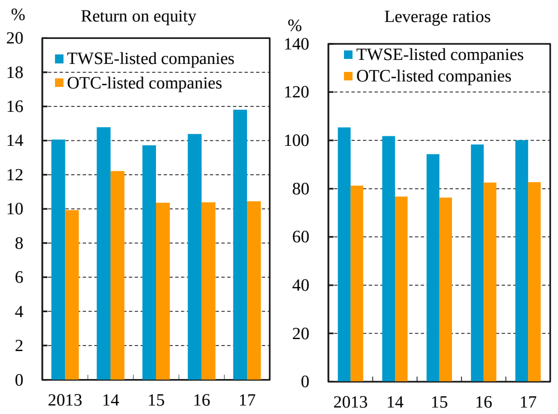
3 The figures are based on a DGBAS press release on May 25, 2018.
4 The figures are based on a CBC press release on March 22, 2018.

fiscal deficit saw a rebound, increasing to 1.38%[5] of annual GDP in 2017. The outstanding public debt at all levels of government leveled off at the end of the year, but the ratio of total public debt to annual GDP slightly fell to 35.65%,[6] indicating that total government debt stayed within a manageable level.

Corporate sector posted elevated profitability and credit quality of corporate loans remained sound

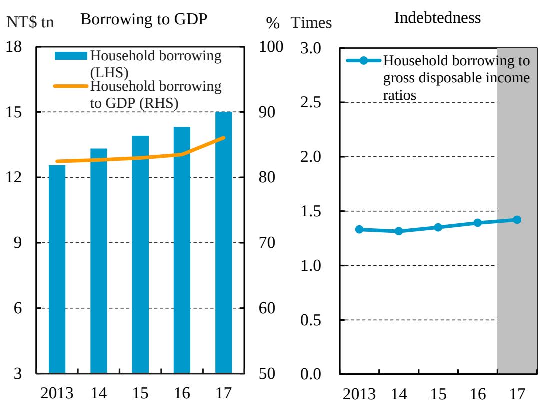
In 2017, thanks to the steady recovery in the global economy and Taiwan's expanding exports, the profitability of Taiwan Stock Exchange (TWSE) and over-the-counter (OTC) listed companies enhanced. Although their leverage ratios elevated marginally (Chart 1.6), short-term debt servicing capacity remained at an adequate level.

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.

Chart 1.7 Household indebtedness



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

At the end of 2017, the NPL ratio for corporate loans from financial institutions rose marginally to 0.39% but still stayed at a healthy level. Nevertheless, in view of the industrial supply chain localization in Mainland China, the rise of trade protectionism, and global geopolitical risks, the outlook for future operations of corporations in Taiwan remains challenging.

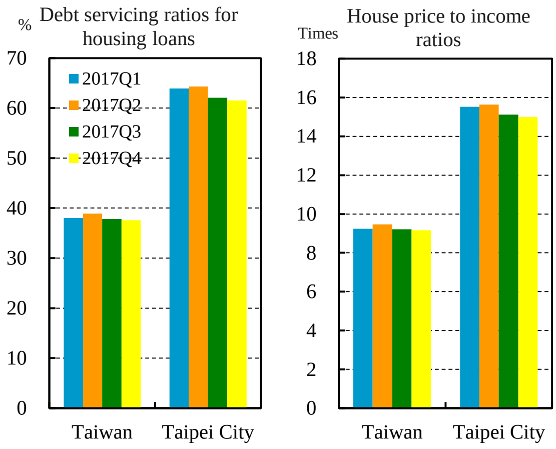
[5] As a comparison, fiscal deficits in EU member nations are not allowed to exceed 3% of GDP according to the *Maastricht Treaty* and the subsequent *Stability and Growth Pact*.
[6] As a comparison, outstanding debt in European Union (EU) member nations is not allowed to exceed 60% of GDP according to the *Maastricht Treaty* and the subsequent *Stability and Growth Pact*.

Household debt burden rose slightly, but credit quality of household borrowing remained satisfactory

At the end of 2017, total household borrowing expanded to NT$15 trillion, equivalent to 86.07% of annual GDP. The ratio of household borrowing to total disposable income rose slightly to 1.42, reflecting an increase in the household debt burden (Chart 1.7).

