

III. Financial system assessment

3.1 Financial markets

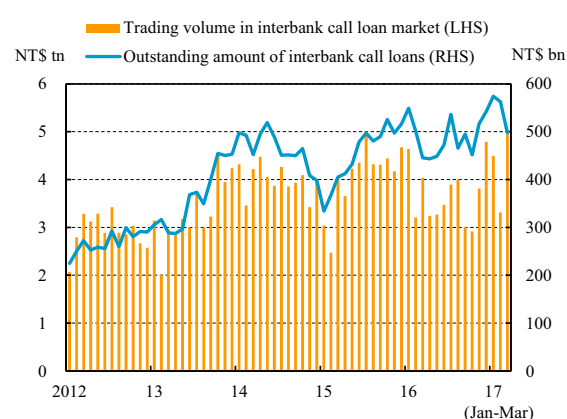
With respect to money and bond markets in 2016, the outstanding amount of interbank call loans increased, but the trading volume declined. The trading volume of bills and bonds in the secondary market fell, although their outstanding amount in the primary market increased. Short-term market rates decreased slightly and then remained at a lower level, while long-term market rates turned to rise after falling. With regard to the stock markets, stock indices trended up, while volatility fluctuated and fell over the same period. In the foreign exchange market, the NT dollar exchange rate against the US dollar fluctuated with an upward trend but volatility remained relatively stable.

3.1.1 Money and bond markets

Outstanding amount of interbank call loans increased, while the trading volume declined

Supported by stronger funding demands from bills finance companies and some small- and medium-sized banks which had weak funding liquidity, the average daily outstanding amount of interbank call loans in 2016 increased by 7.93% year on year. However, the trading volume of interbank call loans decreased by 9.05% year on year owing to a longer term to maturity⁴⁶ resulting in a reduction in the frequency of call loan transactions. In January 2017, affected by peak demand for funds before the Lunar New Year holidays, the average daily outstanding amount of interbank call loans reached a five-year high and then declined. Moreover,

Chart 3.1 Interbank call loan market



Note: Outstanding amount is the monthly average of daily data.
Source: CBC.

⁴⁶ The ratio of overnight call loans to total interbank call loans dropped significantly to 54.5% in 2016 from 63.71% posted a year earlier.

the trading volume of interbank call loans in March increased significantly, compared to the figure in February, reflecting more business days in March(Chart 3.1).

Bill issuance in the primary market increased, but trading volume in the secondary market shrank

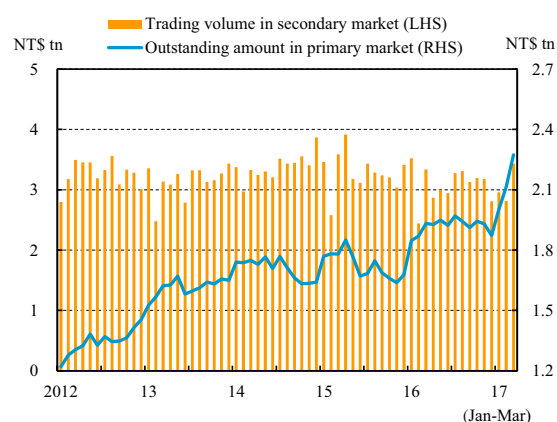
At the end of 2016, the total amount of bill outstanding substantially increased by NT\$195.7 billion or 11.67% year on year, owing to massive issuance of non-guaranteed commercial paper by state-owned enterprises and large private corporates, as well as an increase in negotiable certificates of deposit (NCDs) issued by banks. The outstanding amount of non-guaranteed commercial paper and NCDs increased by NT\$133.4 billion (9.91%) and NT\$61.8 billion (26.0%), respectively, over the previous year. In 2017 Q1, the total amount of bill outstanding in the primary market continued to trend upwards as commercial paper issuance increased (Chart 3.2).

