Central Bank of the Republic of China (Taiwan)

Financial Stability Report

May 2010 | Issue No. 4

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About the Financial Stability Report

Key points of the task to promote financial stability

Promoting financial stability is not only one of the operational objectives pursued by the Central Bank of the Republic of China (Taiwan), the CBC, but also lays the cornerstone for the effective implementation of monetary policy. To achieve this objective, in addition to serving as lender of last resort when necessary, the CBC regularly monitors the financial system and the overall economic and financial environment. This allows it to be constantly aware of the potential vulnerabilities and risks that could threaten financial stability so that the relevant financial authorities and market participants can respond in a timely manner to avoid financial turbulence.

In its work to promote financial stability, the CBC focuses primarily on the risks that could affect the stability of the overall financial system. Nevertheless, the CBC still pays close attention to the status of individual institutions as their weaknesses can trigger systemic risks.

Purpose of this report

The Financial System Report was issued twice a year initially and changed to once annually from May 2010. The aims of this report are to offer insight into the state of Taiwan's financial system and its potential vulnerabilities and risks, and to spark broad-based discussion that will enhance awareness of risk among market participants and spur them to take responsive action in a timely manner. This does not mean, however, that the risks mentioned in this report are sure to occur. Furthermore, this report is intended to serve as a reference for financial authorities, market participants, and others interested in the subject. Readers are advised to interpret or quote the information contained herein with caution.

Definition of financial stability

There is as yet no universally accepted definition of "financial stability." Defined positively, "financial stability" can be thought of in terms of the financial system's ability to: (1) facilitate an efficient allocation of economic resources both spatially and intertemporally; (2)

assess and manage financial risks; and (3) withstand adverse shocks. From a negative view, "financial instability" refers to the occurrence of currency, banking, or foreign debt crises, or inability of the financial system to absorb adverse endogenous or exogenous shocks, and allocate resources efficiently, with the result that it cannot facilitate real economic performance in a sustained manner.

Note: Except as otherwise noted, all data and information cited in this report is current as of 31 March 2010.

I. Overview

Taiwan's financial system remained stable

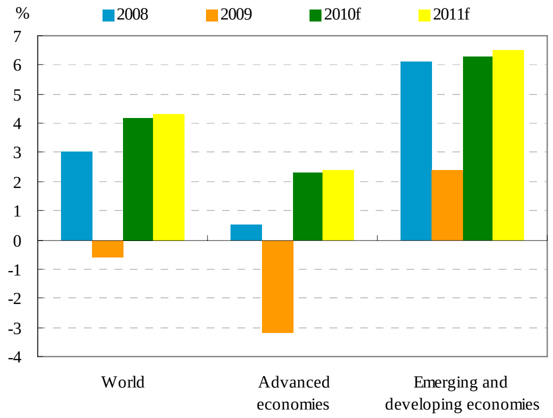
In 2009, the health of Taiwan's financial system was restored after experiencing the temporary effects of the global financial turmoil in the second half of 2008. Financial markets, particularly the stock market, improved. The profitability of domestic financial institutions bounced back sharply, while asset quality remained sound. The resilience of the financial sector against risks increased, supported by the fact that capital levels held by financial institutions, except for a few domestic banks and life insurance companies, were adequate and continued to rise. Throughout this period, payment and settlement systems operated smoothly. This, coupled with the introduction of a new mechanism in the securities settlement system for the stock exchange, contributed to reinforced safety and efficiency in settlements. The rebound in domestic and international economic activity, paving the way for a stabilizing global financial system, mitigated credit and market risks in Taiwan's financial system. Nevertheless, the new challenges emerging from easing restrictions on cross-strait banking activities and investments, together with the concentration of credit risks in the banking sector, warrant continued monitoring.

Global recovery has evolved better than expected and the financial system was stabilizing

Global recovery was stronger than expected, along with receded inflationary pressures

In the first half of 2009, global output suffered from a sustained downturn. In the second half of 2009, however, the declines in output for major economies moderated or even rebounded to positive growth, boosted by the emerging effects of expansionary fiscal policies and easy monetary policies. Reflecting this, the world economy gradually recovered at a stronger-than-expected pace. According to the International Monetary Fund (IMF), the growth rate of the world economy dropped sharply to -0.6% in 2009 from 3.0% a year earlier. In 2010, the global economy is projected to experience an ongoing recovery with a growth rate of 4.2% and further to expand by 4.3% in 2011.[1] The real economy has begun to rebound from a deep trough but the speed of recovery has varied from region to region. Economic activity in advanced economies has turned to a favorable condition, but the recovery is proceeding at a tepid speed. At the same time, economic growth has rebounded strongly in emerging and developing economies, where emerging Asia has been the most outstanding. This robust performance has mainly been underpinned by sharp growth in domestic demand and the normalization in global trade (Chart 1.1).

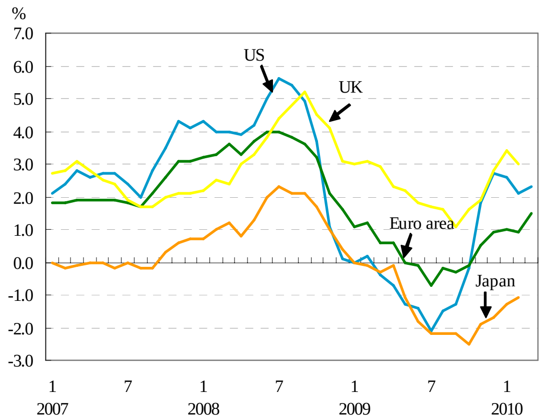
Chart 1.1 Global economic growth rates



Note: Figures for 2010 and 2011 are IMF estimates.
Source: IMF, "World Economic Outlook," April 2010.

In the first three quarters of 2009, the headline inflation rates (consumer price index, CPI) in most economies tracked downwards. However, a surge in consumer prices with the global economic recovery encouraged the rebound of the CPI inflation rate in 2009 Q4 (Chart 1.2). The IMF forecasts the global CPI inflation rate is expected to bounce back to 3.67% in 2010, following an inflation rate of 2.45% in 2009. Moreover, many central banks stopped cutting policy rates from the second half of 2009 onwards. The reason behind this was that the credit crunch in global financial markets was relieved, a sustained global economic recovery was underway and historically low interest rates existed in many countries. Some central banks (such as those in Australia, Norway, Israel, Malaysia and India) even started to raise their policy rates in view of subdued downside risk.

Chart 1.2 Consumer price inflation rates in major economies



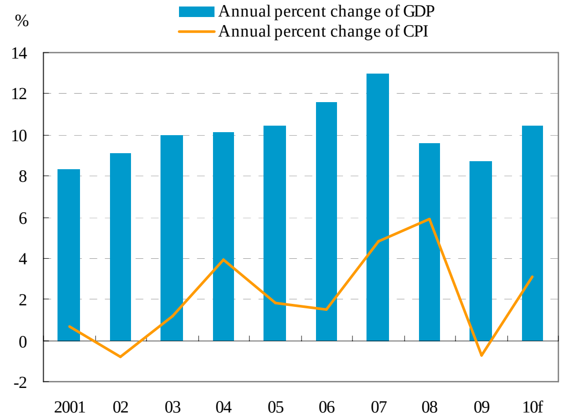
Note: Figures for the euro area are based on Harmonised Index of Consumer Prices (HICP) inflation rate. The others are based on consumer price index (CPI) inflation rate.
Sources: BLS and DataStream.

[1] IMF, "World Economic Outlook," April 2010.

China's economic growth accelerates, while monetary policy turns to a tightening stance due to credit expansion and asset price boom

Underpinned by a series of economic stimulus measures, China, a country that in recent years has established increasingly closer economic and trade links with Taiwan, has experienced a rapidly accelerating economy from the second half of 2009 and registered an economic growth rate of 8.7% for the whole year. Global Insight projects China's economic growth will further move up to 10.4% in 2010. [2] Downward pressure occurred in the CPI inflation rate in the first three quarters of 2009 but has been relieved since November of the same year. According to IMF statistics, the CPI inflation rate in China is expected to bounce back to 3.1% in 2010 from -0.7% a year earlier[3] (Chart 1.3).

Chart 1.3 Economic growth rate and CPI inflation rate in China



Note: Using Global Insight projection for economic growth and IMF projection for CPI inflation rate in April 2010.
Sources: National Bureau of Statistics of China, Global Insight and IMF.

