

IV. Financial sectors

4.1 Financial markets

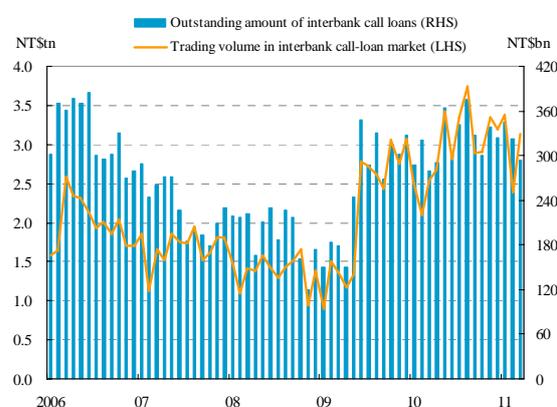
The trading volume of interbank call loans increased materially in 2010; in addition, trading volumes trended upwards in the bills and bond markets, while yield spreads between long-term and short-term rates varied between 59 and 105 basis points. As for the domestic stock market, stock indices reached record highs post the global financial crisis but then fell back moderately, and the volatility decreased. In the foreign exchange market, the NT dollar exchange rate appreciated obviously against the US dollar in the second half of 2010, but remained relatively stable compared to the exchange rates of other major currencies; moreover, the trading volume increased markedly.

4.1.1 Money and bond markets

Interbank call loan trading volume posted a significant increase, and trading volumes in bills and bond markets also rebounded

In 2010, the average monthly trading volume of interbank call loans increased by 38.01% year on year and the average daily outstanding amount also rose by 24.86% over the previous year. The reason was primarily because a large proportion of the funds remitted into Taiwan by foreign portfolio investors were channeled into interbank call loans by custodian banks, coupled with the ample liquidity provided by domestic banks. In 2011 Q1, the trading volume of interbank call loans remained at the same level as in 2010 Q4, except a remarkable decrease in February owing to the Chinese Lunar New Year holidays. However, the average outstanding amount of interbank call loans slightly descended on a monthly basis (Chart 4.1).

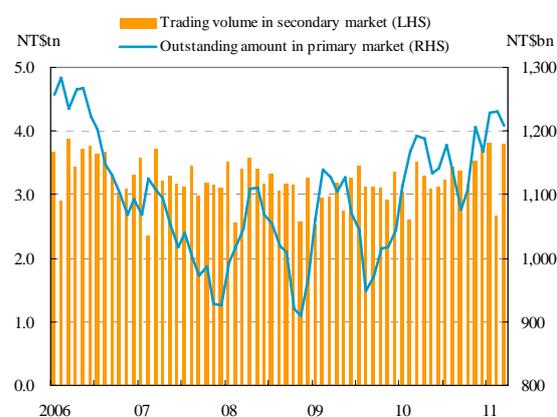
Chart 4.1 Interbank call-loan market



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

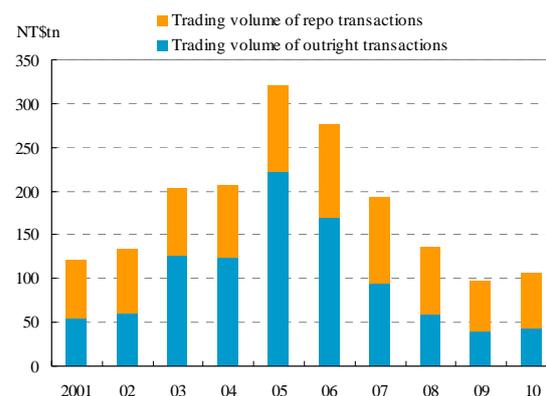
In 2010, there was an expansion in the trading volume and the outstanding amount in the primary and secondary bills markets. In the primary bills market, the outstanding amount of bills issuance continued to rise in 2010 Q1 and became volatile from Q2 onwards due to notable changes in the issuance amount of treasury bills, commercial papers, and certificates of deposit. The outstanding amount of bills issuance at the end of 2010 rose by 11.93% year on year. Broken down by instruments, the outstanding issuance amount of certificates of deposit at the end of 2010 increased by 36.83%, while that of commercial paper rose by 5.34%. Moreover, at the end of March 2011, the outstanding amount of bills issuance remained high. As for the secondary bills market, its trading volume,⁵² affected by an increase in the issuance of commercial paper,⁵³ rose by 6.53% year on year in 2010. In 2011 Q1, the trading volume soared, except for a decline in February, affected by the Chinese Lunar New Year holidays (Chart 4.2).