In 2016, the total amount of bill outstanding in the primary market saw an increase. On the other hand, the bill trading volume in the secondary market over the same period decreased by NT\$2.4 trillion or 6.16% year on year. The main reasons behind this were that non-guaranteed commercial paper underwritten and purchased by bills finance companies was immediately sold in the secondary market, and that a massive amount of short-term bills purchased by banks was primarily used as liquid reserves and held to maturity. In 2017 Q1, the trading volume roughly remained steady (Chart 3.2).

Bond issuance in the primary market expanded, but the turnover of outright transactions in the secondary market remained at a lower level

At the end of 2016, the total amount of bond outstanding increased by NT\$1.14 trillion or 11.0% year on year. Analyzed by categories, the outstanding amount of local government bonds was about the same as that of the previous year. Meanwhile, the outstanding amount of international bonds⁴⁷ continued to grow sharply by NT\$1.15 trillion or 60.04%. It was

Chart 3.2 Primary and secondary bill markets



Sources: CBC and FSC.

⁴⁷ Bonds denominated in foreign currencies offered and issued in Taiwan by domestic and overseas issuers are called international bonds.

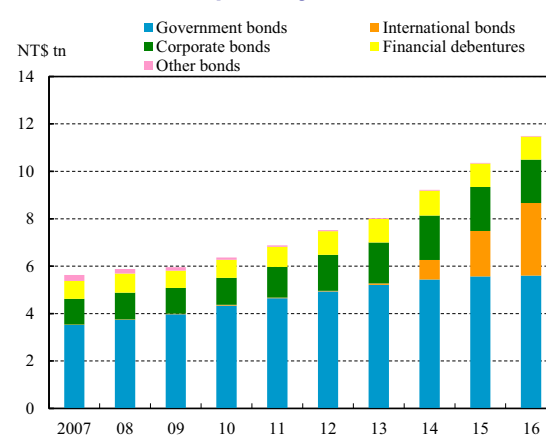
mainly driven by increased willingness of large international enterprises to raise funds in Taiwan because of rising expectations of the Fed's interest rate hike and convenient access to domestic funds. Moreover, the yields on international bonds were mostly much higher than those of local government bonds with the same maturity and international bonds were excluded from Taiwanese insurers' overseas investment ceilings, attracting life insurance companies to increase investment in international bonds. In addition, owing to weak demand from enterprises for capital expenditures, the outstanding amount of corporate bonds in 2016 decreased by NT\$37.61 billion or 2.02% over the previous year. The outstanding amount of financial debentures also decreased by NT\$11.48 billion or 1.16% year on year (Chart 3.3).

The trading volume in the secondary bond market in 2016 fell by 1.34% year on year (Chart 3.4). The main reasons behind this were that life insurance companies mainly invested in international bonds by adopting buy-and-hold strategies, as well as an amplified concentration of bonds held by banks. In 2017 Q1, the monthly turnover ratio in the secondary major bond market⁴⁸ slightly rebounded after descending to a new low level of 4.14% in December 2016, (Chart 3.5).

Short-term market rates slightly fell, while long-term market rates reversed to rise after falling

As for short-term market rates, following the CBC's two rate cuts of 12.5 bps in each of the March and June meetings in 2016, coupled with sustaining ample funds in financial markets, the interbank overnight call loan rate slightly fell in the second half of 2016. In 2017 Q1, short-term market rates remained stable at a low level (Chart 3.6).

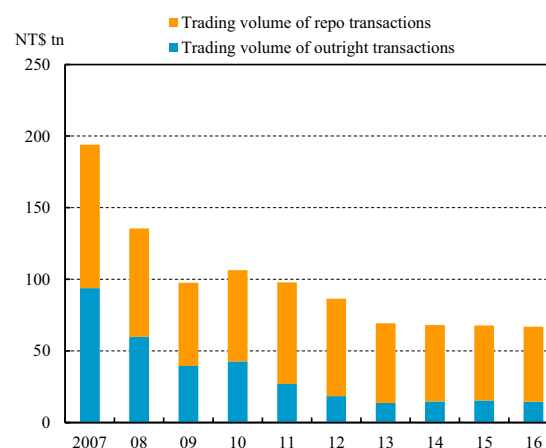
Chart 3.3 Total amount of bond outstanding in the primary market



Note: Other bonds include beneficiary securities and foreign bonds.