At the end of 2017, the NPL ratio of household borrowing elevated slightly but remained at a low level of 0.27%. Credit quality didn't worsen significantly, but related risks should be closely monitored. The household saving rate and total household net worth are relatively high in Taiwan, indicating sound household financial conditions. Moreover, the falling domestic unemployment rate, together with prolonged low interest rates on domestic loans, should help sustain the debt servicing capacity of households.

Chart 1.8 Debt servicing ratios for housing loans and house price to income ratios



Notes: 1. Debt servicing ratio for housing loans = median housing loans monthly payments/median household monthly disposable income.
2. House price to income ratio = median house price/median household annual disposable income.

Source: Housing Price Affordability Indicator Statistics, Construction and Planning Agency of the MOI.

Real estate market saw steady trading volume and housing prices fluctuating within a narrow range, while mortgage burden remained heavy

In 2017, trading volume in the housing market stabilized. The number of building ownership transfers for transaction increased by 8.43% year on year. The volume continued its upward trend in 2018 Q1 with an annual growth rate of 10.63%. From 2017 onwards, the Sinyi housing price index (for existing residential buildings) fluctuated within a narrow range. During the same period, the Cathay housing price index rose moderately owing to new residential building sales slightly picking up; however, the index decreased marginally in 2018 Q1.

In 2017 Q4, the debt servicing ratio for housing loans and the house price to income ratio for Taiwan declined modestly year on year to 37.58% and 9.16, respectively. Among all areas, the ratios in Taipei City were the highest, reaching 61.52% and 14.99, respectively, implying a still-heavy debt burden (Chart 1.8).

Financial system assessment

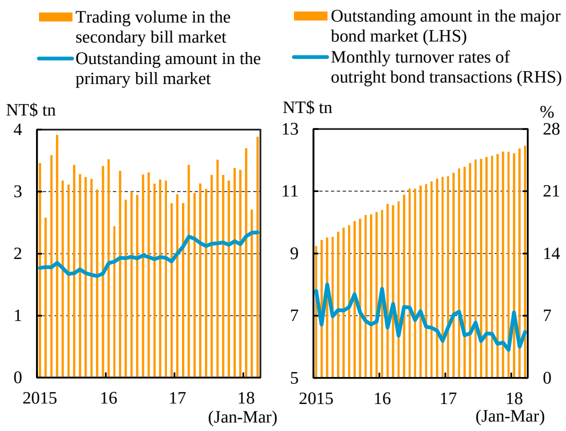
Financial markets

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

At the end of 2017, the outstanding amount of bill issuance in the primary market substantially increased by 15% year on year. Following the expansion in the primary market, the bill trading volume in the secondary market also picked up. As for the bond market, the outstanding amount of bond issuance rose by 6.98% yearly over the same period. Nevertheless, trading volume in the secondary bond market contracted owing to an amplified concentration of bonds held by life insurance companies and banks. Among them, the monthly turnover rates of major bonds[7] in the secondary market continued to decline, but slightly rebounded in 2018 Q1 (Chart 1.9).

The short-term interbank overnight call loan rate stayed at a low level in 2017. In addition, the yield on Taiwan's long-term 10-year government bonds moved downwards, registering a low of 0.915% in January 2018. Gradual interest rate hikes by the Federal Reserve System (Fed) and more US government bond issuance after tax cuts might push up the yields on US government bonds and, in turn, trigger a rise in the yield on Taiwan's government bonds. Therefore, interest rate risks concerning bond investments warrant close attention.

Chart 1.9 Primary and secondary bill and bond markets



Notes: 1. Major bonds include government bonds, international bonds, corporate bonds, and financial debentures.
2. Monthly turnover rate = trading value in the month/average bonds issued outstanding amount. Average bonds issued outstanding amount = (outstanding amount at the end of the month + outstanding amount at the end of last month)/2.

Sources: CBC and FSC.

