II. Potential macro environmental risk factors

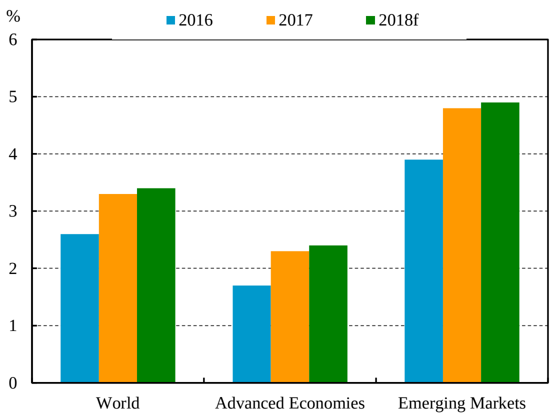
2.1 International economic and financial conditions

2.1.1 International economic conditions

Global economic growth momentum strengthened further in 2017 and the upswing is expected to continue into 2018

As the recovery in global investment and trade took hold in 2017, growth in advanced and emerging economies rose steadily. 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 has been spurred on by an improvement in personal consumption expenditures and fixed investment. Thanks to higher consumer and business confidence, together with stronger global growth and brighter labor market conditions, the growth rate for the euro area reached a 10-year high in 2017. Japan's economy expanded steadily, supported by a bounce in domestic demand and gross fixed capital formation. 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, emerging economies regained growth momentum.

Chart 2.1 Global economic growth rates



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

Looking ahead to 2018, IHS Markit predicts[10] global GDP growth to expand to 3.4%. Among its components, economic growth in advanced economies is projected to rise to 2.4% driven by US tax reform. At the same time, in spite of the expected economic slowdown in Mainland China, Asian newly industrialized economies (ANIEs) and ASEAN-10 (Association of South East Asian Nations) economies,[11] the average growth

[10] See Note 1.
[11] IHS Markit anticipates that the economic growth rates for Mainland China, ANIEs, and ASEAN-10 will drop to 6.7%, 2.9%, and 5.1%, respectively, in 2018.

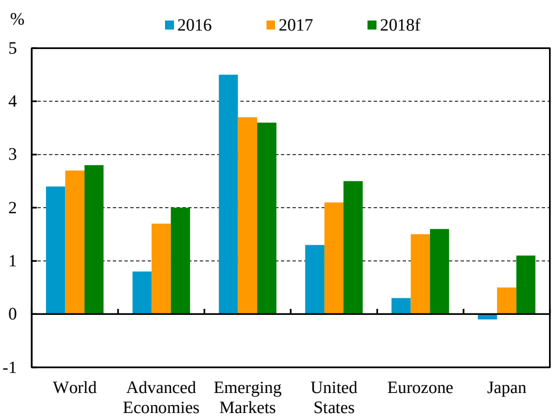
rate in emerging economies is forecast to increase to 4.9% on the back of an improving economic outlook in other emerging economies bolstered by a pickup in commodity prices (Chart 2.1).

Although the global economy is gradually gaining momentum, the International Monetary Fund (IMF) and IHS Markit[12] have warned that faster-than-expected monetary policy normalization by major central banks, protectionist policies, trade negotiations between the US and Mainland China, elevated debt levels in Mainland China,[13] and geopolitical tensions could threaten to choke off a broad-based recovery.

Global inflation rose steadily

In the first half of 2017, the price of Brent crude oil fell below $50 per barrel. However, affected by the fact that the Organization of the Petroleum Exporting Countries (OPEC) extended their agreement of oil production cuts until the end of 2018 and deepening political instability in some member economies, oil prices rebounded from the second half of 2017 onwards. In the meantime, the international prices of cereals, vegetable oil, and dairy oscillated within a narrow range, while metal prices increased. With fluctuating food prices, as well as elevated commodity and oil prices, global inflation rose moderately and lifted the CPI inflation rate to 2.7% in 2017. 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 fell to 3.7% as a result of a more moderate inflation rate in Brazil (Chart 2.2).[14]

Chart 2.2 Global headline inflation indices



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

As the world's biggest oil producers have extended a deal to curb oil production throughout 2018, oil prices are expected to continue their upward trajectory. Meanwhile, commodity prices are projected to rise, owing to an increase in demand for commodities and oil resulting from a recovery in the global economy. Accordingly, IHS Markit predicts that the global headline inflation rate will

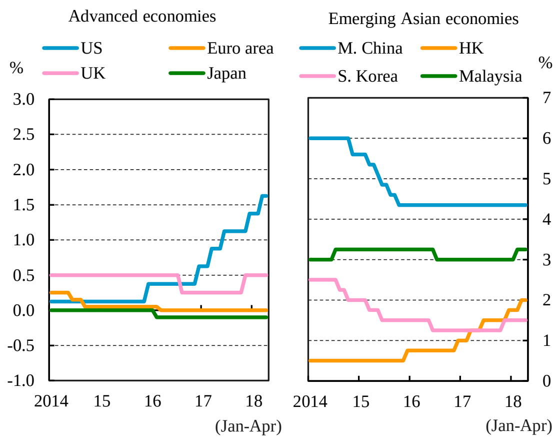
[12] IMF (2018), *World Economic Outlook*, January; IMF (2018), *World Economic Outlook*, April; IHS Markit (2018), *Global Executive Summary*, May.
[13] IMF (2017), *IMF Country Report*, No. 17/358, December.
[14] See Note 2.

continue rising to 2.8%. The headline inflation rate in advanced economies will increase to 2.0%, while the rate in emerging economies is expected to moderate to 3.6% (Chart 2.2).

Advanced economies adopted monetary policy normalization, while emerging economies took divergent paths

From 2017 onwards, monetary policies in advanced and emerging economies remained divergent. Among them, in view of solid growth in the US labor market and economic activity, as well as accelerating core inflation close to the 2% target, the Fed hiked its target band for the federal funds rate four times (during March 2017 to March 2018) by a total of 100 basis points (bps) to 1.5-1.75%. Moreover, the Fed has gradually begun the task of unwinding its balance sheet since October 2017, showing its path toward balance sheet normalization (Chart 2.3).

Chart 2.3 Policy rates in selected economies



Notes: 1. Advanced economies: figure for the US is based on the target federal funds rate; for the euro area, the main refinancing operations fixed rate; for the UK, official bank rate; for Japan, interest on excess reserves (before 2016/2/16, uncollateralized overnight call rate).
2. Emerging Asia: figure for Mainland China is based on financial institution one-year lending base rate; for Hong Kong, base rate; for South Korea, Bank of Korea base rate; for Malaysia, overnight policy rate.
3. Figures are as of April 30, 2018.

Sources: Central banks and monetary authority websites.

Meanwhile, since most indicators of inflation in the euro area stayed below their targets, the ECB held interest rates steady in 2017. However, the ECB scaled down its net asset purchases by €20 billion and €30 billion in April 2017 and January 2018, respectively, resulting in asset purchases decreasing from €80 billion to €30 billion per month.[15] The BOJ also kept its interest rate target and yield curve control policy[16] unchanged as the inflation rate remained muted in Japan. In contrast, in response to inflation caused by increasing import costs owing to depreciation of the pound in the wake of the Brexit, the BoE hiked its official bank rate by 25 bps to 0.5% in November 2017 to relieve inflationary pressures. It was the first interest rate rise in a decade (Chart 2.3).

[15] Recently, the head of Germany's central bank, Jens Weidmann, together with Klaas Knot, the Dutch central bank president, commented that the ECB should end its asset purchases as soon as possible.

[16] The Bank of Japan (BOJ) Governor, Haruhiko Kuroda, said that the BOJ would start thinking about how to exit its massive monetary stimulus program in the 2019 fiscal year if inflation reaches its 2% target.

From 2017 onwards, emerging Asian economies adopted different monetary policies. Among these countries, the People's Bank of China (PBC) left interest rates unchanged but reduced required reserve ratios twice by a total of 150 bps to support the development of inclusive financial services for financial institutions. The reduction would also be used to repay the medium-term lending facilities (MLF) borrowed by banks. South Korea and Malaysia both raised their policy rates by 25 bps so as to mitigate the impact of capital outflow caused by US interest rate rises. The hike also underscored their confidence in the economic recovery. The Hong Kong Monetary Authority (HKMA) followed the Fed's rate hikes and raised the base rate charged through its overnight discount window four times (during March 2017 to March 2018) by 25 bps each to maintain the effective operation of the linked exchange rate system (Chart 2.3).

The US has recently adopted trade protectionist policies, which could pose a threat to the global economy

In the face of a chronic trade deficit of commodities and a worsening trade deficit to GDP ratio that has not effectively improved, the US government consecutively resorted to protectionist measures to reduce trade imbalances following President Trump taking office. In response, the Ministry of Finance in Mainland China immediately unveiled that it would impose additional tariffs on a list of products imported from the US. The date of implementation will depend on when the US government imposes the additional tariffs on Mainland China's products.

While negotiations regarding measures of retaliatory tariffs between Mainland China and the US are in progress, there is a concern that when the US implements the new Section 301 action, it could trigger a domino effect. The IMF and WTO also warned that US trade protectionist policies would cause damage not only outside the US, but also to the US economy itself,[17] and result in potential trade disputes.[18]

2.1.2 International financial conditions

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

In 2017, thanks to the strengthening global economic recovery, the international banking industry regained its health. However, prolonged easy monetary policies have intensified the search for yield in markets, leading to risks shifting from the banking sector to financial markets, which have

[17] IMF (2018), *Statement by IMF Spokesperson on Announced U.S. Import Tariffs*, IMF Press Release, March; Meredith, Sam (2018), *IMF's Lagarde Says Nobody Wins in a Trade War, Reuters News*, March.

[18] Miles, Tom (2018), *WTO Chief Makes Rare Warning of Trade War over U.S. Tariff Plan*, Reuters News, March; WTO (2018), *Azevêdo Calls on Members to Avoid Triggering an Escalation in Trade Barriers*, Press Release, March.

experienced compressed risk premiums and volatility. Furthermore, private sector indebtedness significantly surged against the backdrop of a persistently low-interest-rate environment. As a result, the medium-term vulnerabilities rose. In addition, the gradual normalization of monetary policy in major economies and rising trade protectionism spurred financial market volatility, which might further increase financial vulnerability.