Source: FSC.

Chart 3.4 Outright and repo transactions in the bond market



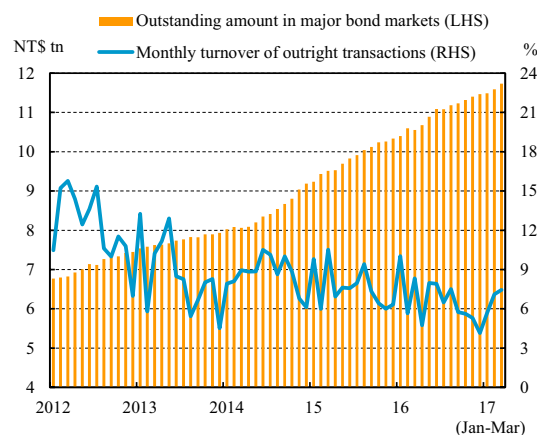
Source: CBC.

⁴⁸ See Note 8.

In the first half of 2016, long-term bond interest rates continuously dipped, reflecting the fact that market participants expected interest rates to keep falling owing to a lower-than-expected domestic economic growth rate and financial disruption resulting in massive capital flows into the local bond market for hedging. As a result, the yield on Taiwan’s 10-year government bonds fell to a historical low of 0.63% on August 18, 2016. Afterwards, affected by rising expectations of the Fed’s interest rate hike and elevating international oil prices, Taiwan’s 10-year government bond yields sharply rebounded to above 1% on October 28. From mid-November, owing to rising US inflation expectations and slowing domestic economic growth, coupled with the Fed’s interest rate hike of 25 bps in mid-December, the yield on Taiwanese government bonds followed the upward trend of US government bond yields. In 2017 Q1, the yield on Taiwanese government bonds fluctuated within a narrow range resulting from a fall in US government bond yields (Chart 3.6).

The Fed is expected to keep raising interest rates in 2017. This, coupled with the fact that the yield on Taiwan’s government bonds has tended to fluctuate along with those of US government bonds over the past years, mean that the yield on Taiwan’s government bonds, which is likely to be affected by that of US government bonds, is expected to trend upwards in the future. Moreover, the mounting uncertainty of international economic and financial conditions may trigger further bouts of global financial market turmoil. Therefore, related interest rate risks warrant close attention.

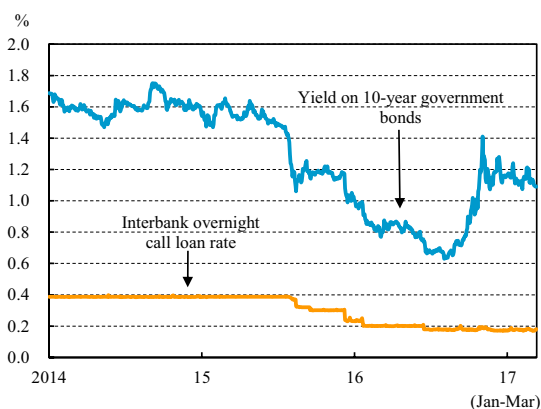
Chart 3.5 Outstanding amount in major bond markets and monthly turnover



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

Source: FSC.

Chart 3.6 10-year government bond yield and interbank overnight rate



Source: Bloomberg.