Chart 4.2 Primary and secondary bills markets



Note: Excludes asset-backed commercial paper (ABCP).
Sources: CBC and FSC.

Chart 4.3 Outright and repo transactions in the bond market



Source: CBC.

Regardless of the sluggish bond market in 2009, the trading volume trended upwards and rose by 8.99% year on year in 2010. Of the components, outright transactions and repo transactions increased by 8.24% and 9.50%, respectively (Chart 4.3). The monthly turnover ratio of outright transactions rebounded from a low in March 2010, despite ample liquidity and less bonds being traded in the market. From September onwards, owing to the lack of trading willingness of bond traders and the expectation of rising market rates, outright transactions dropped significantly and their monthly turnover ratio fell to a trough of 16.60% in December 2010, a five-year low. In 2011 Q1, the outright turnover ratio in the bond market

⁵² Source: the FSC.

⁵³ The trading value of commercial paper was more than 80% of the trading volume in the secondary bills market. The effect of its change on the total trading volume was huge.

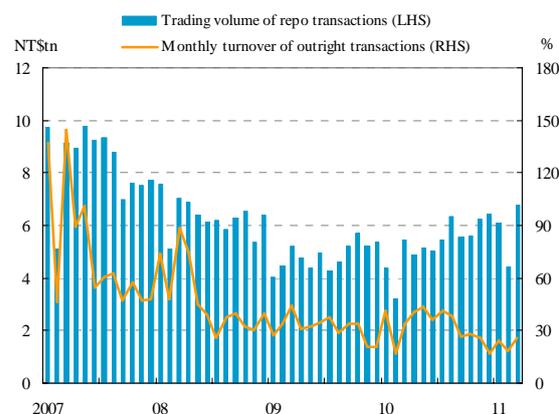
remained at a low level (Chart 4.4).

As bond markets have long been an important source of capital for government and corporations to raise medium- and long-term funds, the soundness of bond markets are closely related to financial stability. Nevertheless, the local bond market has been facing a bottleneck in its development during recent years. In response, the MOF, the CBC, and the bond market supervision authorities⁵⁴ jointly implemented measures relating to bond issuance, trading and settlement. However, as many financial institutions held large amounts of government bonds and were reluctant to trade them in the market, it is expected that the trading volume of outright transactions will remain low in 2011 (Box 5).

Yield spreads ranged between 59 and 105 basis points

Short-term and long-term market interest rates remained at a similar level and yield spreads fluctuated within a narrow range in the first half of 2010. In the second half of 2010, following the CBC's policy rate rises since June, short-term market rates climbed up. On the other hand, government bond yields declined from July onward, due to the falling bond yields in the US and Japan caused by the expectation of another round of quantitative easing by major central banks and the insufficient government bond supply at home to meet the strong demand from domestic investment institutions. In November, as a result of soaring yields on US government bonds and tightening rules on foreign investment in Taiwan's government bonds, together with the lack of trading willingness of bond traders and higher than expected government bond issuance in 2011, government bond yields rose again. In general, yield spreads fluctuated

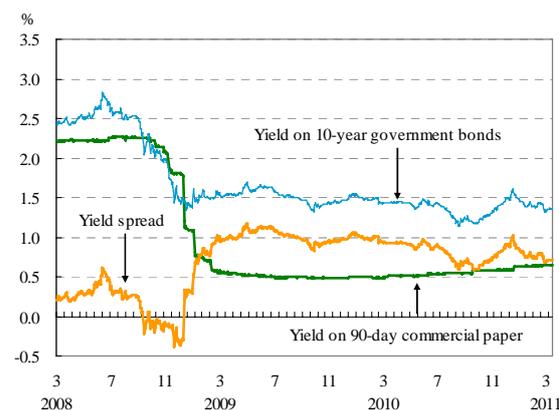
Chart 4.4 Bond transactions and turnover



Note: Monthly turnover = trading value in the month / average bonds issued outstanding.

Sources: CBC and FSC.