Banks in advanced economies have strengthened their balance sheets

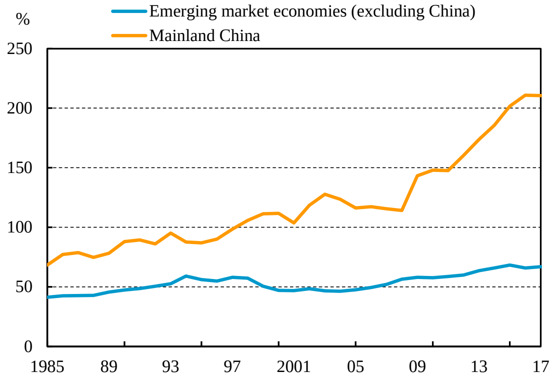
In 2017, ongoing improvement in banks' capital and liquidity levels has strengthened their balance sheets in most advanced economies. Among them, US banks' profits were higher in 2017 than their performance a year earlier. Nonetheless, the US passed the rollback of a number of financial regulations with the aim of relaxing crisis-era regulatory restrictions that had been placed on small and medium-sized banks. In this regard, further observation of the influence of the above regulatory rollback on banks' soundness and profitability is needed.

Profitability of European banks also slightly enhanced owing to an increase in non-interest income and a decrease in asset impairment. By contrast, Japanese banks' profits in 2017 didn't witness an upturn mainly because of the adverse impacts stemming from the negative interest rate policy, overbanking and cut-throat competition for granting new loans. Whether future profits improve will depend on Japan's economic prospects and the effectiveness of structural reform of the banking industry.

Emerging economies continued to face the risks of capital outflows and debt overhang

In emerging economies, strengthening economic growth and decreasing economic risks attracted massive international capital inflows searching for high-yield assets, which has compressed government and corporate bond yields, as well as pushed up asset prices and external debt. Should the monetary policy normalization by major economies move at an unexpected pace, it might cause international capital inflows to reverse to outflows and, in turn, impact their financial system stability.

Chart 2.4 Debt-to-GDP ratios of non-financial sectors in emerging economies and Mainland China



Source: IMF (2018), Global Financial Stability Report, April.

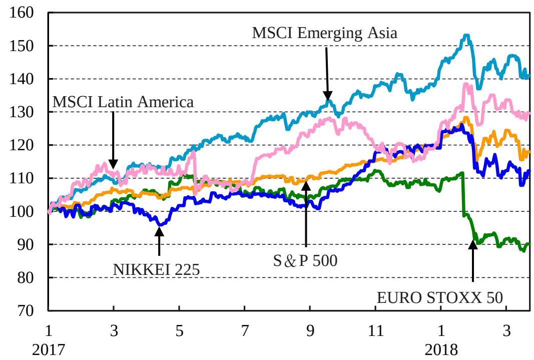
In addition, large capital inflows buoyed emerging economies with ample funds. This, coupled with rapid credit growth spurred by the low-interest-rate environment, led to a rise in nonfinancial sector debt, especially in Mainland China (Chart 2.4). For some emerging economies, excessive corporate and household debt growth could increase their debt burdens; thus, if the occurrence of unfavorable events triggers a tightening of financial conditions, the corporate and household sectors might face high debt servicing pressures, sparking off a rise in their default rates and, in turn, affect the stability of financial institutions and markets.

Global financial market volatility fell in 2017, but elevated in early 2018

The US stock market kept hitting record highs in 2017, which boosted global stock markets to steadily trend upwards. In early February 2018, the acceleration of wage growth fueled market concerns that a rising inflation rate may lead to the Fed hiking interest rates at a faster pace. This, coupled with the concerns that US tax cuts could jeopardize its fiscal stability, led the US stock market to tumble and induced international stock markets to plunge nearly 10% over the same period. Thereafter, international stock markets rebounded gradually, while volatility dramatically increased. In regard to the performance of key international equity indices, most Asian stock markets trended upwards supported by continuous international capital inflows in 2017. Accordingly, MSCI emerging Asia index increased by 40% (Chart 2.5).

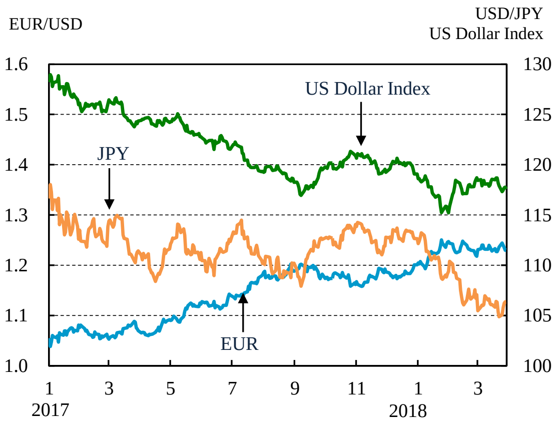
The US dollar displayed a depreciating trend in the first three quarters of 2017; by contrast, the euro continually appreciated against the US dollar. The Japanese yen fluctuated with the trend of the US dollar and the movement of hedging needs resulting from geopolitical risks. In the fourth quarter, the US dollar turned to a strengthening trend. Nonetheless, in 2018 Q1, affected by market concerns over fiscal stability

Chart 2.5 Performance of key international equity indices



Notes: 1. January 1, 2017 = 100.
2. The Euro STOXX 50 refers to a stock index consisting of the largest 50 stocks in the 12 major economies of the euro area.
Source: Bloomberg.

Chart 2.6 Movements of various currencies against the US dollar

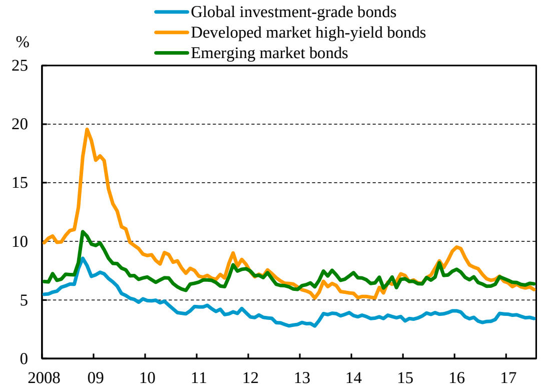


Note: US Dollar Index is introduced by the Fed, which is the weighted average of the FX value of the U.S. dollar against the currencies of 26 major U.S. trading partners (Jan 1997 = 100).
Sources: Fed and Thomson Reuters Datastream.

owing to US tax reform as well as the strengthening economic recovery attracting capital inflows to the euro area and emerging economies, the US dollar index declined again and the euro appreciated against the US dollar. The Japanese yen also saw an appreciating trend against the US dollar driven by hedging needs (Chart 2.6). With regard to major Asian currencies, in 2017, most of them displayed appreciating trends against the US dollar owing to the higher-than-expected economic growth rates among Asian economies attracting massive international capital inflows.

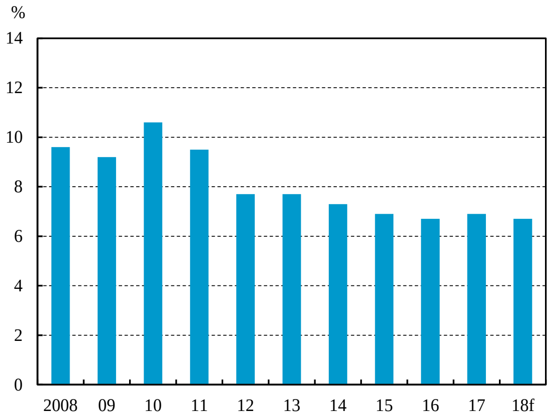
In addition, the low-interest-rate environment has facilitated investors' search for yield over recent years. As a result, compressed market spreads led to lower credit and market risk premiums and volatility in bond markets as well as a sharp decline in investment-grade and high-yield corporate bond yields (Chart2.7). Moreover, lower borrowing costs boosted an increase in the issuance of government and corporate bonds that escalated their financial leverage, and raised the sensitivity of the financial system to market risks.

Chart 2.7 US dollar bond yield



Source: IMF (2017), Global Financial Stability Report, October.

Chart 2.8 Economic growth rate of Mainland China



Note: Figure for 2018 is an IHS Markit estimate.
Sources: National Bureau of Statistics of China and IHS Markit (2018/5/15).

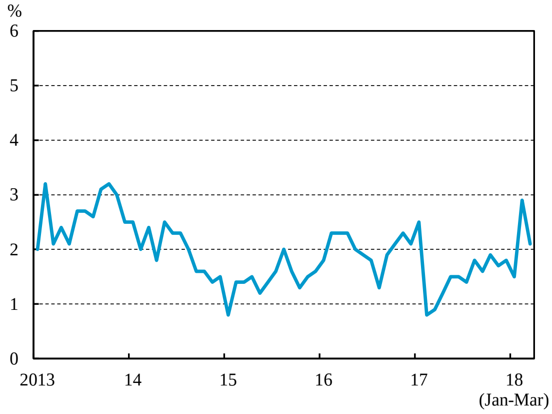
As a whole, volatility in major stock, bond and FX markets fell dramatically in 2017 but saw a considerable rise in early 2018. Tightening monetary policies by major central banks, coupled with mounting fears of a possible correction for rocketing asset prices as well as intensified trade tensions and geopolitical disputes, might induce dramatic fluctuations in asset prices, jeopardizing the stability of global financial markets.

2.1.3 Mainland China's economic and financial conditions

Economic growth accelerated for the first time in seven years

In 2017, thanks to the strong rebound in exports, Mainland China's economic growth rate rose to a higher-than-expected level of 6.9% from 6.7% in 2016, posting its first growth pick-up in seven years. However, in view of Mainland China's government taking more draconian measures on the domestic housing market and implementing stricter financial regulations, coupled with its mounting debt levels and US-China trade tensions, IHS Markit projects the economic growth rate to fall slightly to 6.7% in 2018 (Chart 2.8).