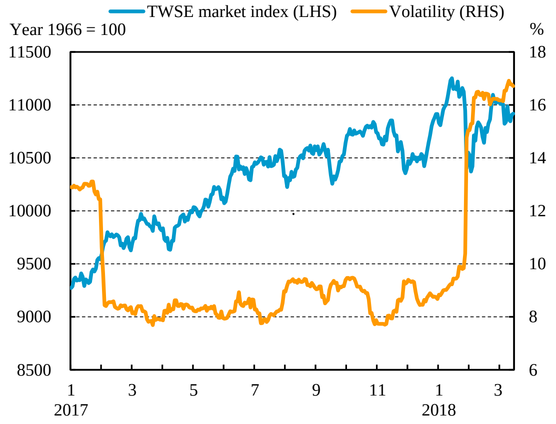
[7] It includes government bonds, international bonds, corporate bonds, and financial debentures.

Stock indices gradually trended up, while volatility increased in early 2018

Affected by US stock markets hitting new highs and massive net buying by foreign investors, the Taiwan Stock Exchange Weighted Index (TAIEX) of the TWSE market trended upwards and registered 10,643 at the end of the year, posting an increase of 15.01% year on year. In February 2018, the TAIEX saw an abrupt drop following plummeting US stock markets, but rebounded and remained stable afterwards (Chart 1.10).

In 2017, volatility in the TWSE market dropped sharply from its respective high of 13.11% in the beginning of the year and stood at merely 8.80% at the end of December. In 2018 Q1, however, affected by fluctuations in international stock markets, volatility surged to 16.71% at the end of March (Chart 1.10).

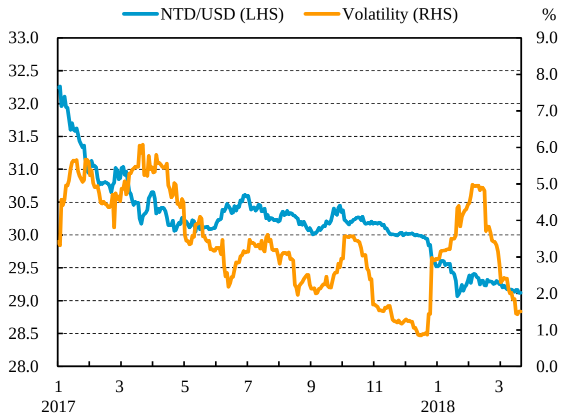
Chart 1.10 TWSE market index and volatility



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

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

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.

In 2017, owing to sustained foreign capital inflows to Asian economies, the NT dollar exchange rate fluctuated with an upward trajectory during the whole year and stood at 29.848 at the end of the year, with an annual appreciation of 8.14%. In 2018 Q1, affected by persistent foreign capital inflows, the NT dollar exchange rate continued appreciating against the US dollar and rose to 29.120 at the end of March[8] (Chart 1.11).

[8] In April 2018, the NT dollar exchange rate depreciated because of a stronger US dollar.

Volatility in the NT dollar exchange rate against the US dollar shifted between 0.85% and 6.07% and registered an annual average of 3.41% in 2017, while the rate moved between 1.43% and 4.97% during 2018 Q1 (Chart 1.11). Compared to major currencies such as the Japanese yen, the euro, the Korean won, and the Singapore dollar, the NT dollar exchange rate has been relatively stable against the US dollar.

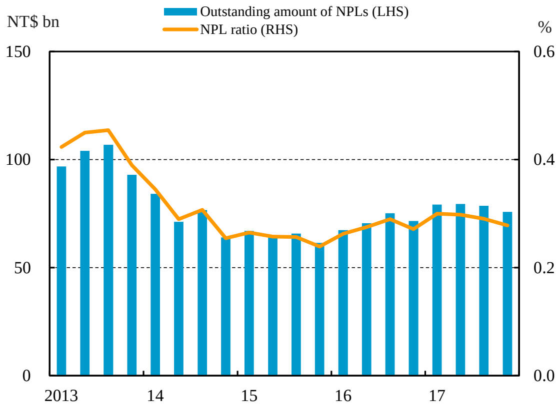
Financial institutions

Domestic banks maintained healthy asset quality and reported higher net income before tax as well as average capital adequacy ratios

In 2017, customer loans of domestic banks grew steadily. Meanwhile, the concentration of credit exposure in real estate increased marginally whereas that of corporate loans decreased slightly. The NPL ratio of domestic banks increased moderately year on year but still held at a sound level (Chart 1.12) along with sufficeint loss provisions. On the other hand, the aggregate amount of exposure to Mainland China turned to increase. At the end of 2017, the exposures to banks' net worth picked up to 54%, but none of the domestic banks exceeded the statutory limit of 100%.