Following the People's Bank of China (PBC) initiating extremely easy monetary policies from September 2008 onwards, the surge in government public investments spurred expanding growth in bank credit. As a result, there was an acceleration of credit expansion. In addition, excessive surplus capital inflows to the stock market and the real estate market fueled a surge in equities and property prices, raising the attendant risk of asset price bubbles. Addressing the rapid expansion in credit, the Chinese government successively implemented measures to strengthen the monitoring of bank loans and to improve the soundness of risky assets from the second half of 2009. The PBC also substantially contracted market liquidity from January 2010 onwards through some policy actions, including: (1) raising the reserve requirement ratio for financial institutions, (2) conducting open market operations, and (3) raising the interest rate of issuance for central bank notes. These measures signal that monetary policies are shifting toward a tightening stance.

Surging sovereign risks could spread to the banking system, while the financial system has experienced a period of restoration

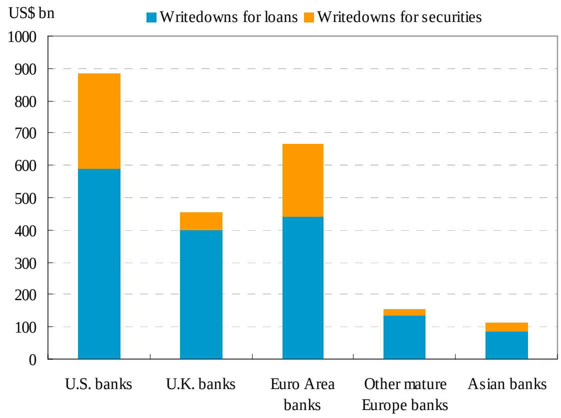
[2] Global Insight Estimate in April 2010.
[3] IMF, "World Economic Outlook," April 2010.

In 2009, with economic fundamentals improving and substantial public support remaining in place, the financial system resumed its resilience against risks as global financial markets rebounded sharply from deep troughs and overall systemic risks were mitigated.

The health of most banks was restored and their capital conditions also improved markedly. In April 2010, the IMF revised downward its forecast for global asset writedowns to US$2.3 trillion or so.[4] In comparison, banks in the US, the UK and the euro area suffered larger losses than other areas (Chart 1.4). Moreover, many large banks may face refinancing pressures as their massive debt is due to mature in the coming three years. Concurrently, banks will also face the rising pressure of recapitalization under the revision of the new capital accord (namely Basel II) framework. Furthermore, credit supply to households and the corporate sector in the US and European countries remains constrained owing to still-tightened lending conditions and weak credit demand. Small and medium enterprises (SMEs), especially, have suffered more pronounced impacts. Supportive measures from national governments are warranted.

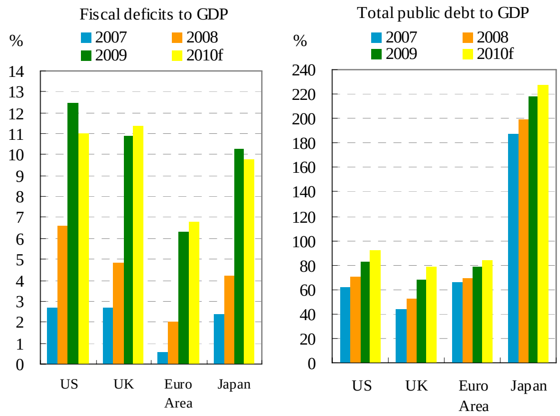
During the recent financial crisis, advanced economies sharply expanded the scale of government expenditure and debt with a view to rescuing financial systems and revitalizing their economies. As a result, public debt has soared and fiscal imbalances have deteriorated (Chart 1.5). The mounting sovereign risks could be transmitted to banking systems and across borders, compromising global financial stability. Since 2009 Q2, the renewal of risk appetite by global investors and low interest rates in advanced economies, together with

Chart 1.4 Estimates of global asset writedowns



Note: "Other mature Europe banks" includes banks in Denmark, Norway, Iceland, Sweden and Switzerland. "Asian banks" includes banks in Australia, Hong Kong, Japan, New Zealand and Singapore.
Source: IMF, "Global Financial Stability Report," April 2010.

Chart 1.5 Fiscal deficit and public debt in major economies



Note: Figures for 2010 are IMF estimates.
Source: IMF, "World Economic Outlook," April 2010.
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[4] IMF's previous estimate of global asset writedowns in October 2009 was about US$2.8 trillion.

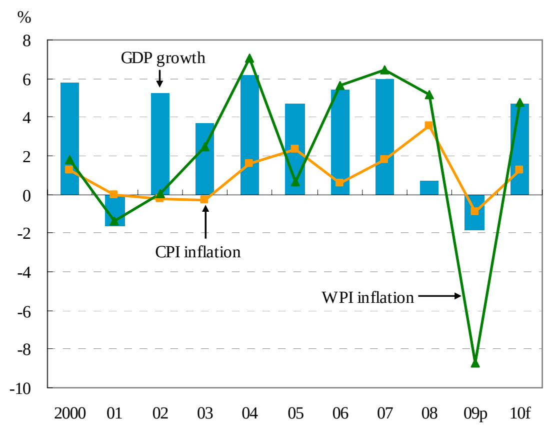
better economic growth prospects for emerging markets, attracted massive capital flows into emerging economies for investing in securities. This not only results in the risks of inflation and asset price bubbles, but also increases appreciation pressures on specific currencies and fuels significant exchange rate volatility in some economies.

Domestic economy resumed growth alongside stable prices, and external debt servicing ability remained robust

The domestic economy dropped to a negative growth of -9.06% and -6.85% in 2009 Q1 and Q2, respectively. However, the downturn receded in Q3 and the growth rate turned positive in Q4. According to preliminary statistics released by the Directorate-General of Budget, Accounting and Statistics of the Executive Yuan (DGBAS), annual economic growth registered -1.87% for 2009, 2.60 percentage points lower than the previous year. Looking ahead, the DGBAS predicts annual economic growth will increase to 4.72%[5] in 2010 (Chart 1.6). This is underpinned by the upward momentum in exports and private investment due to the sustained global economic recovery, as well as better growth prospects for private consumption.

With respect to prices, the falling international prices of crude oil and agricultural and industrial raw materials gradually rebounded as a result of the global economic recovery but still showed considerable falls when making year-on-year comparisons. The annual wholesale price index (WPI) dropped to -8.74% in 2009, far below 5.15% recorded a year earlier. Retail prices (such as domestic oil price) also reflected import costs, broadly trending downwards. This, along with slackness in effective demand, caused the CPI inflation rate to become negative for eleven consecutive months from February 2009. The annual CPI inflation rate in 2009 was -0.87%, lower than 3.53% registered a year earlier. It is expected that the prices of crude oil and agricultural and industrial raw materials will surge in 2010 given the ongoing economic recovery. The DGBAS projects the annual

Chart 1.6 Economic growth rate and inflation rate in Taiwan



Note: Figure for 2009 is preliminary, while figure for 2010 is DGBAS forecast.
Source: DGBAS.

[5] The figures are based on a DGBAS press release on 22 February 2010.

WPI and CPI inflation rates in 2010 to rise to 4.78% and 1.27%,[6] respectively (Chart 1.6).

The balance of payments remained in surplus in 2009, fostering continued accumulation of foreign exchange reserves, which successively reached new highs. Foreign exchange reserves increased to US$355 billion at the end of March 2010, implying that Taiwan had a strong capacity to meet its payment obligations for imports and to service short-term external debt. Moreover, the ratio of external debt to annual GDP and to annual exports stood at 21.62% and 40.27%, respectively, at the end of 2009. This reflects that the external debt servicing capacity is sound. Nevertheless, fiscal deficits expanded substantially, driven by the implementation of measures aimed at revitalizing the economy and promoting consumption from September 2008. As a result, outstanding public debt had mounted.

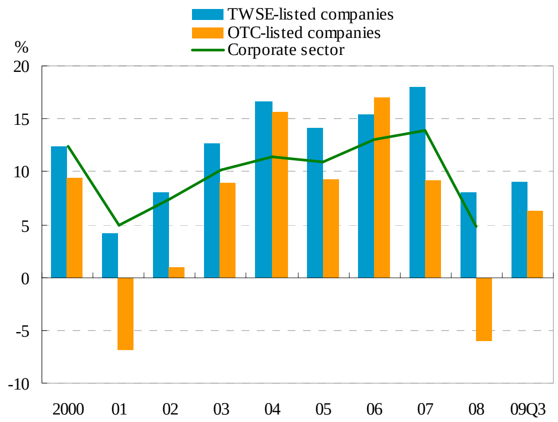
Non-financial sectors

Corporate sector

In the first three quarters of 2009, the profitability for the Taiwan Stock Exchange (TWSE) listed and over-the-counter (OTC) listed companies rebounded (Chart 1.7), thanks to the ongoing global economic recovery. The average leverage ratio of both TWSE-listed and OTC-listed companies dropped due to contracting investments and decreasing liabilities. This reflects an improvement in their financial structures. Owing to diminished short-term liabilities and lower interest rates, a sound short-term debt servicing capacity is also reflected in the improved current ratio and interest coverage ratio.

