I. Overview

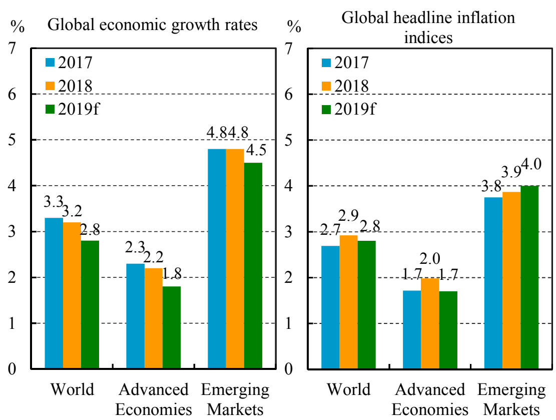
Potential macro environmental risk factors

Global economy saw mild growth, while financial vulnerabilities continued to accumulate

Global economic growth moderated in 2018 and inflation rose slightly

The global economic growth rate slightly decreased to 3.2% in 2018, and the economic growth rates in advanced economies took divergent paths. Among them, economic growth in the US accelerated, while those in the euro area and Japan waned. With regard to emerging markets, despite the fact that the economy in Mainland China slowed down as a result of deleveraging policies and trade conflicts with the US, growth momentum in India and Brazil improved. In sum, the overall economic growth rate in emerging economies leveled off. Looking ahead to 2019, IHS Markit predicts[1] that global GDP growth will continue to moderate to 2.8%. Among them, economic growth in advanced economies is projected to reduce to 1.8% with the unwinding of fiscal stimulus in the US and political disruptions in the euro area. The average growth rate in emerging economies is forecast to decrease to 4.5%, reflecting the ongoing US-China trade tensions (Chart 1.1).

Chart 1.1 Global economic growth rates and headline inflation indices



Note: Figures for 2019 are IHS Markit estimates.
Source: IHS Markit (2019/5/15).

Regarding consumer prices, in 2018, the rebounding trend of oil prices raised global inflation mildly and slightly lifted the consumer price index (CPI) inflation rate to 2.9%. Among them, the headline inflation rate

[1] IHS Markit estimate on May 15, 2019.

in advanced economies kept rising to 2.0%, and the rate in emerging economies also accelerated to 3.9%. IHS Markit predicts that in 2019 the global headline inflation rate will drop to 2.8% on the back of more stable commodity and oil prices (Chart 1.1).

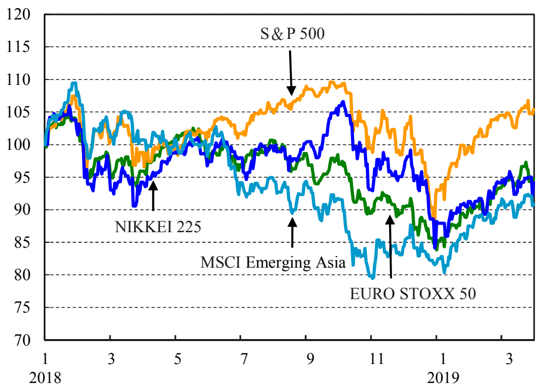
Global financial conditions remained accommodative, yet the buildup of financial vulnerabilities continued

In the beginning of 2018, global financial conditions by and large remained accommodative. However, from mid-April, yields on US bonds drifted higher and the US dollar rallied, exerting pressure on portfolio flow reversals in emerging economies with fragile fiscal balances and high external debt. Moreover, in Q4, a stock market slump in the US put selling pressure on global stock markets, resulting in tighter financial conditions. In 2019 Q1, with the dovish shift in major economies' monetary policies and the progress in US-China trade negotiations, global financial markets dramatically rebounded. As a result, tightening financial conditions attenuated and turned relatively accommodative afterwards.

In 2018, the capital levels of banks in major economies continued to trend upward and the banking industry has generally regained its health. Nonetheless, vulnerabilities in major economies' sovereign, corporate and nonbank financial sectors continued to build. Given investors' fears over the monetary policy outlooks of major economies, global economic growth slowdown, protracted trade tensions, and a no-deal Brexit contributing to selling pressures, financial conditions could tighten again and raise global financial stability risks.