Chart 4.5 Yield spread



Note: Yield spread refers to yield on 10-year government bonds minus yield on 90-day commercial paper.

Source: Bloomberg.

⁵⁴ The authorities include the FSC and the GTSM (GreTai Securities Market).

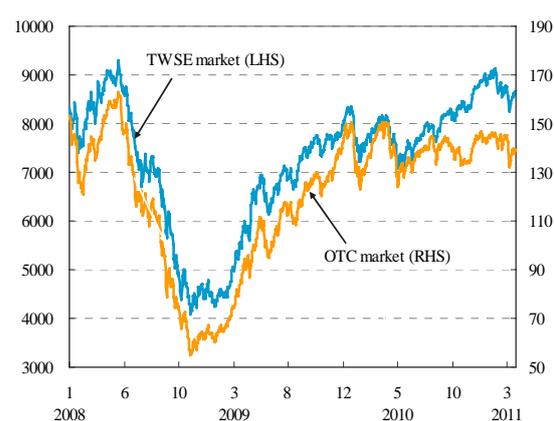
between 59 and 105 basis points throughout the year of 2010. In 2011 Q1, short-term rates increased gradually; nevertheless, government bond yields slumped due to increased purchase by life insurance companies and rebuilt positions by bond traders. As a result, yield spreads fluctuated between 67 and 90 basis points (Chart 4.5).

4.1.2 Equity markets

Stock indices dropped after hitting new highs, while volatility rebounded slightly after sharp falls

The Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan Stock Exchange (TWSE) market hit a high in mid-April 2010, due to the strengthening of the world's major stock markets and the benefits of the signing of ECFA. However, the TAIEX dropped to an annual low of 7,072 on 9 June 2010, owing to the impact of the European sovereign debt crisis and the repatriation of foreign capital.⁵⁵ Afterwards, the TAIEX climbed to its annual high of 8,973 at the end of December, an increase of 27% from the trough in June. This strength was due to net stock buying by foreign institutional investors because of strong capital inflows into Asia, the ECFA becoming effective and robust performance in global stock markets. In 2011 Q1, amid the brighter outlook for the US recovery, the TAIEX further climbed up and reached 9,145 before the Chinese Lunar New Year holidays. However, owing to political turmoil in several countries and rising oil prices, the TAIEX dropped to 8,683 at the end of March, a decrease of 3.22% compared to that of the previous December. Meanwhile, Taiwan's GreTai Securities Market (GTSM) Index of the OTC market closely tracked the movements of the TAIEX, climbing to 144 in December 2010, after hitting a new low of 123 in May 2010. It fell to 139 at the end of March 2011, a decrease of 3.49% from the end of December 2010 (Chart 4.6). Compared to major stock markets around the world, the TAIEX's 9.58% rise in 2010 was higher than the stock indices of London, Tokyo, Hong Kong and Shanghai (Chart 4.7).

Chart 4.6 Taiwan stock market indices



Sources: TWSE and GTSM.

⁵⁵ In May 2010, foreign investors (foreign institutional investors, overseas Chinese, and foreign individual investors) were net sellers of NT\$127.2 billion worth of securities in Taiwan, with the net selling amount reaching a new high for a single month since 2008.

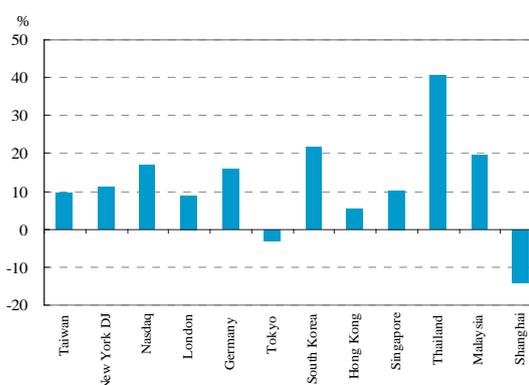
Broken down by sectors, most sector indices in the TWSE market were in bullish territory in 2010 and half of them outperformed the TAIEX. The Trading and Consumers' Goods Index performed the best due to an increase in aggregate demand from Mainland China and the effects of the ECFA, increasing by 52.45%. Additionally, the Transportation Index experienced large growth, increasing by 47.81%, owing to the effects of cross-strait direct flights. The Optoelectrical Industry Index performed poorly, with a drop of 11.05%. In 2011 Q1, most indices entered bearish territory following falls in international stock markets, while the Plastic Index and the Communications and Internet Industry Index both performed well. These two sectors benefited from soaring oil prices and strong demand for smartphones.