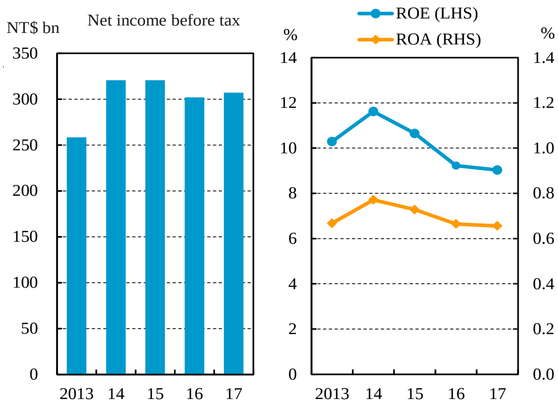
The net income before tax of domestic banks was NT$307 billion in 2017, increasing by 1.71% year on year. The average return on equity (ROE) dropped to 9.03% owing to a greater increase in equity, while average return on assets (ROA) remained at a sound level of 0.66% (Chart 1.13). At the end of 2017, the average capital adequacy ratio of domestic banks continually rose to 14.17% with satisfactory capital quality, which may help reinforce their loss-bearing capacity.

Chart 1.12 NPL ratio of domestic banks



Note: Excludes interbank loans.
Source: CBC.

Chart 1.13 Profitability of domestic banks



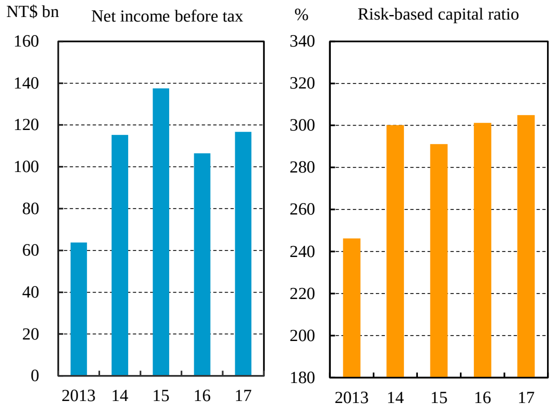
Notes: 1. ROE = net income before tax/average equity.
2. ROA = net income before tax/average total assets.
Source: CBC.

Life insurance companies saw a pickup in net income before tax, and their financial condition still exhibited sound fundamentals

Life insurance companies reported a net income before tax of NT$116.7 billion in 2017, increasing markedly by 9.59% over the previous year (Chart 1.14). This was chiefly driven by the growth in interest revenue and the gain on securities investments, as well as the decrease in policy underwriting expenses.

In 2017, life insurance companies strengthened their capital through accumulation of operating profits and issuance of subordinated debt. As a result, the average risk-based capital (RBC) ratio rose to 304.9% at the end of the year (Chart 1.14), implying sound financial fundamentals. From early 2018 onwards, however, volatility in international stock and bond markets has heightened. This, coupled with enormous foreign portfolio positions held by life insurance companies, might cause those firms to face higher market risk.

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

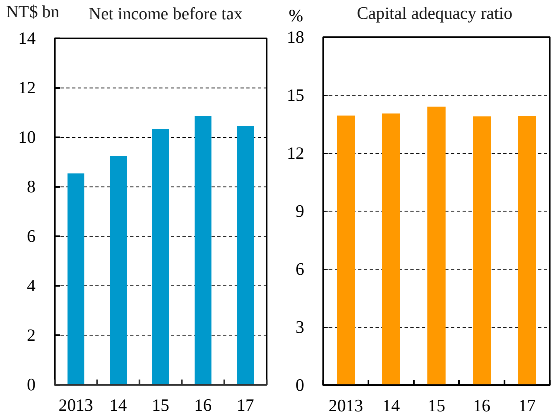


Note: Figures for risk-based capital ratios exclude insurance companies taken into receivership by the FSC.
Source: FSC.