In February 2018, US stock markets tumbled and induced a drop in international stock markets. The markets stabilized gradually afterwards. However, from October onwards, against a backdrop of several unfavorable conditions such as an escalation of US-China trade tensions and a slowdown in global economic growth, market volatility increased dramatically. In 2019 Q1, global stock markets gradually stabilized and then plunged again as a result of rising trade tensions in early May (Chart 1.2).

Chart 1.2 Performance of international equity indices

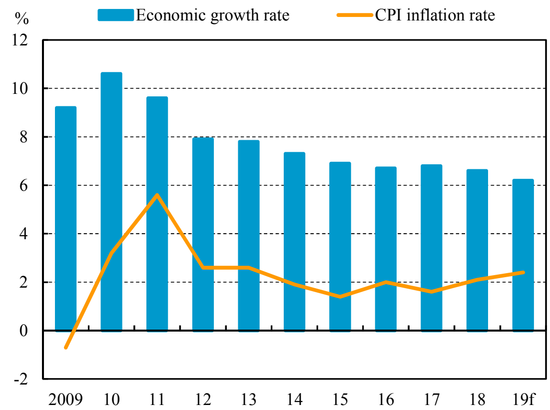


Notes: 1. January 1, 2018 = 100.
2. The EURO STOXX 50 Index is derived from 50 stock indices in 11 major economic bodies in the euro area.
Source: Bloomberg.

Economic growth slowed down in Mainland China and the renminbi depreciated sharply before witnessing a dramatic rebound

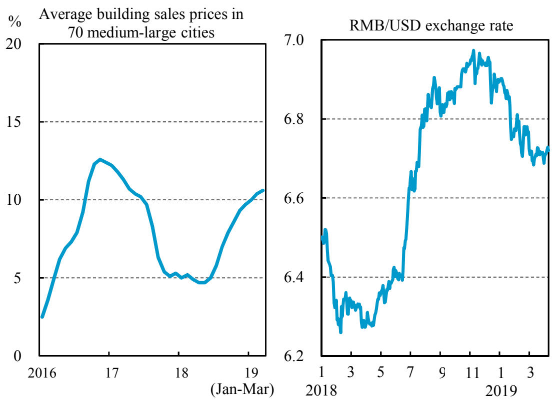
Mainland China's economic growth dropped to 6.6% in 2018, the lowest level in 28 years, from 6.8% a year earlier. IHS Markit projects that the economic growth rate will fall further to 6.2% in 2019 owing to a slowdown in global demand and uncertainties over the US-China trade dispute. Regarding consumer prices, the CPI inflation rate of Mainland China was 2.1% throughout 2018, an increase of 0.5 percentage points compared to a year earlier. IHS Markit projects the annual CPI inflation rate of 2019 to climb to 2.3% (Chart 1.3).

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



Note: Figures for 2019 are IHS Markit projections.
Sources: National Bureau of Statistics of China and IHS Markit (2019/5/15).

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



Sources: Thomson Reuters Datastream and CBC.

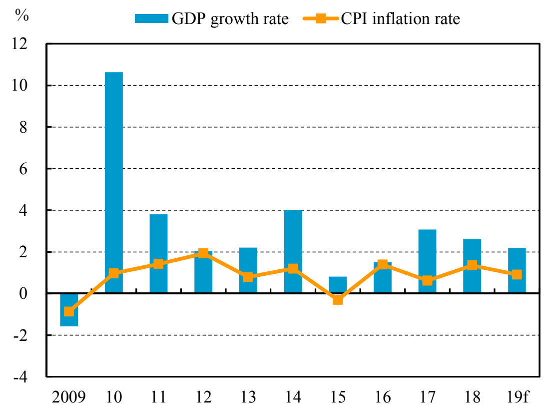
In the second half of 2018, thanks to a shift toward easier monetary policy by the People's Bank of China (PBC), the annual growth rate of housing prices significantly increased. Meanwhile, from 2018 Q2 onwards, affected by the Fed's rate hikes and the escalation of the US-China trade dispute, the renminbi depreciated substantially against the US dollar. Afterwards, owing to market expectations for a slower pace of US rate hikes, the renminbi turned to appreciate against the US dollar (Chart 1.4). In addition, the Shanghai Stock Exchange (SSE) Composite Index fluctuated with a downward trend in 2018. In 2019 Q1, stimulated by the progress in US-China trade negotiations, the SSE Composite Index rebounded sharply before an abrupt drop in early May.