Equity market volatility was significant in the first half of 2010, especially that in the OTC market. In the second half of 2010, the volatility in the TWSE and OTC markets trended down and stood at 11.28% and 13.86%, respectively, at the end of December, while that in the TWSE market touched a new low since 2008. In 2011 Q1, the volatility in the TWSE and OTC markets declined further at the end of January, but then trended up and stood at 16.53% and 18.41%, respectively, at the end of March (Chart 4.8). Nevertheless, the risks involved in stock investments were relatively low compared to those during the global financial crisis of 2008 and 2009.

Transactions in the stock markets remained active

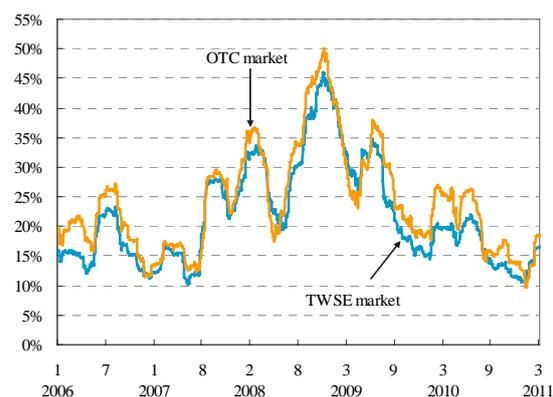
The TWSE and OTC markets were moderately active in 2010. The average monthly trading value on the TWSE market was NT\$2.35 trillion, a moderate decrease of 4.93% year on year, while its turnover ratio in terms of trading value in the same year decreased to 136.74%,

Chart 4.7 Comparison of major stock market performances



Notes: 1. Figures are for 2010.
2. Taiwan's data is for the TWSE market.
Source: TWSE.

Chart 4.8 Stock price volatility

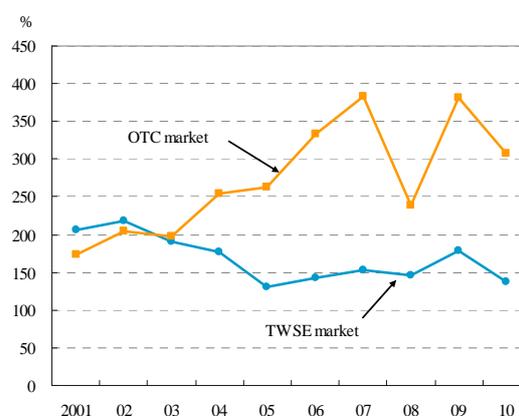


Note: Volatility refers to the annualized standard deviation of 60-day daily index returns.
Sources: TWSE, GTSM, and CBC.

touching a new low since 2006 (Chart 4.9). The trading value in the OTC market saw a significant increase in 2010. The average monthly trading value in the OTC market was NT\$469.5 billion in 2010, an increase of 7.53% year on year, but its turnover ratio saw a significant fall to 306.68% from 380.61% posted in the previous year (Chart 4.9). In 2011 Q1, affected by the local stock market slump and the Chinese Lunar New Year holidays, the turnover ratios and monthly trading value in the TWSE and the OTC markets in January and February 2011 moved in a downward direction, while the numbers reflected a rebound in March.

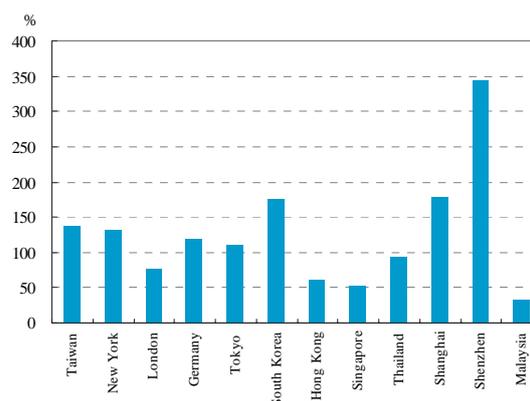
Compared to major stock markets around the world, the annual turnover ratio in the TWSE market in 2010 was lower than the neighboring stock markets in South Korea, Shanghai and Shenzhen, while approximately equal to that in New York's Dow Jones, but higher than those in London, Germany, Tokyo, Hong Kong, Singapore, Thailand and Malaysia (Chart 4.10).