The non-performing loan (NPL) ratio of corporate loans continued to decline, driven by two key measures: (1) the Bankers Association of the Republic of China launched the Debt Renegotiation Relief Program; and (2) the Small and Medium Enterprises Guarantee Fund offered more guarantee facilities to SMEs with difficulties in obtaining funding

Chart 1.7 Return on equity in corporate sector



Notes: 1. Return on equity = net income before interest and tax / average equity.
2. The data are on an annual basis as 2009 Q3 figures are annualized results.
3. Latest data for the corporate sector are as of the end of 2008, while that for TWSE-listed and OTC-listed companies are as of the end of 2009 Q3.
Sources: JCIC and TEJ.

[6] See Note 5.

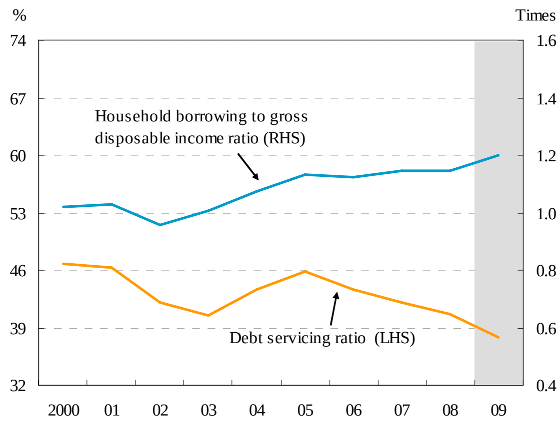
from financial institutions. In 2010, the continued implementation of these two measures, together with improved business conditions in the corporate sector on the back of a firmer global recovery, will help avert a sharp increase in the NPL ratio of corporate loans in the short run. Nevertheless, taking account of closer economic and trade relations between Taiwanese and Chinese corporations, operation risks arising from the following factors in China should bear close monitoring. These factors include: (1) tightening monetary policy; (2) increasing pressure for RMB appreciation; (3) adjustment in economic structures; and (4) shortage of labor supply.

Household sector

Household borrowing rebounded in 2009, supported by the bounce in the stock market and buoyant real estate market. The ratio of household borrowing to gross disposable income stood at 1.20 as of the end of 2009, up from 1.15 at the end of 2008, representing a heavier household debt burden. The main reason behind this was that household borrowing increased but gross disposable income contracted. Thanks to downward interest rates, household borrowing service and principal payments declined. This contributed to an improved short-term debt servicing capacity (Chart 1.8).

The NPL ratio for real estate purchases, the largest share of household borrowings, contracted in 2009, caused by a rebound in the real estate market. Reflecting this, the NPL ratio of household borrowings from banks kept falling and credit quality remained sound. The ongoing recovery in the domestic economy, along with the fact that regular earnings turned to positive growth from November 2009, favored to strengthen household debt servicing capacity. Nevertheless, the potential impacts on such capacity caused by a mounting unemployment rate and the possible reversal of interest rates warrant closer attention.

Chart 1.8 Household debt servicing ratio



Notes: 1. Gross disposable income in shadow area is CBC estimate.
2. Debt servicing ratio = borrowing service and principal payment / gross disposable income.

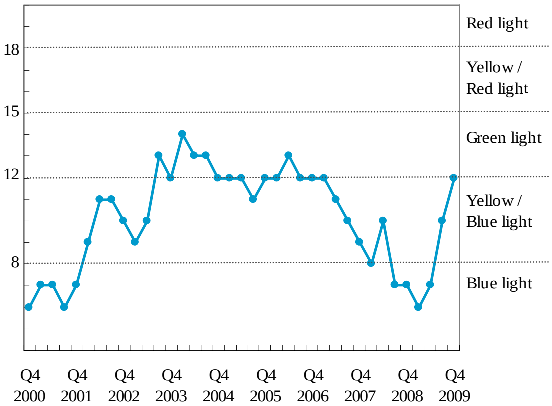
Sources: CBC, JCIC and DGBAS.

Real estate market

Taiwan's real estate cycle indicators resumed under a green light, reflecting a stable market, in the second half of 2009 as the real estate market rebounded gradually (Chart 1.9). In 2009, transactions in the real estate market continued to expand and concentrated in Taipei City and Taipei County. Housing prices for existing buildings hit a new peak, while housing prices for new housing construction rebounded and nearly reached a historical high. Despite a contraction in the supply of new residential property, the number of vacant residential properties remained high.

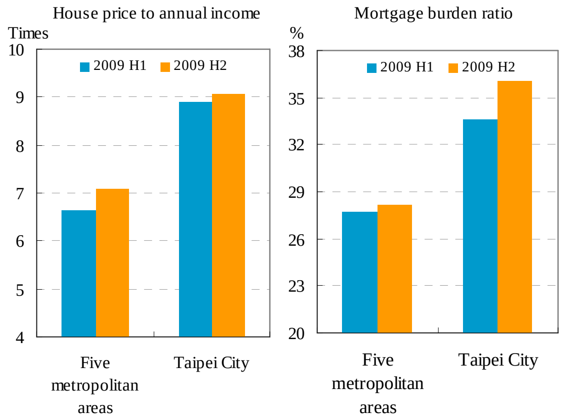
As a consequence of climbing housing prices and limited real income growth, the average house price to income ratio and the average mortgage burden ratio in five metropolitan areas have soared. The mortgage burden for homebuyers became heavier, particularly in Taipei City (Chart 1.10). Real estate-related loans resumed positive growth, while mortgage interest rates trended downwards but reversed to increase in February 2010.

Chart 1.9 Real estate cycle indicators



Source: "Quarterly Report of Taiwan Real Estate Cycle Indicators," Architecture and Building Research Institute, Ministry of the Interior (MOI).

Chart 1.10 House price to income ratio and mortgage burden ratio



Notes: 1. Mortgage burden ratio = monthly mortgage expenditure / household monthly income.
2. Five metropolitan areas refer to Taipei City, Taipei County, Taoyuan and Hsinchu City and County, Taichung City and County and Kaohsiung City and County.

Source: "Taiwan Housing Demand Survey Report," MOI.

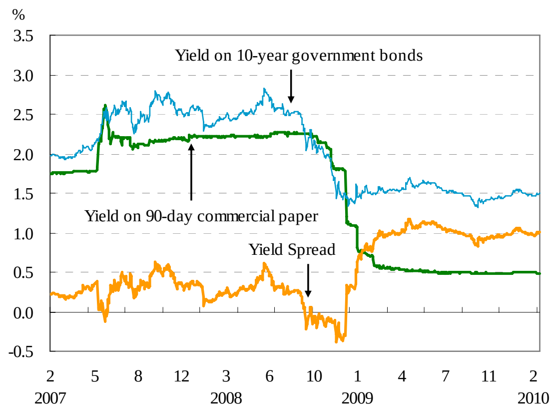
Financial sectors

Financial market

Trading volume contracted in the bills market and the bond market, while yield spreads between long- and short-term rates stayed above 90 basis points

The outstanding amount of commercial paper issuance in 2009 contracted while some corporations decreased their needs of short-term financing and some turned to obtain their funds through short-term loans with low interest rates rather than issuing commercial paper. Affected by this, the trading volume in the secondary bills market also shrank. In the bond market, outright transactions contracted notably and the trading amount of repo transactions also dwindled owing to diminishing bond holdings by dealers in bills finance companies and securities companies, as well as less demand for transactions from banks.