The non-performing loan (NPL) ratios of commercial banks in Mainland China elevated and the outstanding debt for nonfinancial sectors constantly increased. In response, Mainland China's government successively launched various measures for monitoring nonfinancial sector debt. In the second half of 2018, however, a series of measures aiming to foster sustainable economic growth by the government could cause delays in the deleveraging schedule and a rise in potential risks, which warrant close attention.

Domestic macro environment

Domestic economy grew mildly, while consumer prices rose moderately and external debt servicing capacity remained sound

Chart 1.5 Economic growth rate and CPI inflation rate of Taiwan



Note: Figures for 2019 are CBC forecasts released on March 21, 2019.
Sources: CBC and DGBAS.

In 2018, even though the economic growth rate reached 2.63% owing to continual improvement in employment and modest momentum in both private consumption and investment, the figure was still lower than the 3.08% of the previous year. Meanwhile, domestic prices rose mildly throughout 2018. The annual CPI inflation rate registered 1.35%, higher than the 0.62% of the previous year. Taking a glance into 2019, the growth momentum of private consumption and private investment is expected to sustain. However, the slowdown in global demand could jeopardize Taiwan's exports. Therefore, the Bank forecasts Taiwan's annual economic growth rate to decline further to 2.13% in 2019.[2] On the other hand, given an outlook of mild inflation, the Bank forecasts the annual CPI inflation rate to drop to 0.91% (Chart 1.5).[3]

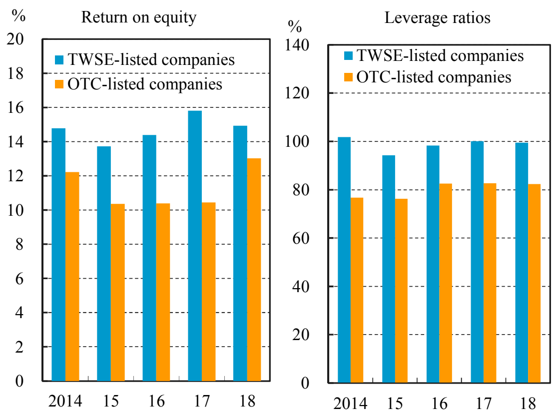
Taiwan's external debt increased marginally to US$191.2 billion at the end of 2018, but foreign exchange (FX) reserves remained at a sufficient level of US$461.8 billion, implying a robust capacity to service external debt. Meanwhile, the amount of the fiscal deficit saw a rebound, increasing to 1.32%[4] of annual GDP in 2018. The outstanding public debt at all levels of government slightly increased at the end of the year, but the ratio of total public debt to annual GDP slightly fell to 35.38% owing to a greater rise in GDP growth,[5] indicating that total government debt stayed within a manageable level.

[2] The figures are based on a CBC press release on March 21, 2019.
[3] See Note 2.
[4] As a comparison, fiscal deficits in European Union (EU) member nations are not allowed to exceed 3% of GDP according to the *Maastricht Treaty* and the subsequent *Stability and Growth Pact*.
[5] 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 profitability of listed companies showed mixed movements and credit quality of corporate loans elevated

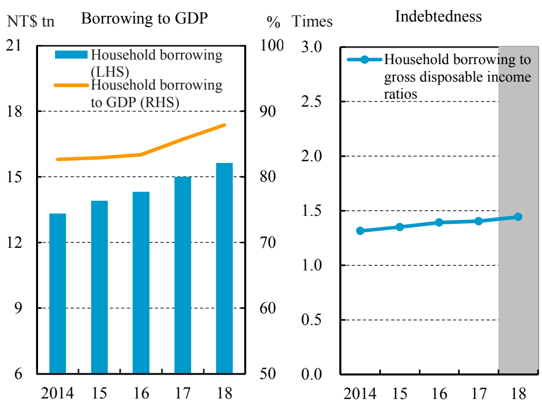
In 2018, the average return on equity (ROE) of Taiwan Stock Exchange (TWSE) listed companies abated to 14.92%, reflecting a marginal decrease in profitability. The main reason was that the profitability of the optoelectronics industry declined significantly. On the other hand, benefitting from the persistently strong demand for silicon wafers and passive components and from the increasing profitability in the biotechnology industry, over-the-counter (OTC) listed companies saw their average ROE rise to a high of 13.02%, suggesting a significant improvement in profitability. Meanwhile, the average leverage ratios for TWSE-listed companies and OTC-listed companies both moderated (Chart 1.6), and their 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