Chart 4.9 Annual turnover ratios in Taiwan's stock markets



Sources: TWSE and GTSM.

Chart 4.10 Comparison of turnover ratios in major stock markets



Notes: 1. Figures refer to accumulated turnover ratios in 2010.
2. Taiwan's data is for the TWSE market.

Source: TWSE.

Box 5

History and prospects of Taiwan's bond markets

Bond markets play an important part in a country's capital markets as a key channel for corporations and the government to raise medium- and long-term funds. The soundness of bond markets is closely related to financial stability and is always the focus of the Ministry of Finance, the CBC and bond market supervisors (the FSC and the Gre Tai Securities Market). This box discusses the history and present condition of Taiwan's bond markets, and analyzes their future prospects.

1. History

The history of Taiwan's bond markets can be divided into three phases (Chart B5.1):

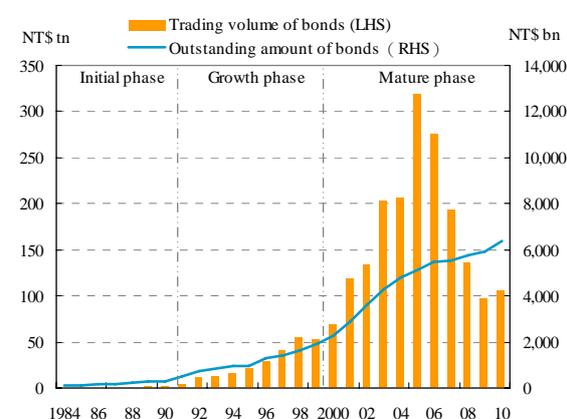
1.1 1949~1990

On 1 August 1949, the central government issued the first public bond and established the first bond market in Taiwan. During this period, bond issuance volume was small and most bonds were held by financial institutions as liquidity reserves, resulting in an insufficient supply of traded bonds. Coupled with limited market participants, secondary bond markets were inactive.

1.2 1991~1999

Since 1991, Taiwan's government issued more government bonds in order to raise necessary funds for the Six-year National Development Plan, leading to an increasing supply of government bonds in the market. Financial institutions also began to actively participate in bond markets. Furthermore, corporations started to raise funds through capital markets and issue corporate bonds. Beginning from 1997, government bonds were issued in book-entry form and the CBC implemented the real-time gross settlement (RTGS) mechanism for bond transactions. Transaction parties who conduct settlement through the same clearing bank are allowed to settle their transactions through the delivery versus payment (DVP) mechanism. These developments simplified government bond management and lowered settlement risks faced by market participants. As a result,

Chart B5.1 History of Taiwan's bond markets



Note: The trading volume and outstanding amount before 1984 are excluded here for being too small.

Source: CBC.

Taiwan's bond markets entered into a growth phase.

1.3 2000~present day

In July 2000, the Gre Tai Securities Market introduced the Electronic Bond Trading System (EBTS), providing bond dealers an online trading platform different from the price negotiations conducted via phone. The EBTS significantly improved trading efficiency and thus substantially increased the outright transaction volume. It was an important progress in Taiwan's bond market. Moreover, the Ministry of Finance, the CBC and bond market supervisors have continued to introduce measures regarding the improvement of bond issuance, trading and settlement. These included the introduction of a regular and moderate issuance system, reopening system, when-issued trading system, primary dealer system and lending facility for government bonds, the establishment of a corporate bond and financial debenture trading platform, as well as the opening of new bond-related financial products. They also introduced a delivery-versus-payment (DVP) mechanism for book-entry security transactions in order to reduce the settlement risk in bond markets.

The efficiency of Taiwan's bond markets improved substantially and both issuance and trading volume grew markedly. In particular, the bond trading volume hit a new high in 2005, making Taiwan's bond markets the second largest in Asia, only behind Japan's. In recent years, though, as Taiwan's bond markets have entered a mature phase, the trading volume has gradually decreased. Furthermore, during this phase, financial institutions bought and hoarded a great deal of bonds due to ample funds at hand, which resulted in an insufficient supply of bonds and an imbalance of supply and demand in the market, and in turn caused distortions of the government bond yield curve. Additionally, high volatility in the cost of bond borrowing also diminished the trading willingness of market participants. All these are crucial factors that have hindered the development of bond markets.