Chart 1.11 Yield spread



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

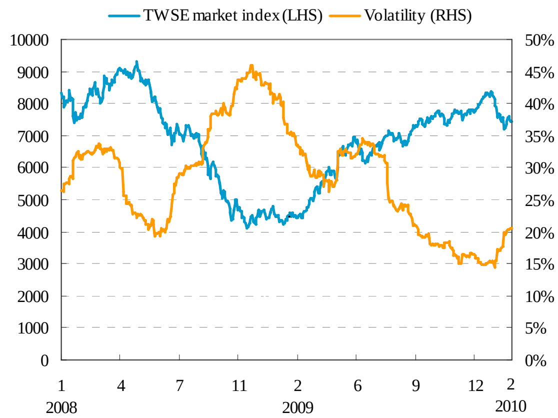
As for market interest rates, brought down by the Central Bank of the Republic of China (Taiwan) (CBC)'s successive rate cuts and the expansion in the scope of repo facility operations, short-term interest rates declined significantly. Meanwhile, bond yields remained fluctuating at a low range between 1.4% and 1.6%. As a result, yield spreads between long- and short-term rates reversed to positive and broadly stayed above 90 basis points (Chart 1.11). Financial institutions holding long bond positions may benefit from capital gains as a result of declining bond yields and widening spreads. However, if the trend of low interest rates is reversed, new bond holdings which financial institutions invested in during the period of low long-term interest rates will face higher interest rate risk.

Stock indices rebounded strongly, while trading value and turnover ratio increased dramatically

Underpinned by rising global stock markets, together with the emerging effects of easing restrictions on cross-strait securities investment and a massive net buying from foreign investors, the Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan Stock Exchange (TWSE) market trended up from its lowest level on 20 January 2009 and stood at its highest level of 8,188 at the end of the year – a rise of 93%. This indicated that the domestic stock market outperformed most major stock markets around the world. The volatility in the TWSE market trended down substantially after hitting a new high in June 2009, revealing that risks in equity investments have mitigated. In January-February 2010, share prices in the TWSE market entered bearish territory with the slump in global stock markets. The TAIEX dropped by 9.18% in February 2010 from the end of 2009, whereas the volatility in the TWSE market reversed to an upward trend, illustrating how risks in equity investments have elevated somewhat (Chart 1.12).

As the TWSE market turned buoyant, fueled by a sharp rebound in share prices alongside the sustained net buying from foreign investors, the trading value in the TWSE market increased dramatically and its turnover ratio recorded a 5-year high. However, the turnover ratio and monthly trading value moved down in February 2010 since foreign investors turned to net selling and the stock market closed during the Chinese lunar new year holidays.

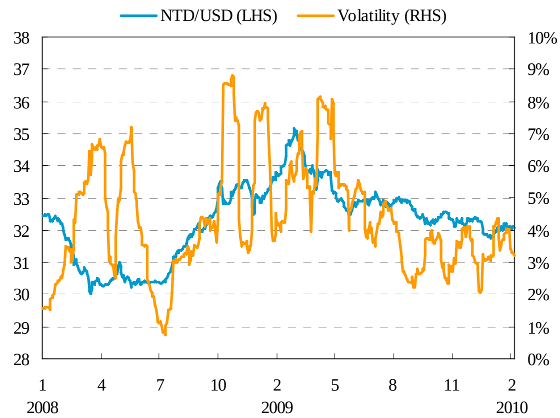
Chart 1.12 TWSE market index and volatility



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

The NT dollar exchange rate reversed to appreciation but remained relatively stable compared to other currencies

Chart 1.13 Movements of NT dollar exchange rates against US dollar

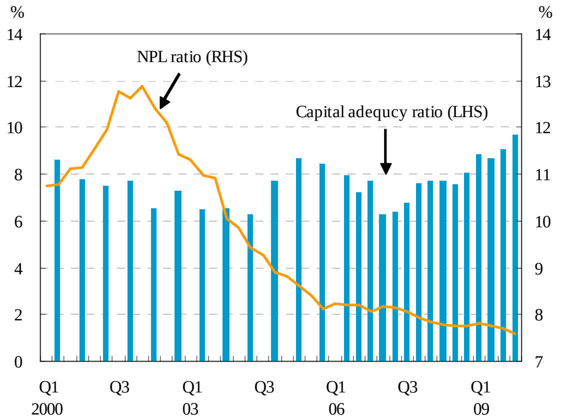


Note: Volatility refers to the annualized standard deviation of 20-day daily returns.
Source: CBC.

Owing to shrinking exports and increasing hedging needs for US dollars, the NT dollar exchange rate against the US dollar showed a depreciating trend in 2009 Q1. Afterward, decreasing hedging needs for US dollars amid the revival of the global economy, coupled with capital inflows to emerging markets and high yield assets, caused the US dollar to weaken against most major currencies. This, along with the inflow of residents' overseas funds, resulted in an appreciation of the NT dollar, standing at 32.03 against the US dollar at the end of 2009, and appreciating slightly by 2.59% for the year as a whole. The NT dollar exchange rate kept appreciating until mid-January 2010 and then turned to a slight depreciation arising from stronger hedging needs for US dollars due to the unfolding sovereign debt crisis of some countries in the euro area, as well as capital outflows as a result of net selling of stocks by foreign investors (Chart 1.13).

The fluctuation of the NT dollar exchange rate waned in the second half of 2009, while the annual average volatility stood at 4.56%. In January-February 2010, the volatility of the NT dollar exchange rate against the US dollar followed a more moderate trend and decreased further to 3.58% (Chart 1.13). The NT dollar exchange rate was relatively stable compared to other major currencies (such as the Japanese yen).

Chart 1.14 NPL and Capital adequacy ratios of domestic banks



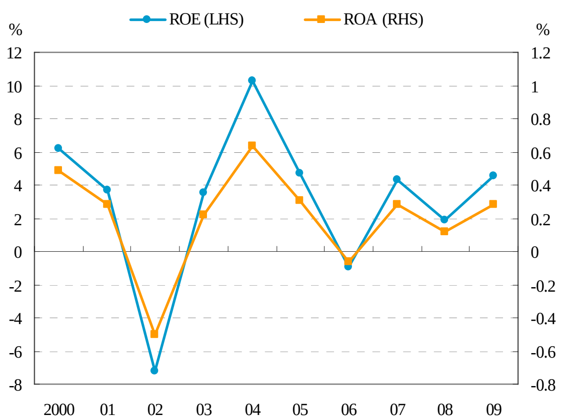
Note: The data for capital adequacy ratio are on a semiannual basis prior to June 2006 and on a quarterly basis beginning June 2006.
Source: CBC.

Financial institutions

Domestic banks

In 2009, the loans extended by domestic banks resumed positive growth. Credit risk in corporate loans decreased slightly, but credit risk concentration was still high. Although the NPL ratio kept declining to 1.15% at the end of 2009 (Chart 1.14), classified asset amounts and ratios were both higher than a year earlier due to a rise in "special mention loans" which are exempt from being reported as NPLs. This implies that asset quality declined somewhat.

Chart 1.15 ROE & ROA of domestic banks



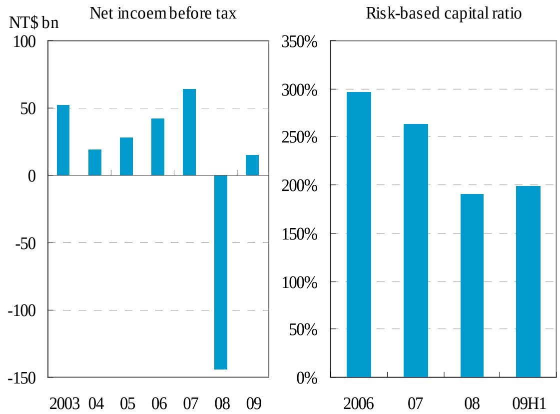
Note: ROE (return on equity) = net income before tax / average equity. ROA (return on assets) = net income before tax / average total assets.
Source: CBC.

The profitability of domestic banks rebounded significantly in 2009, while the average return on equity (ROE) resumed its level in 2007 before the financial crisis (Chart 1.15). Nevertheless, there are several factors that may impact their future profitability: (1) narrow interest rate spreads between deposits and loans; and (2) higher loan loss provision requirements in light of the revision of Taiwan's Statement of Financial Accounting Standards (SFAS) No. 34. The overall liquidity risk for domestic banks was moderate against the backdrop of ample funds. Favorable financial market conditions contributed to the mitigation of market risks, whereas an ongoing rise in capital adequacy ratios increased the resilience of domestic banks against risks (Chart 1.14).

Life insurance companies

The profits of life insurance companies turned positive in 2009, revealing a marked improvement in operating performance. The average risk-based capital (RBC) ratio at the end of June 2009 ascended slightly, but still remained below the statutory minimum of 200%. Nevertheless, the overall capital adequacy is expected to improve, driven by a sharp increase in profitability in the second half of 2009 (Chart 1.16). The average investment return of insurance companies increased materially in 2009, thanks to improving international and domestic financial markets. However, it is hard for life insurance companies to promptly address the negative interest-rate spread problem given the prevailing global market condition of low interest rates. This, together with the fact that investment performance tends to be volatile due to the fluctuations in global financial markets, poses challenges to these companies.