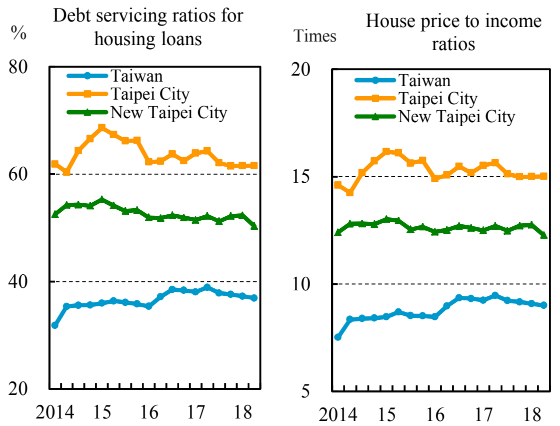
Note: Gross disposable income in shadow area is CBC estimate.
Sources: CBC, JCIC and DGBAS.

At the end of 2018, the NPL ratio for corporate loans from financial institutions fell to a 10-year-low of 0.30%. The overall credit quality for the corporate sector strengthened. However, in view of the fading momentum in global economic growth, economic slowdown in Mainland China, uncertainties over US-China trade talks, and the Brexit deadlock, the outlook for future operations of corporations in Taiwan remains challenging.

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

At the end of 2018, total household borrowing expanded and reached NT$15.64 trillion, equivalent to 87.89% of annual GDP. The ratio of household borrowing to total disposable income rose to 1.44, reflecting a moderate rise in the household debt burden (Chart 1.7). Nevertheless, prolonged low interest rates on domestic loans, together with the falling domestic unemployment rate and improving regular earnings in the industrial and service sectors, 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 monthly housing loan payment/median monthly household disposable income.
2. House price to income ratio = median house price/median annual household disposable income.
3. The latest data are as of 2018 Q2.

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

In 2018, the NPL ratio of household borrowing decreased to 0.26% at the end of the year, reflecting an improvement in its credit quality.

Real estate market saw steady trading volume and a slight increase in housing prices, while mortgage burden moderated yet stayed high

In 2018, trading volume in the housing market grew mildly. The number of building ownership transfers for transaction increased by 4.47% year on year. The total number of building ownership transfers for transaction recorded an annual growth rate of 4.30% for the period of January to April 2019. In the second half of 2018, the Sinyi housing price index (for existing residential buildings) rose gradually. Additionally, the Cathay housing price index (for new residential buildings) increased significantly in 2018 Q4 as a result of a sharp surge in prices of new residential buildings. In 2019 Q1, the index continued to rise, but pressure from the expansion of unsold new residential properties might increase.

In 2018 Q4, the debt servicing ratio for housing loans and the house price to income ratio in Taiwan declined marginally year on year to 36.90% and 9.0, respectively, but stayed at a high level. Among all areas, the ratios in Taipei City registered 61.56% and 15.01, respectively, showing the heaviest mortgage burden (Chart 1.8). On the other hand, the NPL ratios of housing loans and construction loans decreased continually to 0.21% and 0.19% at the end of

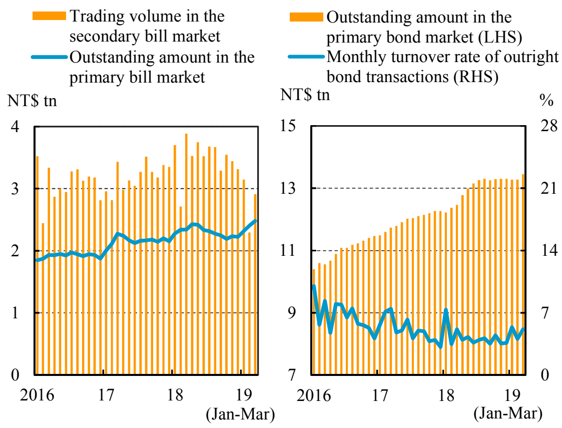
March 2019, reflecting that the risk management capability of domestic banks to cope with potential mortgage loan losses remained satisfactory.

Financial system assessment

Financial markets

Bill and bond issuance in both primary and secondary markets expanded

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

Sources: CBC and FSC.