Chart 2.9 CPI Inflation rate of Mainland China

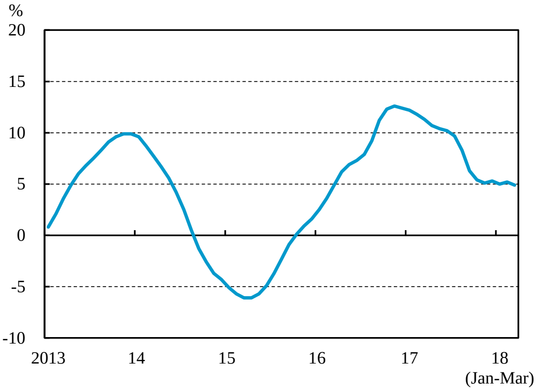


Source: National Bureau of Statistics of China.

Prices rose mildly and housing prices increased moderately

Affected by a fall in food prices, the CPI inflation rate of Mainland China was 1.6% throughout 2017, reflecting the fact that consumer prices rose mildly. In the beginning of 2018, owing to an increase in food prices after the Lunar New Year, the CPI inflation rate rose to 2.1% in March. IHS Markit projects the annual CPI inflation rate of 2018 to increase slightly to 1.7% (Chart 2.9).

Chart 2.10 Average annual growth rates of building sales price in 70 medium-large cities of Mainland China



Source: Thomson Reuters Datastream.

In 2017, the average housing prices in 70 medium-large cities trended up uninterruptedly, though at a slower pace. The annual growth rate of housing prices declined significantly to 5.3% in December from 12.4% a year earlier. With Mainland China's government continuously reinforcing risk control of the housing market in the beginning of 2018, the annual growth rate further fell to 4.9% in March (Chart 2.10).

PBC continued to implement stable and neutral monetary policies

In 2017, in an effort to control financial risks, the PBC continued to implement stable and neutral monetary policies, keeping its policy rate unchanged. Meanwhile, the PBC adopted different monetary policy tools[19] to keep market liquidity stable. In the beginning of 2018, the PBC cut its reserve requirement ratios twice by 50bps and 100bps, respectively, so as to

[19] The tools included pledged supplementary lending (PSL), temporary liquidity facility (TLF), repurchase agreements (repos), MLF and standing lending facility (SLF).

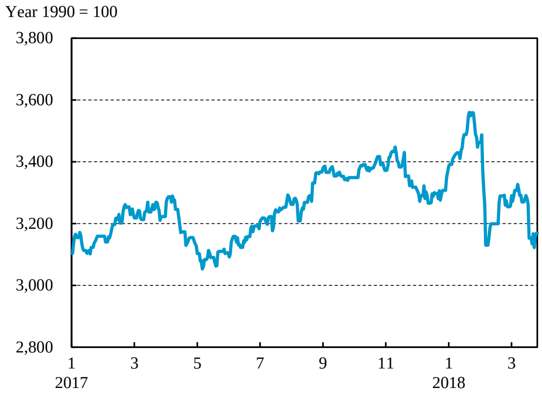
support financial institutions to develop financial inclusion and assist banks to repay their expired MLF loans borrowed from the PBC.

Stock markets saw a fall after experiencing a moderate increase, whereas the FX rate appreciated sharply

In June 2017, affected by the fact that MSCI announced the inclusion of Mainland China's shares into its MSCI Emerging Markets Index from June 2018 onwards, along with bullish international stock markets, the SSE Composite Index fluctuated with an upward trend and reached 3,307 at the end of December, an annual increase of 6.56%. In the beginning of 2018, driven by a marked fall in US stocks indices, the SSE Composite Index plunged for four consecutive business days from February 6, totaling a drop of 10.26%. Afterwards, the SSE Composite Index gradually rebounded and reached 3,169 at the end of March (Chart 2.11).

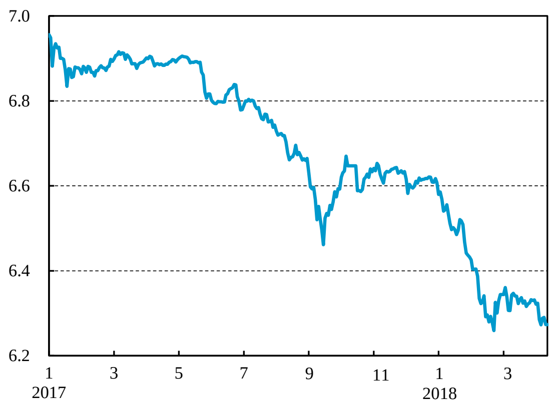
Regarding the FX market, the renminbi exchange rate against the US dollar remained stable in the first four months of 2017, while the renminbi turned to appreciate against the US dollar from May onwards. To mitigate the impact of overvaluation of the renminbi against the US dollar in the short term, the PBC announced it would lower the FX risk reserve ratio, which is required for financial institutions undertaking "forward FX sales" business on behalf of clients, from 20% to 0% in September. Although this measure initiated temporary depreciation of the renminbi against the US dollar, the renminbi exchange rate rebounded to 6.512 at the end of December, an annual appreciation of 6.72%. The main reason behind this was that Mainland China's stronger-than-expected trade figures promoted market participants to expect an ongoing appreciation of the

Chart 2.11 Shanghai Stock Exchange Composite index



Source: Bloomberg.

Chart 2.12 RMB/USD exchange rate



Source: CBC.

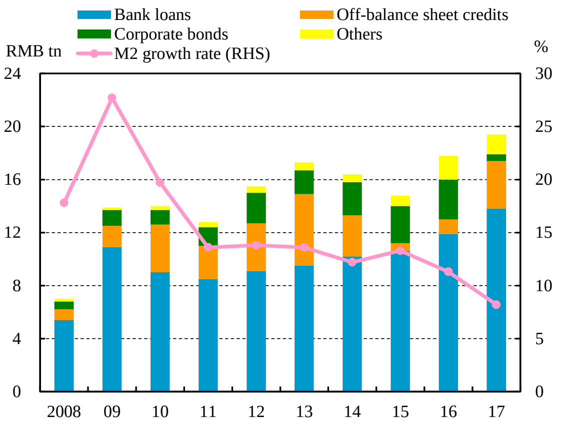
renminbi against the US dollar. In the beginning of 2018, the renminbi saw continuous appreciation against the US dollar and the exchange rate stood at 6.273 at the end of March (Chart 2.12).

The increment in aggregate financing to the real economy elevated, and NPLs of banks constantly trended up

With a backdrop of Mainland China government's deleveraging measures and gradual enhancement of financial supervision, the annual growth rate of broad money supply M2 decreased to 8.2% at the end of 2017, lower than the official annual target of 12%. Meanwhile, aggregate financing to the real economy rose by RMB19.4 trillion in 2017 (Chart 2.13), while the annual growth rate of the outstanding amount slightly decreased to 12.0% from 12.8% a year earlier.

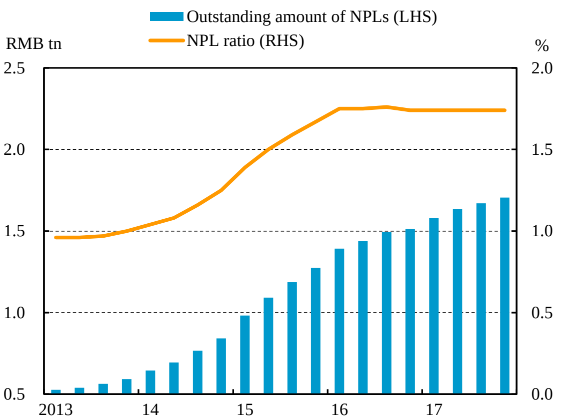
At the end of 2017, the NPLs of commercial banks continued to trend upwards and stood at RMB1.71 trillion, while the NPL ratio leveled off at a high level of 1.74% (Chart 2.14).

Chart 2.13 Aggregate financing to the real economy and annual growth rate of M2 in Mainland China



Source: PBC.

Chart 2.14 NPL ratio of Mainland China's commercial banks



Source: China Banking Regulatory Commission.

With local government debts coming due, various preemptive measures were successively launched

Mainland China's government expanded the local government debt-swap program by RMB2.77 trillion in 2017 to enable local governments to tackle their debt due problems. Meanwhile, the State Council decided to adopt a local government debt ceiling and impose permanent accountability for local debt surveillance in order to reduce the default risk of local government debts.

2.2 Domestic macro environment

2.2.1 Domestic economic and fiscal conditions

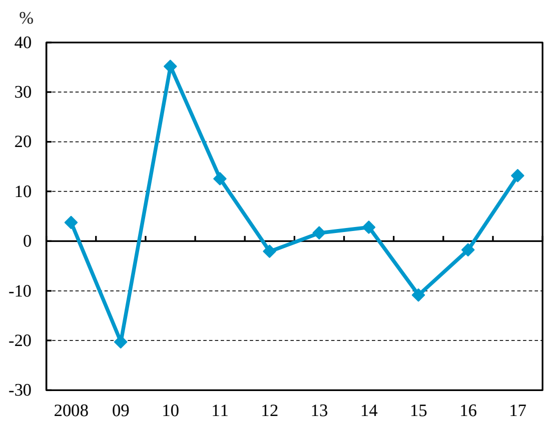
In 2017, thanks to a strong improvement in exports and modest growth in private consumption, the domestic economy recovered steadily and inflation remained stable. Short-term external debt servicing ability remained strong on the back of a persistent surplus in the balance of payments and ample FX reserves. Although the scale of external debt slightly increased, overall external debt servicing capacity stayed robust. While the government's fiscal deficits rebounded, outstanding government public debt leveled off. Total government debt stayed within a manageable level.