2. Current condition of bond markets

2.1 Primary market

Bond issuance outstanding at the end of 2010 amounted to NT\$6.48 trillion, an increase of 6.4% from a year ago. Government bonds accounted for the largest share of 66.8% of the total, followed by corporate bonds at 18.6% and financial debentures at 12.6%¹. The market share of each kind of bond remained stable (Table B5.1).

Table B5.1 Outstanding amount of bonds by category

Unit: NT\$ Trillion, %

End of year or month	Total	Government bonds		Corporate bonds		Financial debentures		Beneficiary securities		Foreign bonds and international bonds	
		Outstanding amount	Ratio	Outstanding amount	Ratio	Outstanding amount	Ratio	Outstanding amount	Ratio	Outstanding amount	Ratio
2008	5.98	3.74	62.5	1.14	19.1	0.90	15.0	0.14	2.4	0.06	1.0
2009	6.09	3.97	65.2	1.14	18.7	0.81	13.3	0.11	1.8	0.06	1.0
2010	6.48	4.33	66.8	1.20	18.6	0.82	12.6	0.08	1.2	0.05	0.8
2011/2	6.45	4.32	66.9	1.22	18.9	0.81	12.5	0.06	1.0	0.04	0.7

Sources: CBC and FSC.

2.2 Secondary market

The amount of bonds traded in 2010 was NT\$106.31 trillion, an increase of 9.0% year on year. The market share of government bonds in trading volume was roughly 98% before 2009 and decreased to 89.5% in 2010, while that of corporate bonds increased from 1.3% to 9%. The changes were mainly due to an adjustment to bond categories. As for financial debentures, beneficiary securities, foreign bonds and international bonds, the trading volume only accounted for a small share of the whole market (Table B5.2).

Table B5.2 Trading volume of bonds by category

Unit: NT\$ Trillion, %

Year or month	Total	Government bonds		Corporate bonds		Financial debentures		Beneficiary securities		Foreign bonds and international bonds	
		Trading volume	Ratio	Trading volume	Ratio	Trading volume	Ratio	Trading volume	Ratio	Trading volume	Ratio
2008	135.51	133.75	98.7	1.39	1.0	0.21	0.1	0.08	0.1	0.08	0.1
2009	97.54	95.99	98.4	1.34	1.3	0.15	0.2	0.00	0.0	0.06	0.1
2010	106.31	95.21	89.5	9.56	9.0	1.36	1.3	0.12	0.1	0.06	0.1
2011/1-2	15.32	13.19	86.1	1.89	12.3	0.21	1.4	0.02	0.1	0.01	0.1

Source: CBC.

3. Looking into 2011

3.1 Primary market

The government bond issuance program of 2011, announced by the Ministry of Finance, showed that the government bond issuance amount will be slightly larger than that of 2010. The issuance amount of Type A government bonds in 2011 Q1 will be NT\$185 billion, among which NT\$110 billion will be used to refinance existing debt. This indicates that the supply of government bonds will not increase too much. As for corporate bond issuance, escalating interest rates resulting from the recovering economy

will encourage firms to increase bond issuances to fix their interest expenses at low levels. In addition, the FSC elevated the risk weight for non-self-use residence loans from 45% to 100% in order to enhance banks' risk management on real estate-related loans. In response, banks also tended to increase subordinated financial debentures issuance to meet the new capital requirement.

3.2 Secondary market

Currently, domestic funds are ample, but the supply of bond instruments is insufficient and most of them are hoarded by financial institutions. As a result, a structural imbalance between the supply and demand of bonds still exists. Therefore, the outright transactions of bond markets in 2011 are estimated to remain at the low levels seen in recent years.