Bills finance companies reported lower net income before tax and liquidity risk remained at a high level

Owing to rising funding demands of corporates in money markets spurred by low short-term market rates, commercial paper (CP) guaranteed by bills finance companies grew mildly and credit quality remained sound. On the other hand, considering that maturity mismatches between assets and liabilities persisted in bills finance companies, their liquidity risk remained high.

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



Source: CBC.

Bills finance companies posted a net income before tax of NT$10.5 billion in 2017, a decrease of 3.74% year on year. The decline was mainly driven by a decrease in commission fee income and an increase in the yielding cost of foreign currency bonds. The average capital adequacy ratio of bills finance companies moderately ascended to 13.93% at the end of 2017 (Chart 1.15), and the ratio for each company was higher than 13%.

Financial infrastructure

The CBC continued to expand the functions of the foreign currency clearing platform and worked with other institutions to accelerate popularization of electronic payments

In 2017, all three systemically important payment systems (SIPSs)[9] in Taiwan were functioning smoothly. Additionally, the foreign currency clearing platform provides US dollar, renminbi, Japanese yen, euro and Australian dollar remittance services. The functions of AML/CFT were also integrated into this platform. The remittances can be settled directly through the platform rather than through foreign third parties, which were estimated to have reduced remittance fees paid by the public by the amount of NT$2.9 billion or so from the first day of platform operation to the end of 2017.

Moreover, for the purpose of keeping in line with the government's policy of promoting electronic payments, the CBC urged the Financial Information Service Co., Ltd. (FISC) to actively establish an E-Health Pay platform and develop common standards for QR codes to deepen financial inclusion. In addition, the CBC will continually collaborate with external professional teams to conduct feasibility studies related to applying distributed ledger technology (DLT) to payment and settlement systems in Taiwan.

Other measures to strengthen the financial system

The FSC opened the Financial Information Sharing and Analysis Center (F-ISAC) in December 2017 so as to enhance cyber security protection in the domestic financial system.

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

Moreover, in order to reinforce financial supervision and comply with international supervisory standards, the FSC has collected information on the domestic systemically important banks (D-SIBs) identification and supervision framework from other countries to assess the feasibility of its implementation. Additionally, the *Financial Technology Development and Innovative Experimentation Act* was promulgated in January 2018 and became effective on 30 April of the same year, which could promote Taiwan's financial technology development to enhance the effectiveness of financial services.

In order to conform with the strengthening standards for information transparency internationally, Taiwan formulated the *Regulations Governing the Implementation of the Common Standard on Reporting and Due Diligence for Financial Institutions* in November 2017. In addition, the CBC continued to relax FX regulations of financial institutions in 2017, aiming to promote the development of the financial services industry.

Taiwan's financial system remained stable

In 2017, global economic growth rose steadily and inflation stayed stable. Against this backdrop, domestic financial markets operated smoothly. The profitability of domestic financial institutions remained solid, while asset quality weakened slightly but still stood at a healthy level. Meanwhile, the capital adequacy ratio of most domestic financial institutions increased continually. The three major payment systems also functioned along an orderly trajectory. By and large, the financial system in Taiwan remained stable.

Confronted with the far-reaching changes in economic and financial conditions both domestically and globally, especially monetary policy normalization of the Fed, European Central Bank (ECB), and Bank of Japan (BOJ), the rise in trade protectionism, elevated debt levels in Mainland China, a possible global financial market correction, and the rising risk of capital outflows from emerging economies, the CBC will continually monitor the above impacts on the domestic economy and financial system and implement adequate monetary, credit, and FX policies as warranted. Meanwhile, the FSC will continue to revamp financial regulations and enhance financial supervisory measures in the hope of facilitating the soundness of financial institutions and promoting financial stability.