Chart 1.16 Net income before tax and risk-based capital ratio of life insurance companies

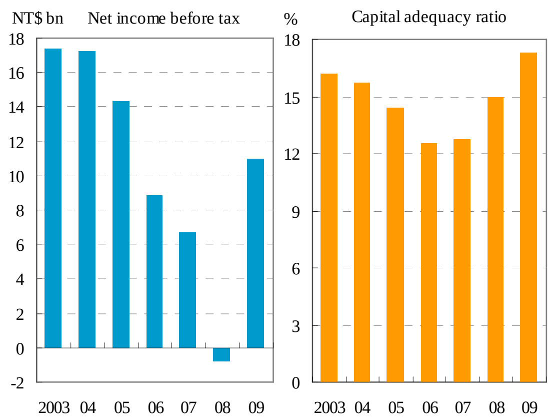


Source: FSC.

Bills finance companies

In 2009, the total assets of bills finance companies continued to dwindle, mainly driven by the reduction of bonds and bills investments to alleviate the risk of interest rate reversals. Profitability saw a great improvement, supported by the significant reduction of funding costs on account of the CBC's rate cuts. Meanwhile, the average capital adequacy ratio of bills finance companies kept climbing (Chart 1.17) because of an obvious shrinkage in risky assets. The average debt to equity ratio continued to slide, reflecting an improvement in financial leverage. The credit quality of bills finance companies also remained sound.

Chart 1.17 Net income before tax and capital adequacy ratios of bills finance companies



Source: CBC.

From 2009 onwards, the liquidity risk of bills finance companies alleviated, but the maturity mismatch between their assets and liabilities still persisted along with a shrinking guarantee business. In order to reduce the liquidity risk of bills finance companies as well as prevent them from taking excessive credit risks, the Financial Supervisory Commission (FSC) successively amended related regulations aimed at reducing the ceiling on the ratio of main liabilities to net worth and the ratio of outstanding guarantees and endorsements to net worth. Against this backdrop, bills finance companies should search for new business niches for the sake of long-term performance.

Financial infrastructure

To reform financial regulation in Taiwan, a package of relevant policy actions has been launched since 2009. Except for the extension of the blanket deposit guarantee scheme to the end of 2010 that makes reference to other neighboring Asian countries or regions, there are two major areas of progress in financial regulatory development. One is the amendment of the regulations governing cross-strait financial activities and investments. The other is the signing of the Cross-strait Financial Supervisory Cooperation Memorandum of Understanding (MOU) between Taiwan and China. As Taiwan's financial institutions apply sound risk management and possess a leading edge in the field of financial innovation, coupled with the advantage of sharing the same language and culture with China, they could find niches for expanding business and creating revenues in the China market after the opening of cross-strait dealings relating to financial services. Nevertheless, those institutions should be vigilant regarding the potential risks that might emerge from accessing the China market and adopt appropriate business and risk management strategies to prevent the potentially unsafe and unsound operations that may exist in China from compromising the soundness of Taiwan's financial system. Furthermore, in response to the implementation of the amendment of Taiwan's Statement of Financial Accounting Standards (SFAS) No. 34 and the new SFAS No. 40, early planning and precautionary measures are warranted for Taiwan's financial institutions.

The implications of international financial reform for Taiwan

From the beginning of 2009, advanced countries (e.g. the US and the UK) and international organizations successively proposed a number of plans or recommendations on financial reform in hope of preventing future financial crises. Those recommendations not only focus on prevention of systemic risks and macro-prudential supervision, but also on the management of capital adequacy and liquidity risks.

The impact of the recent global financial crisis on Taiwan’s financial system was moderate in comparison to other major economies. Nevertheless, the difference between Taiwan’s current regulatory framework and the international proposals is under review in consideration of harmonizing with the future development of global financial reform and strengthening Taiwan’s financial regulations. Among those differences, the following six issues seem to warrant continued improvement. These include:

- Enhancing macro-prudential supervision;
- Increasing the quality and level of capital requirements for financial institutions;
- Strengthening risk management in financial institutions;
- Reforming financial institutions’ remuneration systems;
- Intensifying supervision and infrastructure for securitization and OTC derivatives; and
- Improving the surveillance and transparency of credit rating agencies.

The CBC and the FSC have deliberated on the above-mentioned recommendations and are considering the feasibility and alternatives of implementing them in Taiwan.

II. International and domestic economic and financial conditions

2.1 International economic and financial conditions

The global economy recovered better than expected in 2009. However, this occurred at varying speeds across different countries and regions. The recovery was proceeding somewhat sluggishly in major advanced economies and relatively more rapidly in most emerging and developing economies. China, a country that in recent years established increasingly closer economic and trade links with Taiwan, experienced a rapidly accelerating economy alongside its strong credit expansion, but the government signaled a tightening monetary policy stance.

Risks to global financial stability subsided, but banking systems were still weighed down under the lingering pressures of refinancing and capital recapitalization. Credit supply to households and the corporate sector has yet to recover. Growing sovereign risks in some advanced economies could spread to financial systems and across borders, compromising global financial stability. For emerging economies, large capital inflows led to fears of rising risks of inflation and asset bubbles.

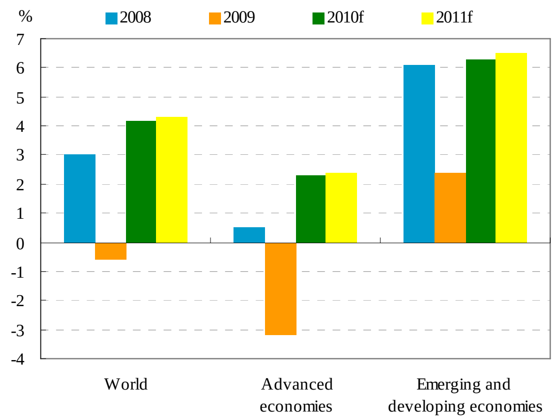
Global recovery evolved at a stronger pace than expected and inflationary pressures receded, but unemployment rates remained high

In the first half of 2009, global output suffered from a sustained downturn, resulting from sluggish economic activity in major countries and weak international financial conditions. In the second half of 2009, the output in major economies declined only moderately or even rebounded to positive growth, fostering a stronger-than-expected global recovery. A key factor bring the global economy out of recession was the effectiveness of expansionary fiscal policies and easy monetary policies. The International Monetary Fund (IMF) statistics stated that the global economic growth rate contracted substantially to -0.6% in 2009 from 3.0% a year earlier. The global economy is projected to experience an ongoing recovery with a growth rate of 4.2% in 2010 and to expand further by 4.3% in 2011[7] (Chart 2.1).

[7] IMF, “World Economic Outlook,” April 2010.

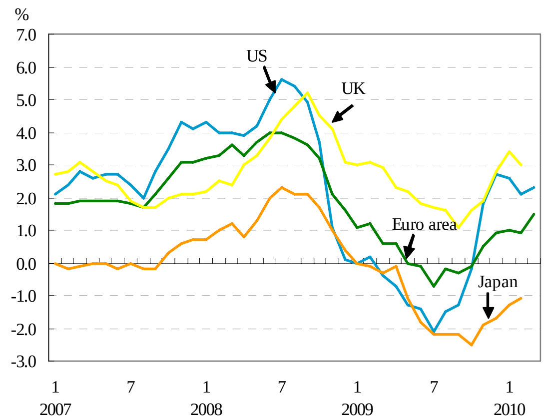
By the end of 2009, the global economy showed signs that it was rebounding from a deep trough, but at varying speeds across different countries and regions. Supported by an upswing in the inventory cycle and a gradual rebound in private consumption, output in advanced economies turned to a favorable improvement, but might continue to recover tepidly. The IMF forecasts that output in advanced economies will rebound by 2.3% and 2.4% in 2010 and 2011, respectively, following negative growth of -3.2% in 2009. The recovery in emerging Asia was the most outstanding. Sharp increases in domestic demand and the fast expansion in global trade helped many emerging and developing economies to grow at a robust pace. The IMF projects emerging and developing economies will register economic growth rates of 6.3% and 6.5% in 2010 and 2011, respectively, following growth of 2.4% in 2009.

Chart 2.1 Global economic growth rates



Note: Figures for 2010 and 2011 are IMF estimates.
Source: IMF, "World Economic Outlook," April 2010.