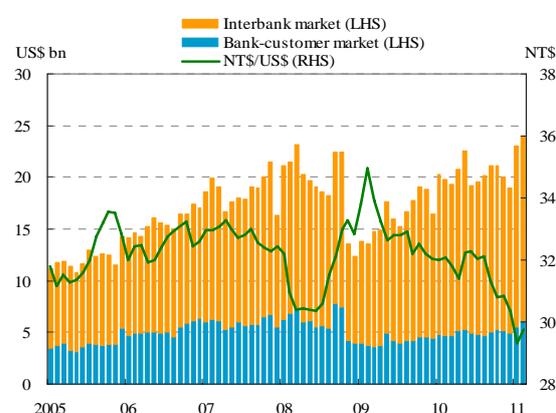
Note: Financial institutions started to issue subordinated financial debentures from 2002 to decrease their NPL ratios and increase their capital adequacy ratios.

4.1.3 Foreign exchange market

The NT dollar exchange rate appreciated and the trading volume increased in the second half of 2010

Due to increasing hedging needs for US dollars triggered by the European sovereign debt crisis, the NT dollar exchange rate experienced depreciation in early 2010. Afterwards, it turned to a period of appreciation mainly due to considerable capital inflows to Asian markets. Up to mid-2010, the effects of the sovereign debt crisis in Europe prevailed in the region, and there were military confrontations on the Korean peninsula; therefore, the NT dollar exchange rate again entered into a period of depreciation and fell to 32.528 against the US dollar in early June, which was a new annual low in 2010. In the second half of 2010, the NT dollar exchange rate experienced appreciation, mainly due to Asian countries' implementation of tighter monetary policies and capital inflows to emerging markets caused by a second round of quantitative easing in the US. The NT dollar exchange rate stood at 30.368 against the US dollar at the end of December 2010, appreciating by 5.47% compared to the end of 2009 (Chart 4.11). At the beginning of 2011, the NT dollar exchange rate kept appreciating, reaching 29.300 against the US dollar at the end of January. Subsequently, owing to foreign investors repatriating capital from emerging economies as they considered an increased likelihood of economic slowdown following tighter monetary policies in those countries, and the increasing hedging needs for US dollars arising from the political turmoil in the Middle East and North Africa, the NT

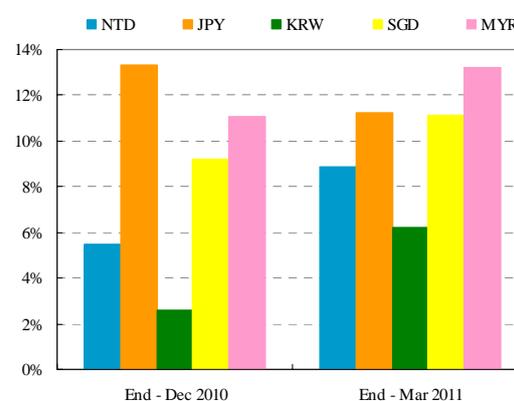
Chart 4.11 NT\$/US\$ exchange rate and foreign exchange market trading volume



Note: Trading volume is the monthly average of daily data, while exchange rate is end-of-period data.

Source: CBC.

Chart 4.12 Appreciation percentages of major Asian currencies against the US dollar



Note: Appreciation percentages refer to exchange rates as of the end of 2010 and end-March 2011 compared to those as of the end of 2009.

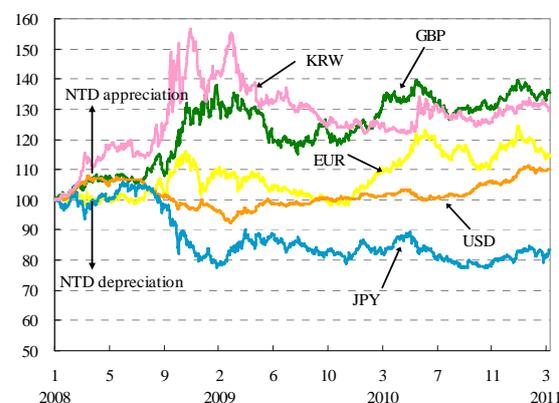
Source: CBC.

dollar exchange rate turned to depreciation at the end of February. After a strong earthquake hit Japan, the NT dollar exchange rate appreciated in March, reaching 29.418 against the US dollar at the end of that month. Compared to other major currencies in Asia, the percentage of the NT dollar appreciation was lower than that of the Japanese yen, Singapore dollar and Malaysian ringgit (Chart 4.12).