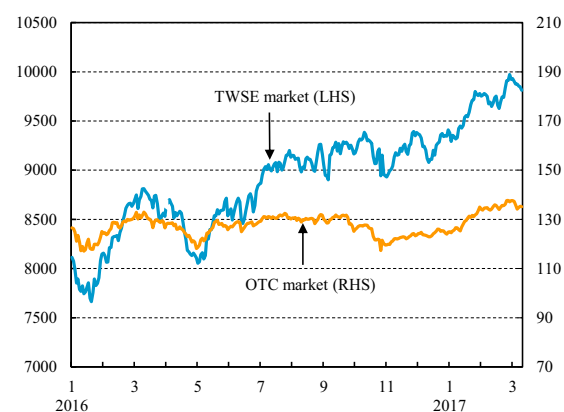
3.1.2 Equity markets

Stock indices trended up, while volatility fell

In the first half of 2016, owing to the changes in global stock markets and oil prices, as well as rising expectations of the Fed's interest rate hike, the TAIEX of the TWSE market fluctuated. However, from the second half of 2016 onwards, the rally in international major stock markets, domestic economic recovery and an increase in exports, accompanied by major US stock indices closing at record highs, led the TAIEX on an upward trend to hit a year high of 9,393 on December 9. The TAIEX registered 9,254 at the end of 2016, posting an increase of 10.98% year on year (Chart 3.7). Broken down by sector, the indices for the textile and fiber, automobile, shipping and transportation, tourism, biotechnology & medical care, and chemical, biotechnology & medical care industries reported negative returns, while the indices for the other sectors all rose. In the first quarter of 2017, underpinned by US stock indices constantly hitting record highs and massive net buying by foreign investors, the TAIEX trended up and reached 9,812 at end-March 2017, increasing by 6.03% from the end of 2016 (Chart 3.7).

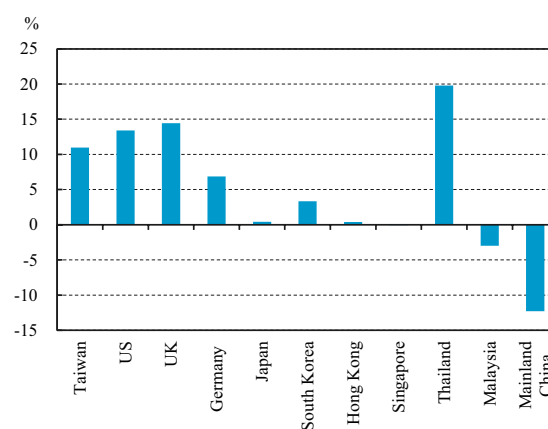
In the OTC market, Taipei Exchange Capitalization Weighted Stock Index (TPEx) fluctuated in the first half of 2016. In the second half of the year, affected by the fall of the indices for cultural & creative and biotechnology & medical care industries, the TPEx moved with a downward trend and closed at 125 at end-December, with an annual drop of 3.00%. The index reversed this trend and climbed in 2017 Q1 to reach 135 at the end of March (Chart 3.7).

Chart 3.7 Taiwan's stock market indices



Sources: TWSE and TPEx.

Chart 3.8 Comparison of major stock market performances



Notes: 1. Figures are for 2016.
2. Taiwan's data are for the TWSE market.

Source: TWSE.

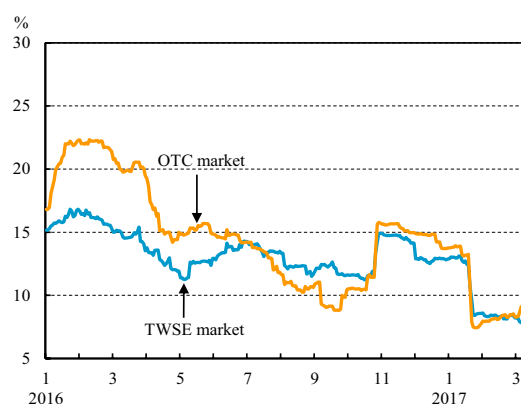
Comparing major stock markets around the world, most markets showed positive performances in 2016 except Mainland China and Malaysia, which saw declines in their stock indices, and Singapore, which maintained a similar level to the previous year. Thailand, the UK, and the US outperformed other countries with annual rises of 19.79%, 14.43% and 13.42% (Chart 3.8).

In the first three quarters of 2016, volatility in the TWSE and the OTC markets dropped sharply from their respective highs of 16.82% and 22.33% in the beginning of the year. Subsequently, volatility in those two markets trended upward in the last quarter, standing at 12.94% and 14.84% at the end of December. However, volatility of local stock indices declined to 7.69% and 9.08%, respectively, at the end of March 2017 (Chart 3.9).