Exports increased considerably and the domestic economy recovered soundly

Benefiting from the global economic recovery, increasing demand for semiconductors and machinery, as well as active promotion of the *New Southbound Policy* by the government, Taiwan's annual export growth rate significantly rose to 13.17% in 2017 (Chart 2.15). As a result of a substantial increase in 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 (Chart 2.16)

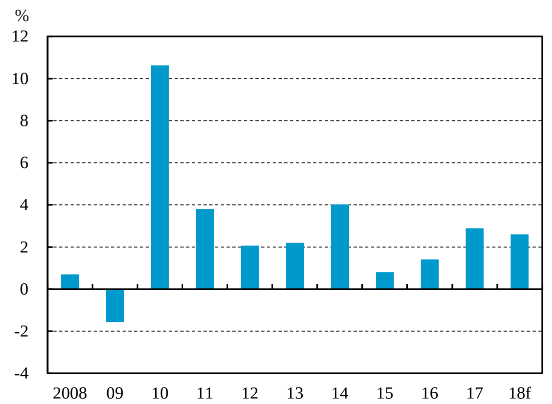
Taking a glance into 2018, the continued steady growth of the global economy will be beneficial to maintaining Taiwan's export growth momentum. Moreover, a number of measures taken by the government, such as the *Forward-looking Infrastructure Development Program* and pay raises for military, government, and teaching personnel, are expected to encourage growth in both private investment and consumption to underpin the domestic economy. However,

Chart 2.15 Growth rate of exports



Source: MOF.

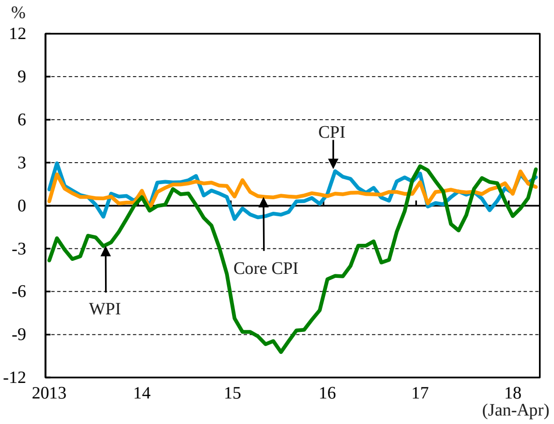
Chart 2.16 Economic growth rate in Taiwan



Note: Figure for 2018 is forecast by DGBAS.
Source: DGBAS.

uncertainties stemming from rising trade protectionism and geopolitical tensions may partially curb domestic growth momentum, which may in turn jeopardize the strength of Taiwan's economic growth. As a result, the DGBAS forecasts Taiwan's annual economic growth rate to slightly moderate to 2.60%[20] in 2018 (Chart 2.16). Moreover, paying close attention to the evolution of the US-China trade dispute and its potential impact on Taiwan's economy is advisable.

Chart 2.17 Consumer and wholesale price indices

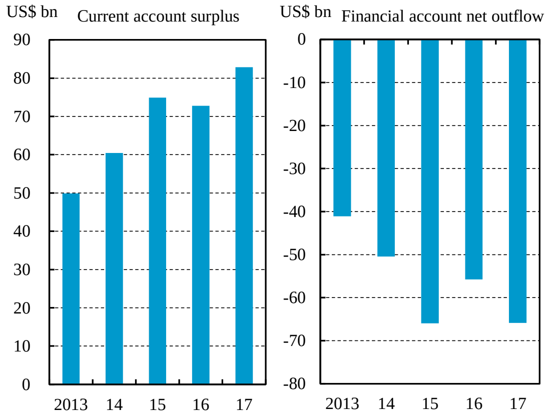


Note: Figures are measured on a year-on-year change basis.
Source: DGBAS.

Domestic prices rose mildly

In 2017, affected by fluctuations in the international prices of raw materials such as crude oil, and the appreciation of the NT dollar exchange rate against the US dollar, the annual wholesale price index (WPI) inflation rate registered 0.90%, higher than the -2.98% recorded in 2016 (Chart 2.17). The DGBAS projects the annual WPI inflation rate to climb to 2.42% in 2018.[21]

Chart 2.18 Current account surplus and financial account net outflow



Source: CBC.

The annual CPI inflation rate registered 0.62% in 2017, lower than the 1.39% of the previous year. Domestic prices rose mildly mainly because the appreciation of the NT dollar against the US dollar eased imported inflation, and a fall in vegetable prices owing to a higher base period in the previous year approximately offset a rise in other prices. Meanwhile, the core CPI inflation rate in 2017 also increased moderately and reached 1.04%, slightly higher than the 0.84% recorded in 2016 (Chart 2.17). Reflecting the above developments, the CBC forecasts the annual CPI inflation rate to ascend to 1.27% in 2018.[22]

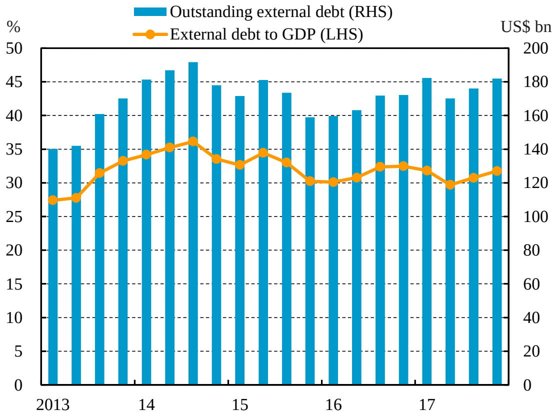
[20] See Note 3.
[21] See Note 3.
[22] See Note 4.

Current account saw a sustained surplus and FX reserves stayed abundant

In 2017, the merchandise trade surplus trended up on account of exports increasing more than imports, causing the annual current account surplus to expand to US$82.9 billion, or 14.47%[23] of annual GDP, an increase of US$10.1 billion or 13.88% compared to 2016. The financial account posted continued outflows driven by the expansion of foreign investments by insurance companies. The annual balance of outflows reached US$65.9 billion (Chart 2.18). With a greater rise in the current account surplus, the balance of payments surplus expanded to US$12.5 billion in 2017, increasing by 16.92% from the previous year.

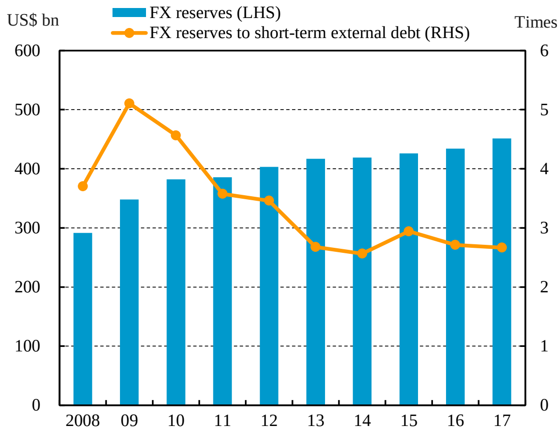
With the accumulation of earnings from portfolio investment of FX reserve assets, FX reserves climbed to US$451.5 billion at the end of 2017, rising by 3.98% from a year earlier. At the end of April 2018, the amount of FX reserves steadily increased to US$457.1 billion.

Chart 2.19 External debt servicing capacity



Sources: CBC and DGBAS.

Chart 2.20 Short-term external debt servicing capacity



Source: CBC.

Scale of external debt expanded slightly, while debt-servicing capacity remained strong

Owing to the increase in the short-term external debt of the banking sector, Taiwan's external debt[24] showed an upward trend after the second quarter of 2017. As a result, external debt registered US$181.9 billion at the end of the year, or 31.76% of annual GDP, increasing by

[23] For the ratio of current account deficit to GDP, the cutoff point for risk is 3%. A country in which the reading is greater than 3% and has risen by at least 5 percentage points from the previous year is considered to be relatively high risk.

[24] External debt refers to the combined amount owed to foreign parties by Taiwan's public and private sectors, including long-term debt with a maturity of greater than one year and short-term debt with a maturity of one year or less. The term "public external debt" refers to debt that the public sector is either obligated to repay directly or has guaranteed. The term "private external debt" refers to private-sector foreign debt not guaranteed by the public sector.

5.63% compared to a year earlier (Chart 2.19). Taiwan's capacity to service external debt remained robust, although the scale of external debt expanded slightly.[25]

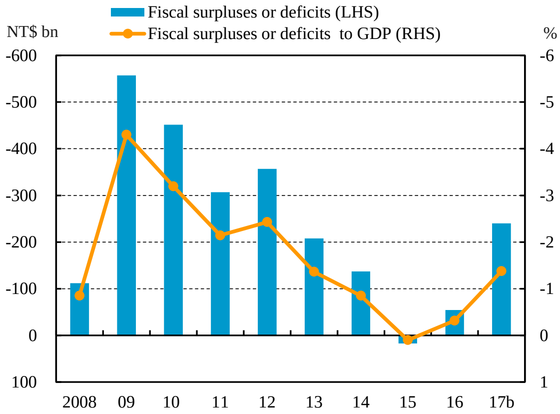
Furthermore, at the end of 2017, the ratio of FX reserves to short-term external debt fell to 2.67 times owing to a greater rise in short-term external debt. Nevertheless, it was higher than internationally recognized minimum levels,[26] implying that Taiwan's FX reserves have a robust capacity to meet payment obligations (Chart 2.20).

Fiscal deficits rebounded but government debt leveled off

Fiscal revenues and expenditures had improved significantly after the government implemented the *Fiscal Health Plan* from 2014 onwards. In 2017, however, the government adopted the *Forward-looking Infrastructure Development Program* in response to economic conditions, resulting in an expansion of annual expenditures for both central and local governments. As a result, fiscal deficits rebounded to NT$240.2 billion or 1.38%[27] of annual GDP (Chart 2.21).

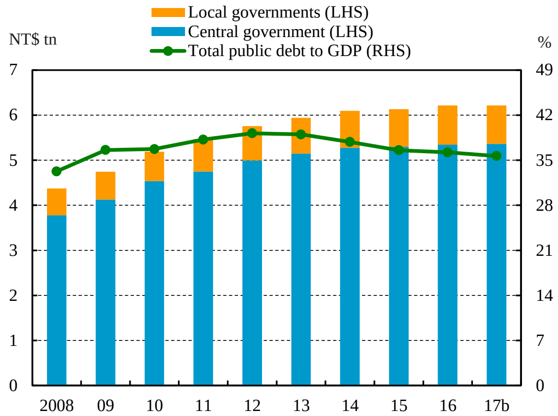
At the end of 2017, outstanding public debt at all levels of government[28] stayed at NT$6.21

Chart 2.21 Fiscal deficits position



Notes: 1. Fiscal position data include those of central and local governments.
2. Data of fiscal deficits are annual figures. Figures for 2017 are final accounts and budgets for the central government and local governments, respectively.
Sources: MOF and DGBAS.