Chart 2.2 Consumer price inflation rates in major economies

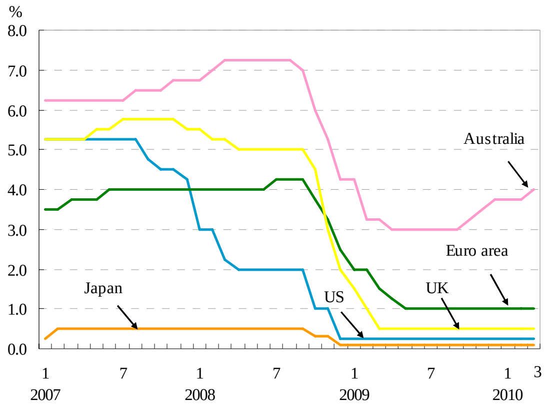


Note: Figures for the euro area are based on Harmonised Index of Consumer Prices (HICP) inflation rate. The others are based on consumer price index (CPI) inflation rate.
Sources: BLS and DataStream.

As for consumer prices, in the face of the world economic slowdown, together with a higher base a year earlier, the consumer price index (CPI) inflation rate in most economies pursued a downward trend from early 2009 onwards. However, consumer prices rose and turned to an upward trend in 2009 Q4, driven by a faster pace in the global recovery (Chart 2.2). The IMF forecasts global inflationary pressures to remain subdued and the global CPI inflation rate is expected to rebound to 3.67% in 2010, following an inflation rate of 2.45% in 2009. Consumer prices are predicted to rise at varying speeds across regions. In 2010, the CPI inflation rate in advanced economies is expected to stand at 1.49%, whereas in emerging and developing economies it is anticipated to post a sharp increase of 6.19%.

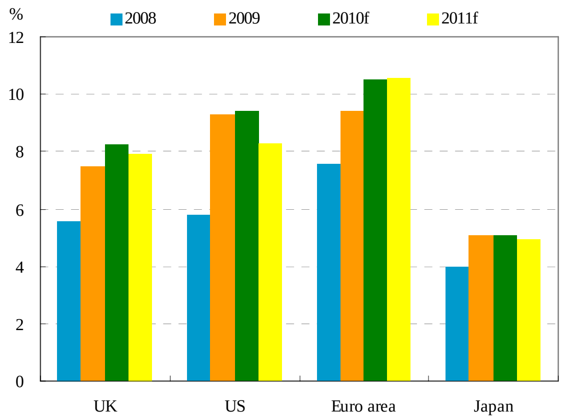
Regarding monetary policy, many central banks stopped cutting policy rates from the second half of 2009 onwards. The reason behind this was that the credit crunch in global financial markets was relieved, a sustained global economic recovery was underway and historically low interest rates existed in many countries. In view of subdued downside risk, the Reserve Bank of Australia initiated interest rate increases and successively raised the cash rate target four times, each by 25 basis points, to 4%[8] from October 2009 to March 2010 (Chart 2.3). Central banks in some countries (such as Norway, Israel, Malaysia and India) also raised their policy rates subsequently. In addition, the board of governors of the Federal Reserve System (FED) announced an increase in the discount rate from 0.5% to 0.75% on 18 February 2010, while the target range for the federal funds rate remained at 0 to 0.25% (Chart 2.3).

Chart 2.3 Policy rates in major economies



Note: Figure for Australia is based on cash rate target; for the US, federal funds rate; for the UK, official bank rate; for the euro area, the main refinancing operations fixed rate; and for Japan, uncollateralized overnight call rate.
Source: Central banks' websites.

Chart 2.4 Unemployment rates in major economies



Note: Figures for 2010and 2011 are IMF estimates.
Source: IMF, "World Economic Outlook," April 2010.

Major advanced countries were likely to face a jobless recovery owing to surging unemployment rates during the recession. The IMF forecasts that in 2010 the unemployment rate for the UK and the US will move up to 8.25% and 9.41%, respectively. At the same time, Japan's unemployment rate is projected to increase to 5.08%, whereas in the euro area it is expected to sharply rise to 10.52% (Chart 2.4). Some countries with fragile fiscal positions, such as Spain and Ireland, are estimated to reach peaks of 19.40% and 13.50% through 2010, respectively. Looking ahead, the IMF foresees that these economies will be unlikely to experience drops in unemployment rates until 2011.

The global economic recovery was highly supported by the macroeconomic policies adopted by national governments, and emerging fiscal vulnerabilities in advanced economies may expose the global economy to uncertainty. In this context, the IMF offered the following recommendations to ensure a stable and balanced global recovery:

[8] As of May 2010, the cash rate target has moved up to 4.50%.

- Major advanced economies should promptly put credible medium-term fiscal consolidation plans in place and launch financial reform;
- Emerging economies warrant vigilance in monitoring sizable capital inflows;
- The timing and strategy of the exit from policy support needs to be prudentially decided;
- Advanced economies facing high unemployment rates should adopt necessary policy actions to help the jobless and to foster employment;
- Emerging economies with excessive current account surplus should promote domestic consumption, whereas advanced economies with large current account deficits need to abate their consumption of imports with the aim of rebalancing global demand.

China's economic growth accelerated and credit expanded at a strong pace, but monetary policy signaled a tightening stance

The momentum of China's economic growth was solidifying, whereas consumer prices were gradually rebounding

China's economic recovery proceeded at an accelerated pace from the second half of 2009 onwards, underpinned by a series of economic stimulus measures worth up to RMB 4 trillion aimed at increasing domestic demand. Economic growth increased to 9.1% and 10.7% in Q3 and Q4, respectively, and registered 8.7% through the whole of 2009. The momentum of domestic economic growth mainly stemmed from run-ups in fixed asset investment as well as rising domestic demand spurred by government subsidy policies. However, trade surpluses shrank notably from a year earlier as the contraction in exports was more than the decline in imports. Global Insight projects China's economic growth through 2010 to widen to 10.4%[9] on the back of a wide range of policy actions implemented by the Chinese government for the sake of promoting domestic consumption.

Regarding consumer prices, the CPI inflation rate was negative in nine consecutive months. The decline was because of low levels of capacity utilization, lackluster private consumption, and moderate increases in the prices of international raw materials and commodities, which combined to put downward pressure on domestic prices in the first three quarters of 2009, coupled with a higher base of the CPI inflation rate over the same period a year earlier. In November 2009, the CPI inflation rate turned positive due to rebounding consumption demand and mounting food prices. Nevertheless, for 2009 as a whole, the inflation rate

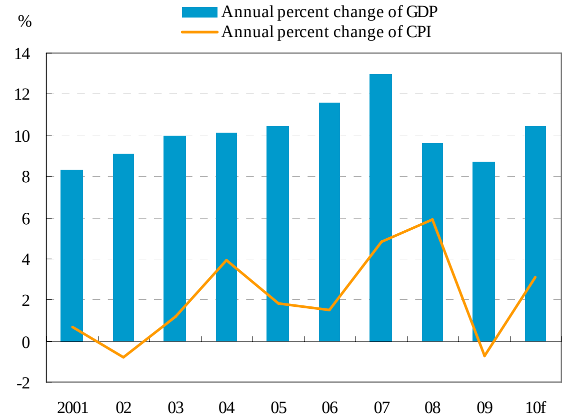
[9] Global Insight Estimate in April 2010.

posted a figure of -0.7%. It is expected to bounce back to 3.1% in 2010 according to the IMF's projection (Chart 2.5).

Bank credit and asset prices boomed, while monetary policy signaled a tightening stance

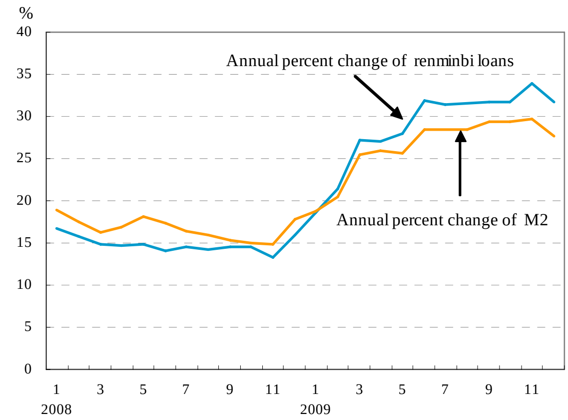
Following the People's Bank of China (PBC) launching extremely easy monetary policies from September 2008 onwards, domestic investment in China increased dramatically. This not only became a pivotal driver for economic growth but also spurred expanding growth in bank credit. The annual growth rate of M2 rebounded to 27.7% in December 2009 from a trough of 14.8% in November 2008, while the annual growth rate of renminbi loans originated by local banks also picked up to 31.7% from a low of 13.2% over the same period (Chart 2.6). Furthermore, newly granted renminbi loans reached RMB 9.59 trillion in 2009, exceeding the annual target of RMB 5 trillion, and increased by RMB 4.69 trillion from 2008. This reflects an over-accelerating expansion in credit. In addition, despite the surge in public investment, private investment activities remained slack due to declining exports and rising labor costs. As a result, excessive capital inflows to equities markets and the real estate market fueled rises in equities and property prices, raising the attendant risk of asset price bubbles.