As for other key international currencies, the value of the yen went up significantly as a result of the increasing hedging needs for international funds and the purchase in large amount of Japanese financial assets by Mainland China. As a result, the NT dollar depreciated against the yen by 6.92% year on year at the end of 2010. Conversely, the NT dollar appreciated by 9.66% and 13.70% against the British pound and the euro, respectively, over the same period; in addition, it appreciated by 2.78% against the Korean won (Chart 4.13).

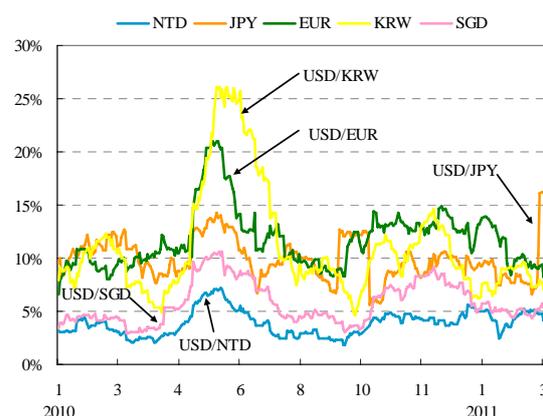
Owing to continued export growth and greater international capital movements, the foreign exchange market became more active in 2010 as the average daily trading volume registered US\$20.2 billion, increasing by 24.72% year on year. In January-February 2011, the trading volume also increased significantly (Chart 4.11). A breakdown by counterparties shows that the average daily trading volume in the interbank market accounted for 75.52% of the total in 2010, while the retail sales market made up a 24.48% share. As for types of transactions, spot trading accounted for 42.86% of the total, followed by foreign exchange swaps with 42.32%.

Chart 4.13 Movements of NT dollar exchange rate against key international currencies



Note: 2 January 2008 = 100.
Source: CBC.

Chart 4.14 Exchange rate volatility of various currencies against the US dollar



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

NT dollar exchange rate volatility remained relatively stable compared to other currencies

The volatility in the NT dollar exchange rate against the US dollar fluctuated between 2% and 4% in 2010 Q1, but then increased to an annual high in the middle of May. In the second half of 2010, however, volatility turned to a decrease as the NT dollar exchange rate appreciated at a more modest pace. Annual average volatility stood at 3.74% for the year as a whole. In 2011 Q1, the average volatility in the NT dollar exchange rate against the US dollar increased moderately to 4.42%, though it was relatively mild when compared to other currencies (Chart 4.14).

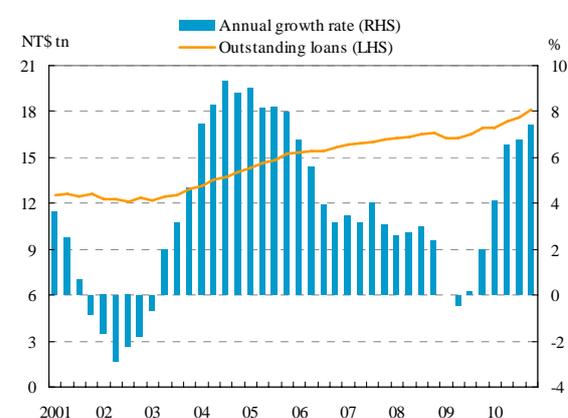
The CBC adopts a managed floating exchange rate regime and may step into the market to stabilize the exchange rate when seasonal or irregular disruptions cause disorderly conditions in the market. Though the volatility in the NT dollar exchange rate against the US dollar temporarily increased in 2010, the NT dollar exchange rate was relatively stable compared to the volatility in the exchange rates of major currencies such as the Japanese yen, euro, Korean won and Singapore dollar against the US dollar (Chart 4.14).

4.2 Financial institutions

4.2.1 Domestic banks

In 2010, the growth in loans increased notably, and asset quality remained satisfactory. However, credit risk concentration was still high and the concentration risk in the real estate market was increasing gradually. The estimated Value at Risk (VaR) for market risk exposures of domestic banks had limited influence on their capital adequacy. Liquidity risk was moderate too as the banking system benefited from ample liquidity. The profitability of domestic banks rose substantially and the capital adequacy continued to improve in 2010, strengthening the capability of domestic banks to bear risks.

Chart 4.15 Outstanding loans and annual loan growth rate in domestic banks



Note: Outstanding loans are end-of-period figures.

Source: CBC.