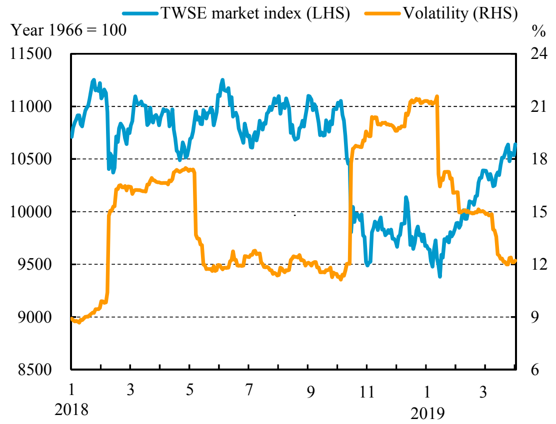
At the end of 2018, the outstanding amount of bill issuance in the primary market increased by 3.18% year on year, along with a rise of 9.68% in the bill trading volume in the secondary market. As for the bond market, the outstanding amount of bond issuance increased by 8.41% year on year, mainly driven by massive international bond issuance. Trading volume in the secondary bond market rose by 5.26% as well. Nevertheless, the monthly turnover rate of major bonds declined to a record low of 4.25%, but slightly rebounded in 2019 Q1 (Chart 1.9).

The short-term interbank overnight call loan rate remained at a low level in 2018. In addition, 10-year government bond yields moved to a relatively high level before dropping. Considering that the yields have decreased to a relatively low level recently and the possibility for them to rebound in the future increased, interest rate risks related to bond investments are still high and warrant close attention.

Stock indices slumped after experiencing fluctuations at a high level in 2018, but rebounded strongly in 2019 Q1, while volatility decreased

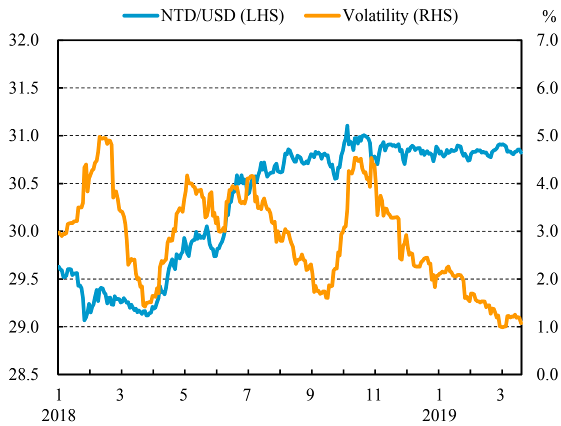
In 2018, affected by US stock market's movements, the pace of the Fed's interest rate hikes, the escalation of US-China trade tensions, and a rise in US government bond yields, the Taiwan Stock Exchange Weighted Index (TAIEX) of the TWSE market fluctuated at a high level before plunging, registering 9,727 at the end of the year and posting a decrease of 8.60% year on year. In the beginning of 2019, the TAIEX rebounded as a result of the Fed's decision to pause interest rate hikes and the progress in US-China trade talks (Chart 1.10). Nevertheless, intensified US-China trade tensions led to a fall in the TWSE market in early May.

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.

In 2018 Q4, induced by a slump in international stock markets, volatility in the TWSE market surged and registered 21.29% at the end of the year. In 2019 Q1, the stock markets in Taiwan stabilized and the volatility in the TWSE market decreased significantly to 12.21% at the end of March (Chart 1.10).

The NT dollar exchange rate oscillated along a depreciating path, and its volatility remained relatively stable

In 2018, owing to the US-China trade dispute and interest rate hikes by the Fed, the NT dollar exchange rate against the US dollar followed a depreciating path during the whole year and stood at 30.733 at the end of the year, an annual depreciation of 2.88%. In the beginning of 2019, reflecting market expectations of the Fed suspending interest rate rises, the NT dollar exchange rate was relatively stable against the US dollar and stood at 30.825 at the end of March (Chart 1.11). However, intensified US-China trade tensions in early May led to the depreciation of most emerging Asian currencies including the NT dollar, which turned to weaken beyond 31 against the US dollar.

Volatility in the NT dollar exchange rate against the US dollar shifted between 1.43% and 4.97% and registered an annual average of 3.16% in 2018, before moving between 0.99% and 2.26% during 2019 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.