Chart 2.22 Public debt



Notes: 1. Outstanding public debt refers to non-self-liquidating debt with a maturity of one year or longer, excluding external debt.
2. Figures for 2017 are preliminary final accounts and final accounts for the central government and local governments, respectively.
Sources: MOF and DGBAS.

25 The general international consensus is that a country with a ratio of external debt to GDP lower than 50% is deemed to be relatively low risk.
26 The general international consensus is that a country with a ratio of FX reserves to short-term external debt higher than 100% is deemed to be relatively low risk.
27 See Note 5.
28 The term "outstanding debt at all levels of government" as used in this report refers to outstanding non-self-liquidating debt with a maturity of one year or longer.

trillion.[29] However, the ratio of total public debt to annual GDP slightly fell to 35.65%[30] on account of GDP growth (Chart 2.22). In general, total government debt stayed within a manageable level.

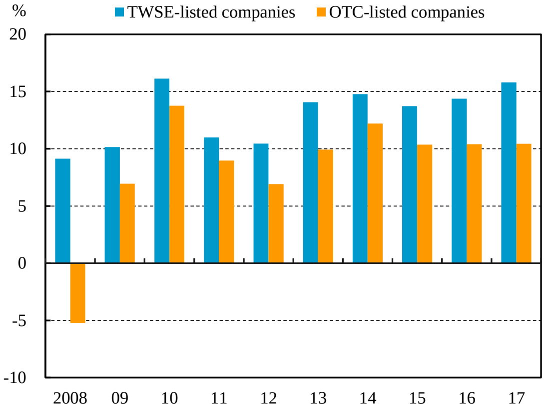
2.2.2 Corporate sector[31]

In 2017, listed companies saw enhanced profitability, rising financial leverage ratios, and adequate short-term debt servicing capacity. The NPL ratio for corporate loans granted by financial institutions grew slightly but remained at a low level at the end of the year, indicating sound credit quality of corporate loans. Nevertheless, the outlook for the corporate sector's future operation remains challenging.

Profitability of listed companies enhanced in 2017

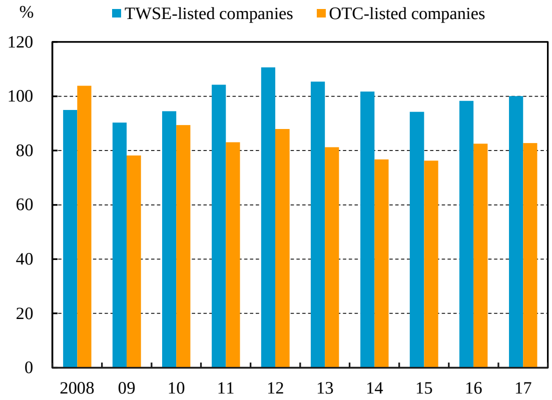
In 2017, benefiting from the steady recovery in the global economy, Taiwan's exports continued to expand. As a result, the average ROE of TWSE-listed companies jumped to 15.81%, while that of OTC-listed companies rose moderately to 10.44% (Chart 2.23). Such enhancements were mainly contributed to by the increasing profitability in the semiconductor, plastics, and shipping & transportation industries.

Chart 2.23 Return on equity in corporate sector



Note: Return on equity = net income before interest and tax/average equity.
Source: TEJ.

Chart 2.24 Leverage ratios in corporate sector



Note: Leverage ratio = total liabilities/total equity.
Source: TEJ.

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29 At the end of 2017, outstanding non-self-liquidating debt at all levels of government with a maturity of one year or longer was NT$6.21 trillion, including NT$5.36 trillion and NT$0.85 trillion for central government and local governments, respectively. As of April 2018, the outstanding one-year-or-longer non-self-liquidating public debt is NT$6.14 trillion, including NT$5.39 trillion, NT$0.60 trillion, NT$0.15 trillion, and NT$0.3 billion for central government, municipalities, counties, and townships, respectively. The figures account for 31.47%, 3.47%, 0.89%, and 0.002% of the average GDP for the preceding three fiscal years, which are below the ceilings of 40.6%, 7.65%, 1.63%, and 0.12% for central government, municipalities, counties, and townships, separately, as set out in the Public Debt Act.

30 See Note 6.

31 Corporate sector only includes the non-financial industrial data of TWSE-listed companies and OTC-listed companies. Throughout this section, figures for listed companies are consolidated financial data; prior to 2011, the data are on the basis of generally accepted accounting principles in the Republic of China (Taiwan) (ROC GAAP), while from 2012, the data are on the basis of International Financial Reporting Standards as endorsed for use in Taiwan (TIFRSs). In light of changes in accounting treatment and presentation, readers should interpret these figures prudently when comparing statistics before and after IFRSs adoption.

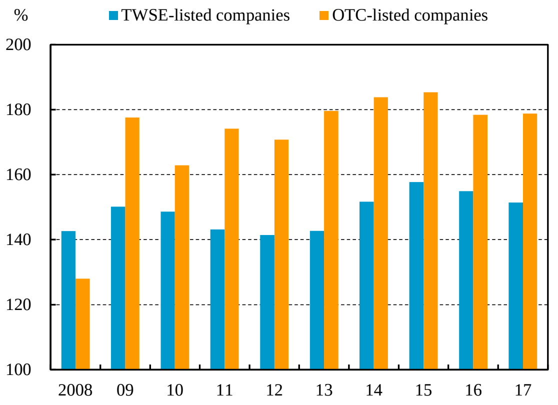
Leverage ratios rose moderately for listed companies

At the end of 2017, the average leverage ratio for TWSE-listed companies rose continually to 100.07%, while that for OTC-listed companies also increased moderately to 82.73% (Chart 2.24). Leverage ratios rose mainly because of an increase in listed companies' accounts payable and notes payable driven by expanding revenues and a rise in their borrowings from banks in response to their operational needs.

Short-term debt servicing capacity for listed companies held at an adequate level

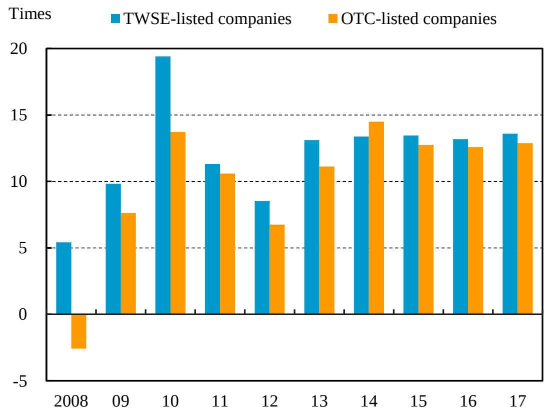
Owing to a greater increase in current liabilities, the current ratio for TWSE-listed companies dropped to 151% at the end of 2017, but the interest coverage ratio elevated to 13.6 over the same period, indicating sound short-term debt servicing capacity. Meanwhile, the current ratio and the interest coverage ratio for OTC-listed companies lifted to 179% and 12.88, respectively, demonstrating improved short-term debt servicing capacity (Chart 2.25 and 2.26). For listed companies as a whole, short-term debt servicing capacity remained at an adequate level in 2017, underpinned by the fact that their current assets were sufficiently able to meet short-term obligations along with a strong capacity to meet their interest obligations from operating earnings.

Chart 2.25 Current ratios in corporate sector



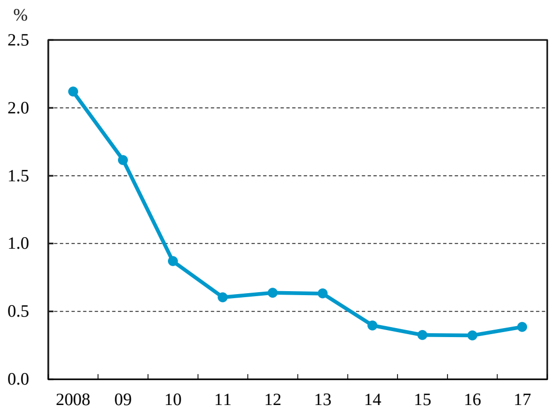
Note: Current ratio = current assets/current liabilities.
Source: TEJ.

Chart 2.26 Interest coverage ratios in corporate sector



Note: Interest coverage ratio = income before interest and tax/interest expenses.
Source: TEJ.

Chart 2.27 NPL ratio of corporate loans



Source: JCIC.

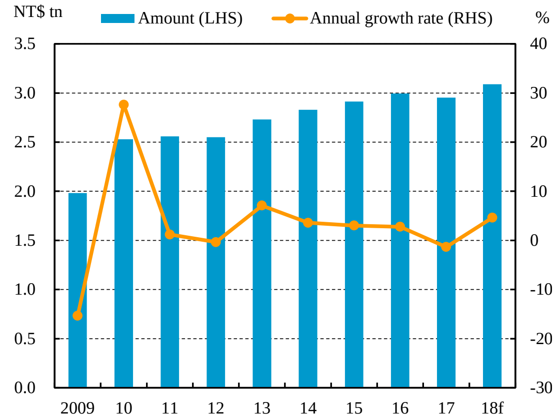
Credit quality of corporate[32] loans remained sound

In 2017, affected by an increase in past-due loans of some corporations, the NPL ratio for corporate loans from financial institutions rose marginally to 0.39% but stayed at a relatively low level at the end of the year, reflecting sound credit quality for the corporate sector (Chart 2.27).