Annual turnover ratio declined

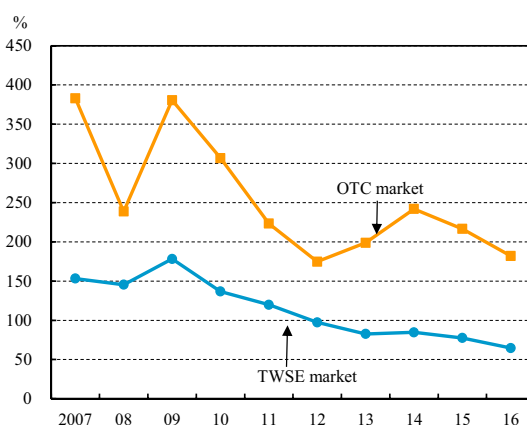
The TWSE and the OTC markets both experienced reductions in trading in 2016. The average monthly trading value in the TWSE market registered NT\$1.40 trillion, a decrease of 16.94% year on year, while the annual turnover ratio in terms of trading value declined to 64.60%. In the OTC market, the trading situation was similar to the TWSE market. The average monthly trading value posted NT\$420.9 billion in 2016, a decline of 11.23% year on year, while the annual turnover ratio fell to 181.99% (Chart 3.10). The trading value in the TWSE market amplified at the beginning of 2017 and rose to NT\$147.9 billion on 2 February, reaching a new high since August 2015. In 2017 Q1, the average monthly trading value in the TWSE and the OTC markets registered NT\$1.59 trillion and NT\$483.3 billion, respectively. Meanwhile the annual turnover ratio in terms of trading value saw a slight increase and reached 66.56% and 199.79%, respectively, over the same period.

Chart 3.9 Stock price volatility in Taiwan's markets



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

Chart 3.10 Annual turnover ratio in Taiwan's stock markets



Sources: TWSE and TPEX.

Comparing major stock markets around the world, the annual turnover ratio in Mainland China ranked among the highest in 2016, while that in the stock market in Taiwan was approximately equal to that in the UK, but higher than those in Hong Kong, Singapore, and Malaysia (Chart 3.11).

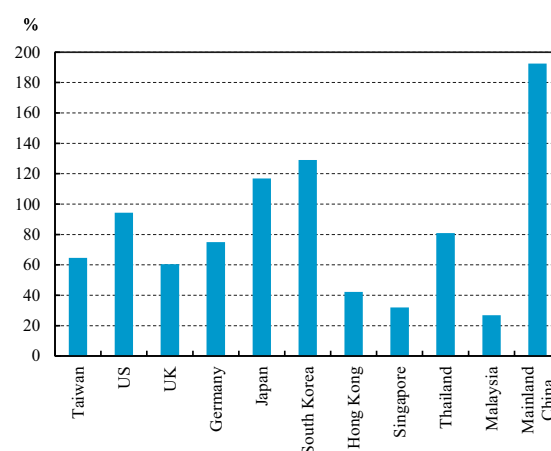
3.1.3 Foreign exchange market

The NT dollar exchange rate reversed to appreciation and the trading volume decreased

From March 2016, the ECB expanding its QE programs, the BoJ continuously adopting a Negative Interest Rate Policy (NIRP) and an expectation of the Fed possibly slowing its interest rate hike schedule caused the US dollar to depreciate. As a result, increasing net foreign capital inflows led the NT dollar exchange rate to appreciate against the US dollar, reaching a yearly high of 31.225 on August 10. Thereafter, starting from October, on account of solid US economic data, President Trump's proposal of expansionary fiscal policy and tax cuts, and the Fed's interest rate hike in mid-December, resulted in the NT dollar exchange rate turning to depreciation against the US dollar. At the end of 2016, the NT dollar exchange rate stood at 32.279, an annual appreciation of 2.44%.