Chart 2.5 Economic growth rate and CPI inflation rate in China



Note: Using Global Insight projection for economic growth and IMF projection for CPI inflation rate in April 2010.
Sources: National Bureau of Statistics of China, Global Insight and IMF.

Chart 2.6 Annual growth rate of M2 and renminbi loans in China



Source: PBC.

In 2009, the PBC kept the benchmark one-year deposit and lending rates unchanged at 2.25% and 5.31%, respectively. However, in response to the rapid expansion in credit, the PBC and the China Banking Regulatory Commission (CBRC) successively implemented measures to strengthen the monitoring of bank loans and to improve the soundness of risky assets from the second half of 2009 (Table 2.1). Moreover, the PBC substantially contracted market liquidity from January to May 2010 through targeted policy actions, including: (1) raising the reserve requirement ratio (RRR) for financial institutions three times by a total of 1.5 percentage points; (2) conducting open market operations by raising the interest rate of issuance for three-month and one-year central bank notes by 8 basis points and 16.59 basis points, reaching 1.41% and 1.93%, respectively. These policy actions signal that monetary policies are shifting toward a tightening stance.

Table 2.1 Measures to enhance the control of bank loans

Announced by	Measures
The People's Bank of China (PBC)	Fostering the issuance of specific-counterparty bills by the central bank[1] to major banks.
PBC The China Banking Regulatory Commission (CBRC)	1. Launching tightened mortgage policies via the following regulations: · The down payment to loan ratio for first-time homebuyers should not be less than 30%. · The down payment to loan ratio for second-time homebuyers should not be less than 50% and the lending rate is not allowed to be less than 1.1 times the PBC benchmark lending rate. · Lending to third-time homebuyers was suspended. 2. Banks could suspend mortgage lending to non-resident citizens who fail to offer certificates which evidence payment of taxes or social insurance for one year or more.
CBRC	Requiring that the capital adequacy ratio of major banks should be up to 11%, while that for small-medium banks should be up to 10%.
CBRC	Increasing the non-performing loan coverage ratio of financial institutions to 150% from 144.5% by the end of 2009.

Note: Specific-counterparty bills refer to the bills issued by the People's Bank of China to specific counterparties.
Source: CBC staff summary; End-April 2010 data.

The financial system experienced a period of restoration, but surging sovereign risks could spread to the banking system

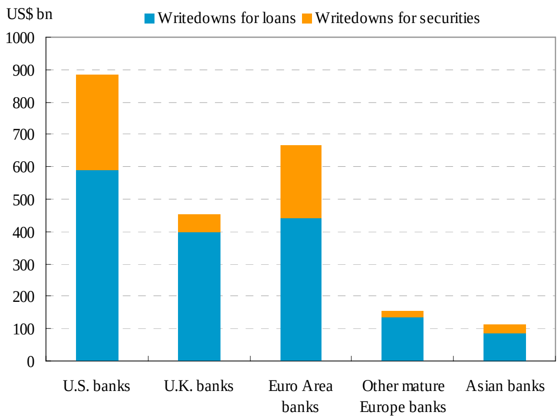
In 2009, with economic fundamentals improving and substantial public support remaining in place, the health of the global financial system was generally restored as global financial markets rebounded sharply from deep troughs and overall systemic risks mitigated. The global banking system has improved but could be vulnerable to refinancing and capital raising pressures. Credit supply to households and the corporate sector has yet to recover. In some advanced economies, soaring sovereign risks, mainly arising from worsening fiscal balances and rapid accumulation of government debt, could spill over to banking systems and across borders. This needs to be promptly addressed by national governments. In addition, massive capital inflows to emerging economies are raising concerns about elevating risks of inflation and asset bubbles. A deliberate response to this situation is warranted.

The global banking system has improved, but refinancing, capital raising and constrained credit supply pressures may lie ahead

With an ongoing economic recovery and improved financial market outlooks, the health of banks was restored and their capital conditions also improved markedly in most economies. In April 2010, the IMF revised downward its forecast for global asset writedowns to US$2.3 trillion[10] (Chart 2.7). Of this amount, around US$1.5 trillion had been realized by the end of 2009.[11]

The health of the global banking system has improved, but pressures from refinancing and recapitalization, coupled with still-constrained credit supply, may lie ahead. Many large banks relied on central bank emergency support to alleviate their short-term funding pressures amid the global financial crisis. However, the IMF estimates that there is nearly US$5 trillion of bank debt due to mature in the coming three years. This will coincide with heavy government bond issuances and succeed the removal of central bank emergency measures over the same period, putting refinancing pressures on those large banks. Despite the fact that the level of overall capital in the banking system has increased, capital requirements are expected to increase dramatically under the revision of the new capital accord (namely Basel II) framework.[12] This, along with the fact that banks have not fully realized asset writedowns, is likely to intensify recapitalization pressures on banks in the future. In addition, credit extension to households and the corporate sector remains constrained owing to still-tightened lending standards and weak credit demand. Small and medium enterprises (SMEs), especially, have suffered more pronounced impacts. In this respect, national governments need to take supportive measures in hopes of promoting economic recovery.

Chart 2.7 Estimates of global asset writedowns



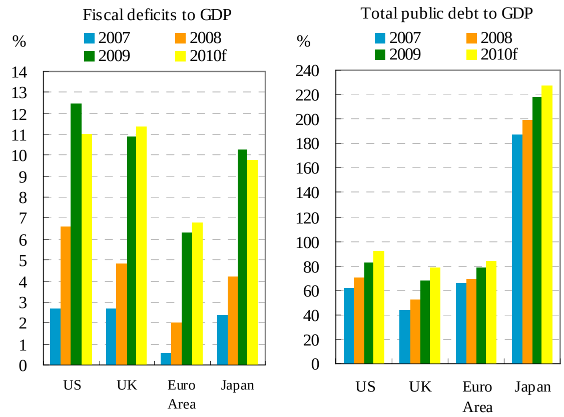
Note: "Other mature Europe banks" includes banks in Denmark, Norway, Iceland, Sweden and Switzerland. "Asian banks" includes banks in Australia, Hong Kong, Japan, New Zealand and Singapore.
Source: IMF, "Global Financial Stability Report," April 2010.

[10] The IMF's previous estimate of global asset writedowns in October 2009 was about US$2.8 trillion.
[11] IMF, "Global Financial Stability Report," April 2010.
[12] The Basel Committee on Banking Supervision (BCBS) released a consultative document: "Strengthening the Resilience of the Banking Sector" in December 2009. The key elements of this proposal include: 1) developing the amendment of the new capital accord (Basel II); 2) requiring banks to enhance the quality of capital and to build up capital buffers; and 3) introducing leverage ratios to complement minimum capital requirement standards.

Mounting sovereign risks in advanced economies could be transmitted to banking systems and across borders

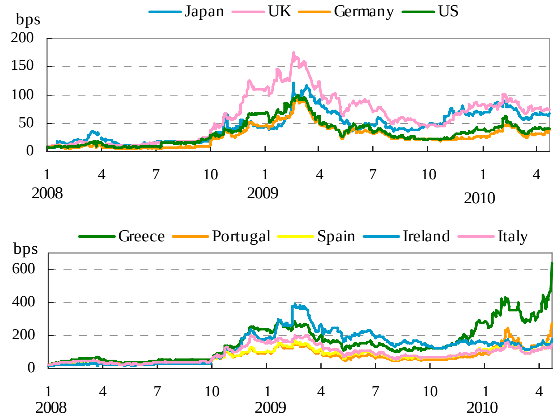
During the recent financial crisis, advanced economies sharply expanded the scale of government expenditures and debt with a view to rescuing financial systems and revitalizing the economy, resulting in soaring public debt and deteriorating fiscal imbalances. Among major advanced economies, fiscal deficits to GDP ratios for the US, the UK and Japan all exceeded 10% in 2009, while the government debt to GDP ratio in Japan registered 217.6% over the same period and is expected to continue to spiral upward in 2010 (Chart 2.8). The surge in public debt and the deterioration of fiscal balances have triggered mounting sovereign risks. As a result, credit default swap (CDS) spreads of government bonds for those economies continued to increase. From the second half of 2009 onwards, concerns over elevated public debt and political uncertainties in the UK and Japan have led to the surge in their CDS spreads. In some southern European countries (most notably Greece, Spain and Portugal), CDS spreads for government bonds successively hit new record highs from February 2010 as fears of sovereign debt crises have triggered a loss of investor confidence in financial markets (Chart 2.9).[13]

Chart 2.8 Fiscal deficit and public debt in major economies



Note: Figures for 2010 are IMF estimates.
Source: IMF, "World Economic Outlook," April 2010.