Corporate investment is expected to rebound, yet the outlook for future operations still faces challenges

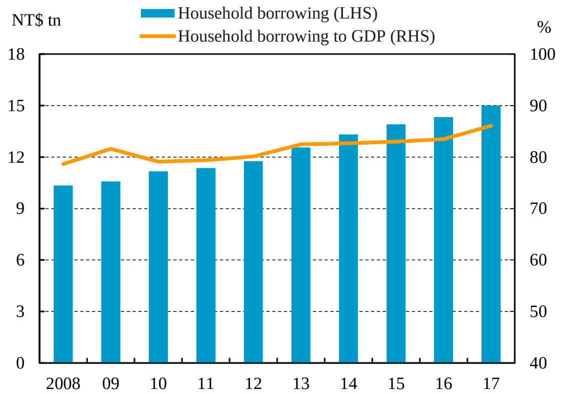
Considering the *Forward-looking Infrastructure Development Program* promoted by the government, the DGBAS predicts the growth rate of domestic private real investment to rebound to 4.61% in 2018, which would help enhance the growth momentum of corporate profits in the future (Chart 2.28). However, in 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.

Chart 2.28 Private investment



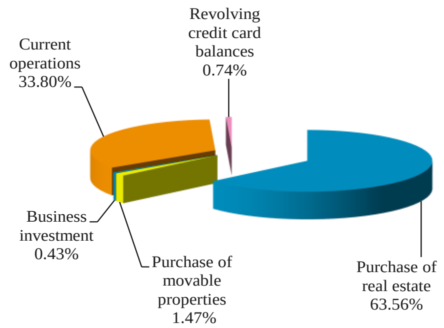
Notes: 1. Total private investment and growth rate are expressed in real terms.
2. Figure for 2018 is forecast by DGBAS.
Source: DGBAS.

Chart 2.29 Household borrowing to GDP



Sources: CBC, JCIC and DGBAS.

Chart 2.30 Household borrowing by purpose



Note: Figures are as of the end of 2017.
Sources: CBC and JCIC.

32 The data for the corporate sector herein are on the basis of listed and unlisted corporations provided by the Joint Credit Information Center (JCIC).

2.2.3 Household sector

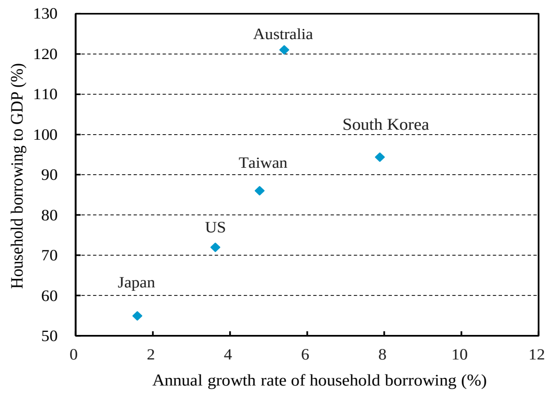
The household debt burden rose slightly as the balance of total household borrowing expanded successively. However, the overall credit quality of household borrowing remained satisfactory. This, combined with the falling unemployment rate and growing regular earnings, should help underpin the debt servicing capacity of households.

Household borrowing increased continually

At the end of 2017, total household borrowing saw a slight expansion and reached NT$15 trillion, equivalent to 86.07% of annual GDP (Chart 2.29). The largest share of household borrowing went for the purchase of real estate (63.56%), followed by current operation loans[33] (33.80%). The rest of the household borrowing categories took only minor percentages (Chart 2.30).

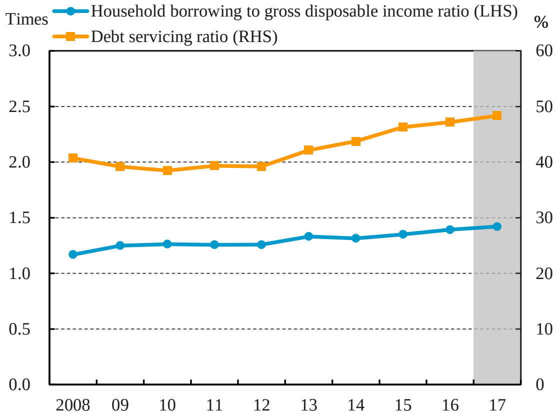
In 2017, the annual growth rate of total household borrowing rose to 4.77% from 2.97% a year earlier, mainly resulting from an increase in current operation loans. Compared to other countries, the growth of total household borrowing and total household borrowing as a percentage of GDP in Taiwan were both lower than those in South Korea and Australia, but higher than those in the US and Japan (Chart 2.31).

Chart 2.31 Household indebtedness in selected countries



Note: Figures are as of the end of 2017.
Sources: Fed, BOJ, BOK, ABS, IMF, DGBAS, CBC and JCIC.

Chart 2.32 Household indebtedness and debt servicing ratio



Notes: 1. Gross disposable income in shaded area is CBC estimate.
2. Debt servicing ratio = borrowing service and principal payments/gross disposable income.
Sources: CBC, JCIC and DGBAS.

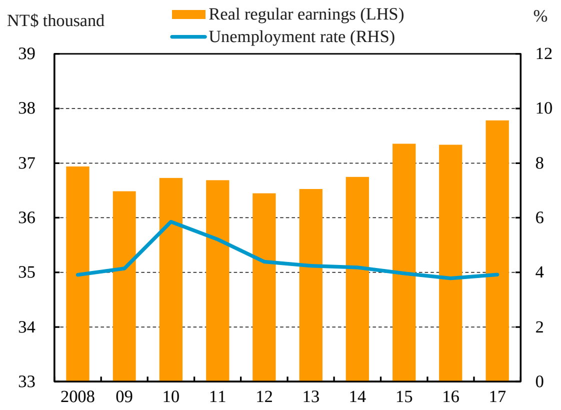
Household debt burden rose slightly

As total household borrowing grew at a faster pace than disposable income in 2017, the ratio of household borrowing to total disposable income[34] rose slightly to 1.42 at the end of the

[33] The term "current operation loans" includes outstanding debit card loans.
[34] Total disposable income = disposable income + rental expenses + interest expenses.

year from 1.39 a year earlier, reflecting a rise in the household debt burden. Moreover, owing to the increase in loans for current operations, which typically have a shorter term, the debt servicing ratio also elevated to 48.34% from 47.16% (Chart 2.32), thereby indicating that short-term household debt servicing pressure mounted slightly. Nevertheless, prolonged low interest rates on domestic loans in recent years, 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 2.33).

Chart 2.33 Unemployment rate and regular earnings

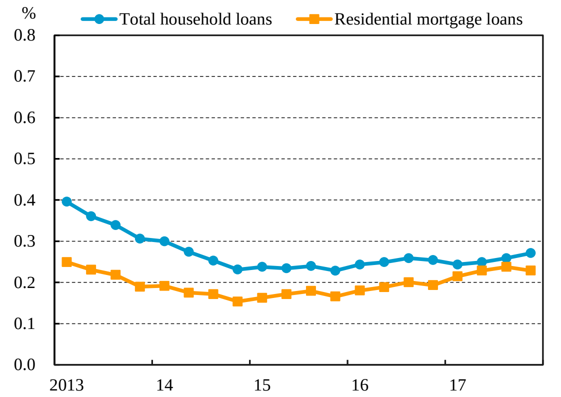


Sources: DGBAS and Ministry of Labor.

Credit quality of household borrowing remained satisfactory

In 2017, the NPL ratio of household borrowing and loans to purchase real estate grew slightly but remained at low levels of 0.27% and 0.23%, respectively, at the end of the year. Credit quality didn't worsen significantly, but related risks should be closely monitored (Chart 2.34).

Chart 2.34 NPL ratios of household borrowing



Source: JCIC.

In recent years, rising global household debt has drawn wide attention. Although Taiwan's household debt burden has risen in recent years, the household saving rate and total household net worth to GDP ratio have been relatively high, indicating sound household financial conditions. Moreover, the default rate of household borrowing from banks has still been low. As a result, household debt does not yet pose a significant risk to the overall economic and financial environment (Box 1).

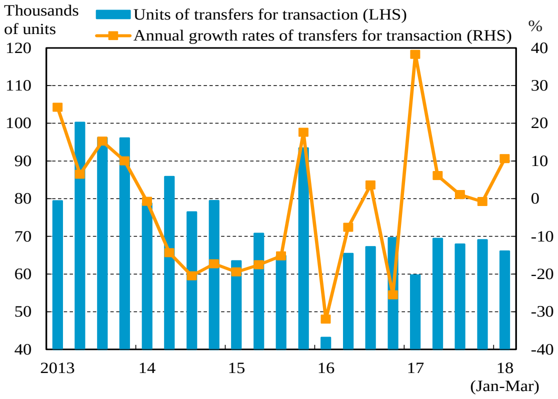
2.2.4 Real estate market

In 2017, trading volume in the housing market recovered and house prices fluctuated within a narrow range. In addition, housing loans and construction loans grew steadily, and mortgage interest rates remained at low levels. In 2018 Q1, transactions in the housing market grew continuously.

Trading volume in the real estate market recovered

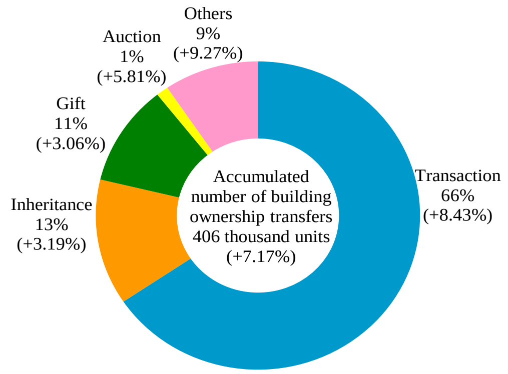
In 2017 Q1, although the total number of building ownership transfers for transaction decreased quarter by quarter, it increased dramatically by 38.29% year on year. The main reasons were a lower base period owing to the levying of a consolidated housing and land income tax in 2016 Q1 and an increase in the release of new buildings in 2017 Q1. From Q2 onwards, transactions in the housing market remained steady and the extent of the increase narrowed quarter by quarter, while it turned to negative growth of 0.79% in Q4 (Chart 2.35).

Chart 2.35 Building ownership transfers for transaction



Source: Monthly Bulletin of Interior Statistics, MOI.