In early 2017, affected by uncertainties surrounding the US President Donald Trump's economic policies, along with a market expectation of weak US dollar policy, the NT dollar exchange rate turned to appreciate against the US dollar and rose to 30.336 at the end of March (Chart 3.12).

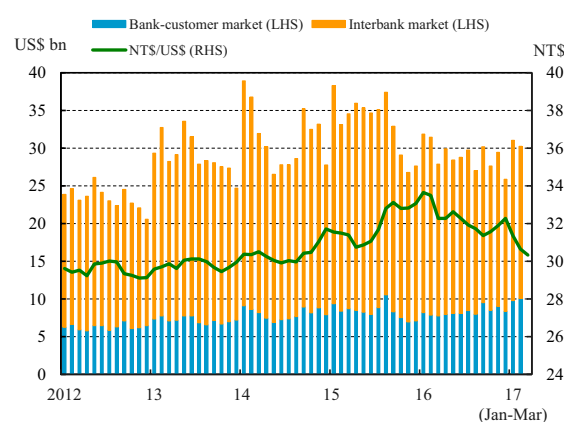
Chart 3.11 Comparison of turnover ratios in major stock markets



Notes: 1. Figures refer to accumulated turnover ratios in 2016.
2. Taiwan's data are for the TWSE market.

Source: TWSE.

Chart 3.12 NTD/USD exchange rate and foreign exchange market trading volume



Notes: 1. Trading volume is the monthly average of daily data, while exchange rate is end-of-period data.
2. The latest data for trading volume are as of February 2017.

Source: CBC.

The appreciation of the NT dollar against the US dollar at 2.44% was only lower than the Japanese yen’s 2.80% in 2016. In the first quarter of 2017, the NT dollar appreciated by 6.40%, while other major Asian currencies also displayed appreciating trends (Chart 3.13).

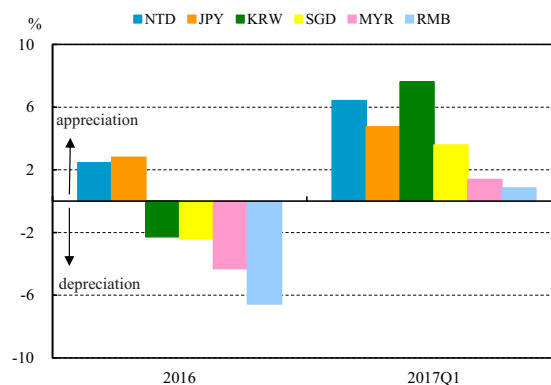
As for the NT dollar against other key international currencies, in 2016 the NT dollar appreciated by 23.82%, 6.53% and 4.81% against the British pound, the euro and the Korean won, respectively, but depreciated by 0.35% against the Japanese yen over the same period (Chart 3.14).

In 2016, the average daily trading volume in Taiwan’s foreign exchange market contracted to US\$28.9 billion, decreasing by 13.28% compared to US\$33.4 billion a year earlier, primarily because of a decrease in the trading volume of the interbank market (Chart 3.12). A breakdown by counterparty showed that the average daily trading volume in the interbank market accounted for 71.22% of the total in 2016, while the bank-customer market made up a 28.78% share. As for types of transactions, foreign exchange swaps accounted for the largest share of 48.22% of the total, followed by spot trading with 39.08%.

NT dollar exchange rate volatility remained relatively stable

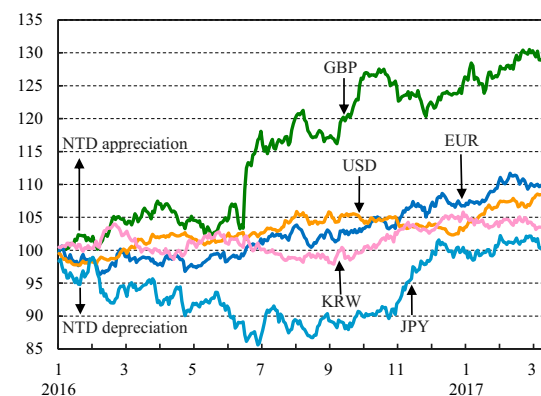
Volatility in the NT dollar exchange rate against the US dollar fluctuated between 2.96% and 6.96% in 2016, and registered an annual average of 4.52%. Volatility in the NT dollar exchange rate against the US dollar moved between 3.32% and 6.07% during 2017 Q1. Since 2016, the NT dollar exchange rate against the US dollar has been relatively stable compared to the exchange rates of major currencies such as the Japanese yen, the euro, the Korean won and the Singapore dollar (Chart 3.15).