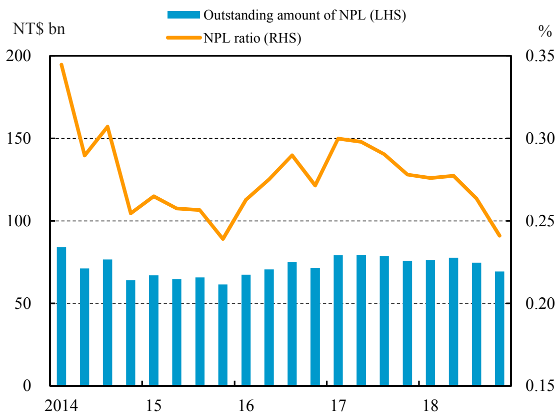
Financial institutions

Domestic banks reported better asset quality and profitability, while capital ratio leveled off

In 2018, customer loans of domestic banks kept rising. Meanwhile, the share of real estate-secured credit and the credit concentration of corporate loans both slightly descended. The average NPL ratio decreased to 0.24%, reaching a recent low (Chart 1.12), along with sufficient loss provisions. On the other hand, the aggregate amount of exposure to Mainland China continued its upward path, but the ratio of the exposures to banks' net worth dropped marginally to 53%, and none of the domestic banks exceeded the statutory limit of 100%.

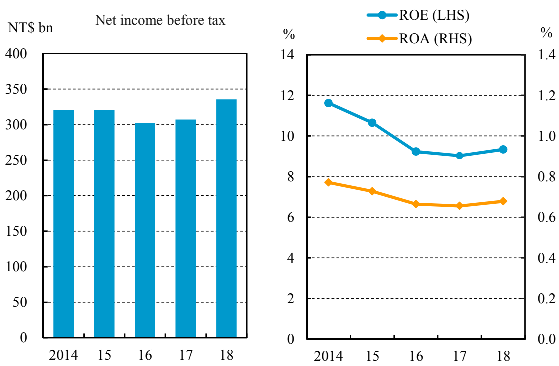
In 2018, the net income before tax of domestic banks rose to NT$335.4 billion, a significant increase of 9.26% year on year. The average ROE and return on assets (ROA)

Chart 1.12 NPL of domestic banks



Note: Excludes interbank loans.
Source: CBC.

Chart 1.13 Profitability of domestic banks

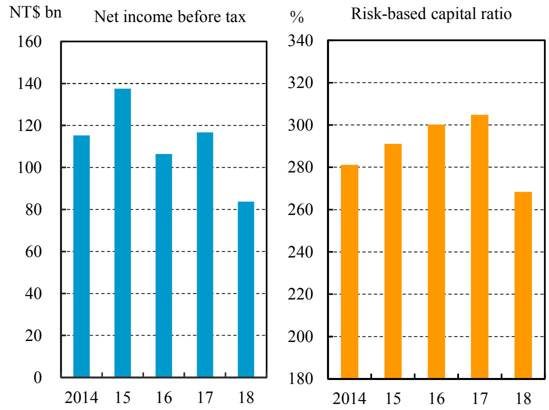


Notes: 1. ROE = net income before tax/average equity.
2. ROA = net income before tax/average total assets.
Source: CBC.

also increased to 9.34% and 0.68% (Chart 1.13), respectively, showing improved profitability. In addition, at the end of 2018, the average capital adequacy ratio of domestic banks leveled off with satisfactory capital quality.

Life insurance companies saw a decline in profitability, and their capital levels plummeted before rebounding significantly

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.

Life insurance companies reported net income before tax of NT$83.7 billion in 2018, decreasing dramatically by 28.22% year on year (Chart 1.14). This was chiefly driven by growth in hedging costs and an increase in non-operating losses on the disposal of assets. Moreover, the comprehensive income of life insurance companies was NT$-500.7 billion in 2018, mainly owing to the substantial increase in unrealized losses on financial assets. However, it has greatly improved in 2019 Q1.