Chart 2.36 Building ownership transfers and annual growth rate in 2017



Source: Monthly Bulletin of Interior Statistics, MOI.

The number of building ownership transfers was 406 thousand units in 2017, increasing by 7.17% year on year. The number of those transfers for transaction, accounting for 66%, rebounded to 266 thousand units from a record low of 245 thousand units in 2016 and increased by 8.43% year on year. Owing to high-net-worth individuals rushing to gift real estate before the implementation of the new gift tax system,[35] the number of transfers for gift, making up 11.0% of the total transfers, also increased by 3.06% year on year (Chart 2.36).

In 2018 Q1, the total number of building ownership transfers for transaction recorded an annual growth rate of 10.63%, mainly driven by a pickup in housing market transactions

[35] The new system of estate and gift tax was implemented on May 12, 2017, which was adjusted from a single tax rate of 10% to a three-tier progressive tax rate of 10%, 15%, and 20%, respectively.

and a gradual rise in the release of new buildings. In April, owing to real estate market participants turning hesitant in their buying as well as a slowdown in the release of new buildings, the total number of building ownership transfers for transaction decreased by 3.30% year on year. Nevertheless, it still grew by 7.15% for the period of January to April 2018.

Real estate prices fluctuated within a narrow range

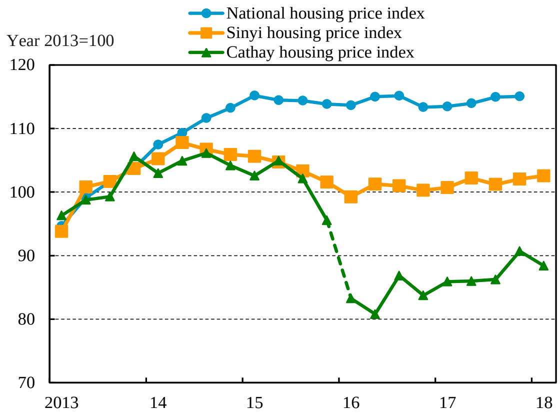
With the housing market gaining momentum, the national housing price index [36] rose gradually quarter by quarter from 2017 Q1 onwards. As of the end of Q4, the annual growth rate registered 1.49%, bringing the index to only 0.10% lower than its peak in 2015 Q1 (Chart 2.37).

From 2017 onwards, the Sinyi housing price index (for existing residential buildings) fluctuated within a narrow range (Chart 2.37). In 2018 Q1, the index roughly returned to the level of 2015 Q4. Owing to new residential building sales slightly picking up, the Cathay housing price index rose moderately throughout 2017. In 2018 Q1, the index decreased slightly quarter by quarter, mainly driven by a decline in prices of new residential buildings both in Taipei City and New Taipei City (Chart 2.37).

Mortgage burden stayed high

In 2017 Q2, the debt servicing ratio for housing loans increased to the highest point

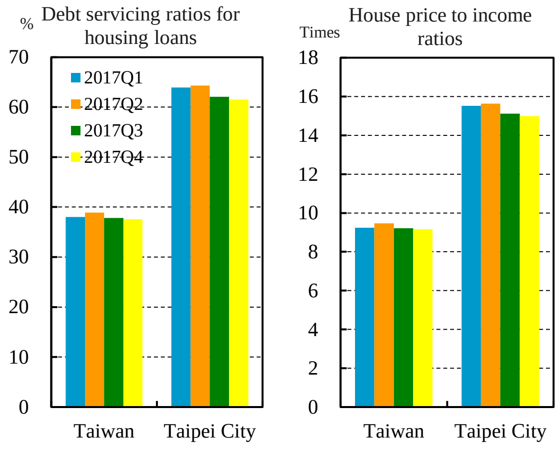
Chart 2.37 House price indices



Notes: 1. The Cathay housing price index adjusted the possible transaction price model from 2016 Q1 and used 2015 Q4 as the connection point to retrospectively correct the data. In 2018 Q1, the model's parameters were revised, and from January 2017 the opening price, transaction price, and index of each quarter were recalculated.
2. For comparison purposes, all four indices use the same base year of 2013 (2013 average = 100).

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

Chart 2.38 Debt servicing ratios for housing loans and house price to income ratios



Notes: 1. Debt servicing ratio for housing loans = median housing loan monthly payment/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.

[36] The housing price index compiled by the Construction and Planning Agency, Ministry of the Interior, registered 115.07 in 2017 Q4.

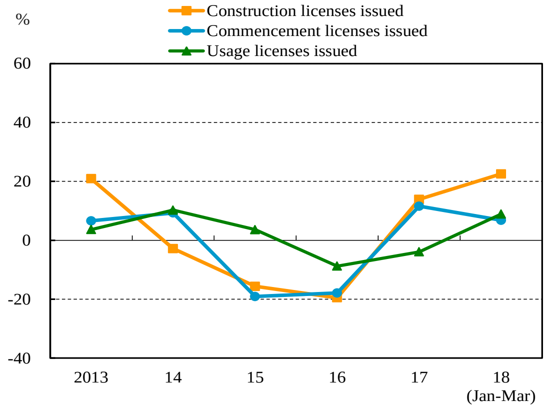
of 38.90% and then fell to 37.58% in Q4, a slight decrease of 0.76 percentage points year on year (Chart 2.38). Similarly, the house price to income ratio trended up to the highest point of 9.46 in 2017 Q2 before moderately dropping to 9.16 in Q4 (Chart 2.38), declining by 0.16 year on year. Among the six metropolitan areas, Tainan City had the lowest mortgage burden, while the debt servicing ratio for housing loans and the house price to income ratio in Taipei City registered 61.52% and 14.99, respectively (Chart 2.38), showing the heaviest mortgage burden.

Commencement licenses issued expanded, while the expansion of unsold new residential properties remained a concern

In 2017, with transactions in the housing market gradually increasing, a recovery in residential properties construction projects, as well as increasing demand from enterprises launching new stores and expanding plants, the total floor space of commencement licenses issued rose by 11.56% year on year (Chart 2.39), with residential properties increasing by 7.79%. In 2018 Q1, the total floor space of commencement licenses issued successively increased by 6.81% year on year, with residential properties increasing dramatically by 28.32%. The main reasons were that construction companies' confidence in investing in the real estate market was restored as well as continual commencement of social housing and industrial and commercial buildings constructions.

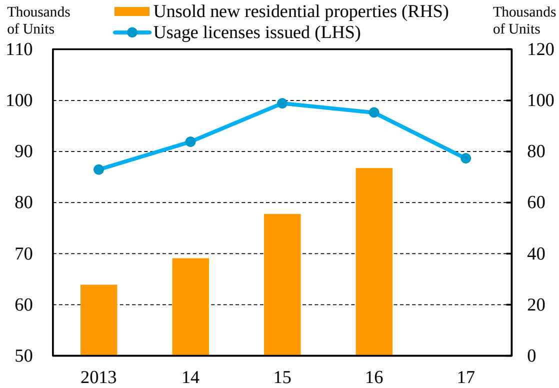
From the second half of 2015 to the beginning of 2017, owing to construction companies reducing construction projects, the total floor space of usage licenses issued decreased by 3.90%

Chart 2.39 Annual growth rates of floor space of construction, commencement, and usage licenses issued



Note: The data in 2018 are the annual growth rates of Q1.
Source: Monthly Bulletin of Interior Statistics, MOI.

Chart 2.40 Unsold new residential properties and usage licenses issued for residential properties

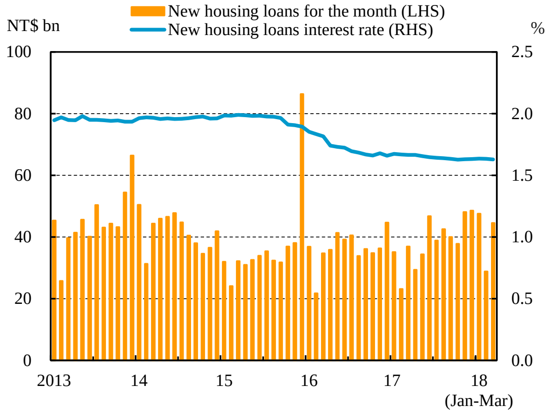


Note: Unsold new residential properties were the residential properties built within the last five years, still maintaining the first registration and having the possibility of being for sale. The data are currently published to 2016 Q4.
Source: Monthly Bulletin of Interior Statistics, Real estate information platform, MOI.

year on year in 2017, with residential properties decreasing by 12.38%. However, the extent of the decrease narrowed (Chart 2.39). In 2018 Q1, the total floor space increased at an annual rate of 8.89%, with residential properties increasing by 7.35% year on year, mainly driven by a rise in the release of new buildings.

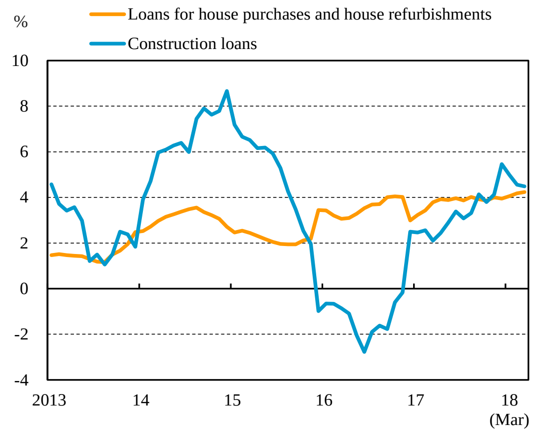
At the end of 2016, unsold new residential properties registered 74 thousand units, increasing by around 18 thousand units or 32.3% year on year. In 2017, usage licenses issued for residential properties amounted to 89 thousand units, decreasing by 9 thousand units or 9.2% year on year (Chart 2.40). This, along with active promotion from construction companies for their projects, helped reduce the pressure on unsold new residential properties. However, given that construction companies resumed a large number of construction projects even though demand in the house-purchase for self-use market did not expand significantly, the expansion of unsold new residential properties remained a concern.

Chart 2.41 New housing loans – amount and interest rate



Source: CBC.