Chart 3.13 Exchange rate changes of major Asian currencies against the US dollar



Source: CBC.

Chart 3.14 Movements of NT dollar exchange rate against key international currencies



Note: December 31, 2015 = 100.

Source: CBC.

Taiwan is a small open economy; therefore, its foreign exchange market may be easily affected by massive and frequent movements of foreign capital. To lessen the effects of short-term inflows and outflows, the IMF has suggested that such economies may take the needed policy steps to raise/lower interest rates, lead local currencies to appreciate/depreciate, or take capital flow management measures.

3.2 Financial institutions

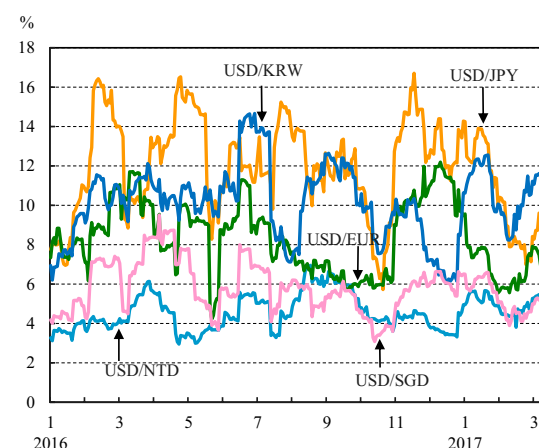
3.2.1 Domestic banks

The total assets of domestic banks⁴⁹ accumulated continuously in 2016, though at a slower pace than in the previous year. Asset quality declined slightly, and the concentration in corporate loans mildly increased while the concentration of credit exposures in real estate loans decreased slightly. Nevertheless, banks should take prudent actions to address related credit risks deriving from a conservative outlook on real estate transactions. The estimated VaR of overall market risk exposures of domestic banks rose but had a limited influence on their capital adequacy. Moreover, liquidity risk was moderate thanks to ample liquidity in the banking system. The profitability of domestic banks in 2016 declined compared to that of the previous year, while the average capital adequacy ratio rose. This revealed that the capacity of domestic banks to bear losses was satisfactory.

Total assets continued to increase at a moderate pace

The total assets of domestic banks kept increasing, albeit at a more moderate pace, and reached

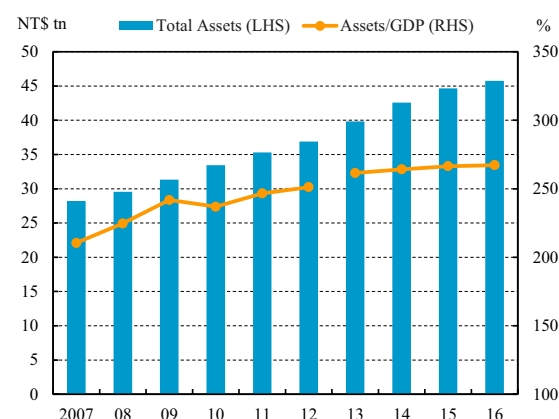
Chart 3.15 Exchange rate volatility of various currencies versus the US dollar



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

Source: CBC.

Chart 3.16 Total assets of domestic banks



Note: Figures for total assets from 2012 are on the TIFRSs basis, while those of prior years are on the ROC GAAP basis.

Sources: CBC and DGBAS.

⁴⁹ The 40 domestic banks referred to in this section include the Agricultural Bank of Taiwan.