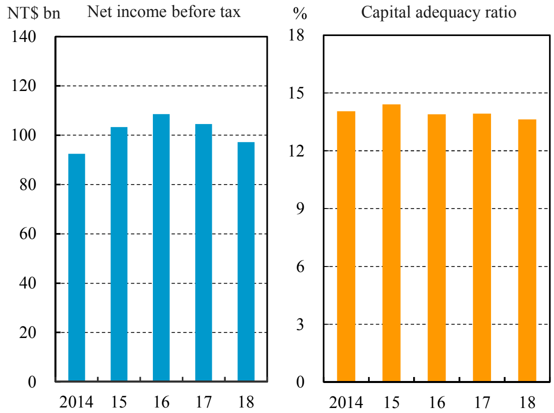
In 2018, capital levels of life insurance companies declined owing to a greater decrease in equity. As a result, the average RBC ratio descended to 268.43% at the end of the year (Chart 1.14). The equity to asset[6] ratio also decreased markedly to 4.46%, but rebounded significantly in 2019 Q1. With regard to risks, foreign portfolio positions of life insurance companies grew continually in 2018. However, FX hedging costs substantially increased owing to consecutive interest rate hikes by the Fed. Considering this, together with a still-high level of equity risk stemming from recent accelerating volatility in global stock markets, life insurance companies should prudently control related risks. Additionally, as life insurance companies' investments in exchange-traded funds (ETFs) linking to foreign bonds and denominated in New Taiwan Dollars (NTD) grew rapidly, the FX risk embedded within ETF investments warrants close attention.

[6] Asset excludes separate account products.

Bills finance companies reported lower profits and liquidity risk elevated

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 increased and their credit quality remained sound at the end of 2018. Meanwhile, maturity mismatches between long-term assets and short-term liabilities persisted in bills finance companies, indicating an escalation in liquidity risk.

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$9.7 billion in 2018, a decrease of 7% year on year. The decline was mainly driven by a rise in the yielding cost of bond investments stemming from a slight increase in the repurchase agreement (repo) rate for bills and bonds, as well as a higher base period resulting from a substantial amount of lawsuit settlement income in the previous year. The average capital adequacy ratio of bills finance companies moderately descended to 13.63% at the end of 2018 (Chart 1.15). However, the capital adequacy ratio for each company remained well above the statutory minimum of 8%.

Financial infrastructure

The trading value of mobile payments has grown steadily, and the Bank continued to strengthen the infrastructure of retail payments

In 2018, the Bank Interbank Funds Transfer System (CIFS), which provides interbank final settlement services to each clearing institution, were functioning smoothly. The trading value of electronic retail payments also increased continually. The total amount of card-based payments (such as payments by credit cards) registered NT$3.80 trillion in 2018, which accounted for 39.95% of total private consumption expenditure. In addition, the trading value of mobile payments has grown rapidly.

To strengthen the security of financial transactions, the Financial Information Service Co., Ltd. (FISC), entrusted by the FSC, established a joint financial defense system for information security (InfoSec) with financial institutions. In addition, the Bank continues to pay attention to international development trends and urges the FISC to improve its infrastructure. Moreover, the tiered preferential measures for ATM interbank transfer processing fees were implemented from April 2019 onwards so as to provide the public with a safe, efficient, convenient and low-cost service and also deepen financial inclusion.

Other measures to strengthen the financial system

To provide a friendly legal environment for mergers and acquisitions (M&As) and strengthen the competitiveness of local financial institutions, in November 2018, the FSC amended decrees relating to mergers with the aim of encouraging mergers of financial institutions. Moreover, in order to cope with digitized business opportunities, encourage financial innovation and deepen financial inclusion, the FSC proposed a new policy for internet-only banks establishment in April 2018. It is expected that the approval list will be announced by the end of July 2019. Additionally, the FSC has approved some innovative experimentation applications. Institutions such as the Taiwan Financial Services Roundtable (TFSR) also established the FinTechSpace and organized FinTech Taipei 2018 so as to foster FinTech development in Taiwan.

In response to the third-round mutual evaluations by the APG, Taiwan has recently actively implemented corresponding measures aiming at getting higher ratings in the aforementioned evaluations. Those measures included establishing an institution which is fully in charge of reinforcing the national coordination of AML/CFT, amending regulations governing AML/CFT, and organizing assessment and evaluation meetings.

Taiwan’s financial system remained stable

In 2018, in spite of slower international economic growth and mild inflation, domestic financial markets operated smoothly. The profitability of domestic financial institutions remained solid, and asset quality stood at a healthy level. Meanwhile, the capital adequacy ratio of domestic financial institutions remained satisfactory. The major payment systems also functioned along an orderly trajectory. By and large, the financial system in Taiwan remained stable.

The changes in economic and financial conditions both domestically and globally, especially the prolonged US-China trade dispute, ambiguity about the future direction of monetary policy normalization in major economies, uncertainty over Brexit policies, and an economic slowdown in Mainland China, could pose a negative impact on the global economy and increase financial market risks. Considering all these factors, the Bank 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.