Chart 2.42 Annual growth rates of real estate loans



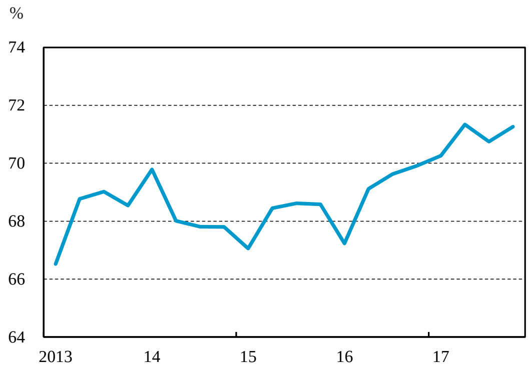
Source: CBC.

Real estate loans grew steadily as mortgage interest rates successively decreased

With the housing market gathering momentum, the total new housing loans granted by the top five banks registered NT$461.4 billion in 2017, increasing by 5.90% year on year. In 2018 Q1, the figure increased by 27.16% year on year. In 2017, the interest rate for new housing loans fell, and rebounded slightly after dropping to the lowest point of 1.627% in October. However, the interest rate for new housing loans still stayed at a low level, registering 1.628% in March 2018 (Chart 2.41).

From 2017 onwards, the sum of outstanding loans for house purchases and house refurbishments granted by banks[37] maintained steady growth, registering an annual growth rate of 4.23% as of the end of March 2018. Meanwhile, outstanding construction loans turned to positive growth at the end of December 2016. The annual growth rate fell slightly after rising to 5.46% at the end of December 2017, registering 4.48% at the end of March 2018 (Chart 2.42).

Chart 2.43 Average loan-to-value ratio for new housing loans



Note: Figures are the average loan-to-value ratio for new housing loans extended by all financial institutions.
Source: JCIC.

Banks assumed self-discipline on real estate loans

The CBC repealed most rules imposed on housing loans and land collateralized loans in March 2016, except for high-value housing loans. At the same time, financial institutions were required to strengthen self-discipline on mortgage-related credit risk. In 2017, the average loan-to-value ratio for new housing loans registered 70.90%, slightly higher than the ratio of 68.97% in 2016 (Chart 2.43). Moreover, the average loan-to-value ratio for high-value housing loans was 57.22%, equivalent to the ratio reported in 2016.

[37] Refers to domestic banks and the local branches of foreign and Mainland China's banks.

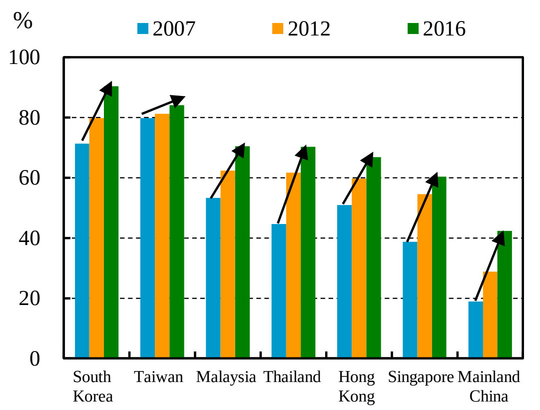
Box 1
Analysis of Taiwan's household debt and debt servicing capacity

Recently, some central banks warned against rising global household debt.[1] Also, the economic and financial risks arising from continuously rising household debt have drawn wide attention. Although Taiwan's household debt to GDP ratio[2] has risen in recent years, it grew at a slower pace than neighboring Asian economies. Moreover, the default rate of household borrowing from banks has remained low. This, coupled with a high household saving rate and total household net worth to GDP ratio, indicates sound household financial conditions. Thus, household debt does not yet pose a significant risk to the overall economic and financial environment.

1. Household debt to GDP ratio in Taiwan was higher than that in some neighboring Asian economies but grew at a slower pace

Taiwan's households prefer to purchase properties and the owners of small and medium enterprises tend to apply for loans in their own name for operation purposes. These factors, along with a boom in the banking industry, led to a high household debt to GDP ratio, equivalent to that in advanced economies, such as those in Europe and the US. In the last decade, the household debt to GDP ratio in Taiwan ranged from 78% to 86%, higher than that in neighboring Asian economies except South Korea.[3] Nonetheless, household debt to GDP ratios in Malaysia, Thailand and Mainland China soared rapidly in recent years. In contrast, the ratio in Taiwan trended upwards but at a relatively mild pace over the same period (Chart B1.1).[4]

Chart B1.1 Household debt to GDP ratios of Taiwan and other neighboring Asian economies

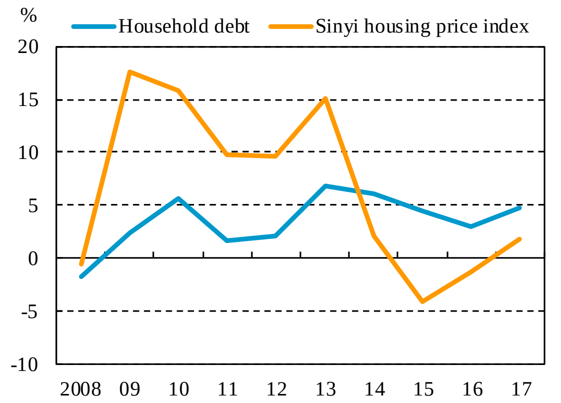


Note: Economies are sorted by descending order of their corresponding ratios in 2016.
Sources: BIS and CBC.

2. The largest share of household borrowing went for the purchase of real estate, which grew moderately in recent years

At the end of 2017, total household borrowing expanded to NT$15 trillion, of which the purchase of real estate accounted for the largest share (more than 60% of total household borrowing). Yet, the share of the purchase of real estate continued to trend downwards in recent years mainly because the growth of real estate loans moderated amid the cooling of the real estate market. The annual growth rate of household borrowing fell to 4.77% in 2017 from its peak of 6.77% in 2013 (Chart B1.2).

Chart B1.2 The annual growth rates of household debt and housing price index

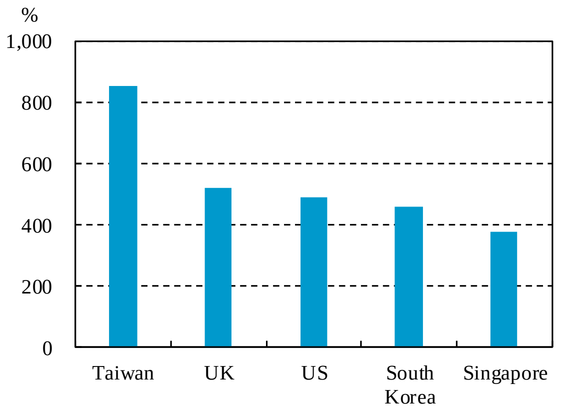


Sources: Sinyi Real Estate Inc and CBC.

3. Household net worth to GDP ratio has been high, implying sound financial conditions

The household saving rate in Taiwan is high and has averaged 21.25% over the last decade, much higher than that in some major economies such as Germany, the US and Japan.[5] This provided an adequate source of repayment. In addition, household net worth to GDP was around 8.5 times, also higher than in the UK, the US, South Korea and Singapore (Chart B1.3), partly reflecting sound household financial conditions in Taiwan.

Chart B1.3 Household net worth to GDP ratios



Notes: 1. Households include non-profit institutions serving households.
2. Figures are for 2016.
Sources: Official websites of selected countries.

The purchase of real estate accounted for 60% or more of Taiwan's total household borrowing and most of those real estate loans were fully collateralized. Also, most current operation loans were secured by collateral. Reflecting this, banks' credit risks were still within a manageable level. In 2017, the NPL ratio of household borrowing stayed at a low level of 0.27%, indicating satisfactory credit quality. Furthermore, the domestic unemployment rate and interest rate on loans have remained low in recent years, which could help sustain the debt servicing capacity of households.

4. Conclusions

(1) Taiwan's financial system remained stable. Although the household debt to GDP ratio was high, the NPL ratio of household borrowing was still at a low level. This,

coupled with the fact that the household saving rate was high and the total assets of households far exceeded their total debt, reflects sound financial conditions. As a result, household debt does not yet pose a significant risk to the economic and financial environment.

(2) In recent years, the real estate market has gradually returned to fundamentals. Nonetheless, the purchase of real estate to total household borrowing ratio has stayed at a high level of 60% or more. In response, banks should continually monitor the credit risk of real estate loans and examine their real estate loan policies in a timely manner to cope with such impacts.

(3) With gradual monetary policy normalization in major economies, Taiwan's interest rate may trend up and, in turn, increase household debt servicing pressure. Accordingly, this warrants banks closely monitoring the evolution of international economic and financial conditions, and reminding borrowers to pay attention to the influence of future interest rate fluctuations on their debt servicing capacity, so as to prevent adverse impacts on the financial system.

Notes: 1. From 2017 onwards, the central banks of Australia, Canada, the UK, South Africa, and Chile have successively warned about rising global household debt.

2. A rise of household debt to GDP ratio represents that the per dollar output needed to repay household debt increases, reflecting a heavier household debt burden.

3. South Korea's household debt to GDP ratio kept rising year by year. This mainly resulted from the fact that the South Korean government implemented a policy with the aim of boosting a sluggish economy which encouraged the public to apply for real estate loans to sustain the development of the real estate market. As a result, household debt increased sharply.

4. Michael Heise, the chief Economist of Allianz SE in Germany, indicated that Taiwan's debt growth has remained relatively stable in the past few years, which is a good trend. See Focus Taiwan News Channel (2017), *Taiwan's Private Wealth Per Person Ranked 5th Highest Globally*, September.

5. The household saving rate is defined as household saving divided by disposable income. The figure for Taiwan is the average from 2007 to 2016. According to the Organization for Economic Co-operation and Development (OECD), for the average household saving rate over the last decade, Taiwan was lower than that in Mainland China (37.37% from 2006 to 2015) but higher than that in Germany (9.72% from 2007 to 2016), the US (5.68% from 2007 to 2016), and Japan (2.26% from 2006 to 2015).