Chart 2.9 Credit default swap spreads in major economies



Note: Figures are based on 5-year credit default swap securities.
Source: Bloomberg.

The sovereign debt crisis unfolding in some advanced European economies could possibly be transmitted to their local banking systems through close ties between governments and banks. For example, local banks holding massive amounts of government bonds may suffer the losses on falling bond prices and the soaring issuance rates of government bond

[13] As of the end of April 2010, the CDS spread for Spain hit a historical peak of 173.38 basis points on 8 February 2010. In Greece and Portugal, CDS spreads stood at record highs of 638.87 basis points and 276.195 basis points on 23 April 2010, respectively.

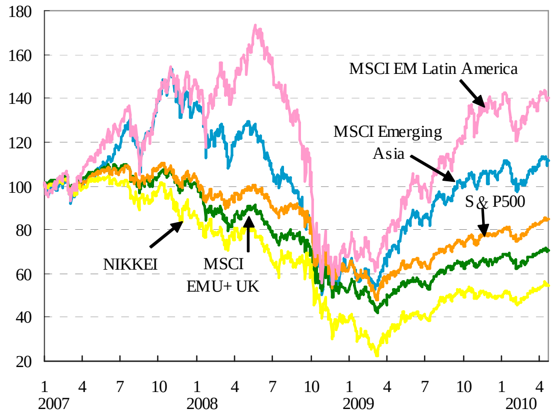
also may raise the funding costs of local banks. Moreover, the sovereign debt crisis might spread to other countries via interlinkages of the global financial system. To reduce sovereign risks, the IMF suggests those economies to urgently develop creditable medium-term fiscal consolidation plans and emergency measures that command public support. It is worth noting that such plans and measures should be put in place to intensify market confidence, so as to prevent the sovereign debt crisis from deteriorating and causing negative spillovers.

Abrupt increase in capital inflows into emerging economies have raised concerns about elevated risks of inflation and asset bubbles

Since 2009 Q2, the renewal of global investors' risk appetite and low interest rates in advanced economies, together with better economic growth prospects for emerging markets, have attracted massive capital flows into emerging economies, particularly to Asia (excluding Japan) and Latin America, for investing in securities. As a result, asset prices rebounded substantially. The performance of equity markets outpaced other financial markets, with key international stock indices rebounding dramatically during March-October 2009. However, global equities prices slumped again in November 2009 due to emerging concerns about the sustainability of government finance in Dubai and Greece (Chart 2.10). In real estate markets (excluding China), the rise in property prices was less than equities prices and was within historical norms.

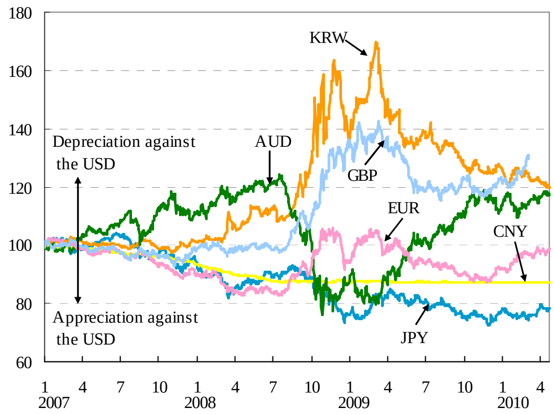
Ongoing massive capital inflows to emerging economies not only raised concerns about the risks of inflation and asset bubbles, but also increased appreciation pressures on some currencies (such as the renminbi and the Brazilian real). In some economies, exchange rate volatility increased dramatically (for

Chart 2.10 Performance of key international stock indices



Note: January 1 2007 = 100.
Source: Bloomberg.

Chart 2.11 Movements of various currencies against the US dollar



Note: January 1 2007 = 100.
Source: Bloomberg.

example, the Korean won) and could potentially compromise the stability of their financial markets and commodity prices (Chart 2.11). Moreover, in those countries with less flexible exchange rate regimes, large capital inflows could complicate the implementation of monetary and exchange rate policies, increasing difficulties to safeguard financial stability. The IMF encourages policymakers in these emerging economies to use macroeconomic policies and macroprudential policies in response to the capital inflow surges. Alternatively, introduction of capital controls could be considered given that these policy measures appear to be insufficient and the capital inflows are likely to be temporary.

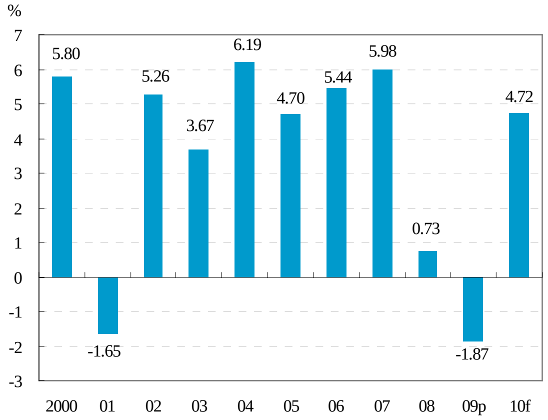
2.2 Domestic economic and financial conditions

In line with the ongoing revival of the global economy, Taiwan's economy recovered steadily and turned to positive growth in 2009 Q4. Domestic prices remained stable. Fueled by the current account surplus and ample foreign exchange reserves, short-term external debt servicing ability remained strong. Overall external debt servicing ability was robust due to a contraction in the scale of external debt. Nevertheless, the government's fiscal deficits widened along with rising government debt.

Domestic economy resumed growth

Driven by shrinking exports, slack private consumption and a sharp contraction in private investment, the economy dropped to negative growth of -9.06% and -6.85% in 2009 Q1 and Q2, respectively. In the latter half of 2009, benefiting from the global economic recovery, the momentum in exports strengthened. As the global economic outlook improved dramatically, along with rising private consumption and investment, and an expansion in public expenditure, the domestic economy showed signs of recovery. As a result of the fledgling economic recovery and the influence of a low base, the downward movement in domestic output improved significantly and posted negative growth of merely -0.98% in Q3. Moreover, the growth rate turned to positive 9.22% in Q4, the highest growth rate recorded since 2004 Q3. Based on DGBAS statistics (Chart 2.12), annual economic growth registered -1.87%

Chart 2.12 Economic growth in Taiwan



Note: Figure for 2009 is preliminary, while figure for 2010 is forecast by DGBAS.
Source: DGBAS.

for 2009, 2.60 percentage points lower than the previous year.

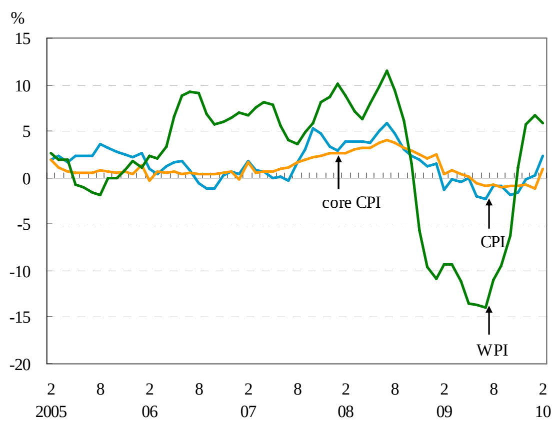
Looking ahead, the brighter global economic situation may continue to boost Taiwan's exports and private investment, and the mild growth in private consumption is likely to sustain. The DGBAS predicts annual economic growth will increase to 4.72%[14] in 2010 (Chart 2.12).

Domestic prices remained stable

The international prices of crude oil and agricultural and industrial raw materials rebounded from the beginning of 2009 as a result of the global economic recovery but exhibited a large decrease compared to the same period of the previous year. The wholesale price index (WPI) inflation rate continued to drop but gradually rebounded after reaching a trough of -13.99% in July 2009. The annual WPI inflation rate dropped to -8.74% in 2009, far below the 5.15% a year earlier. Affected by declines in oil prices, coupled with slackness in effective demand owing to higher unemployment rates and shrinking wages, the CPI inflation rate in 2009 was negative for eleven consecutive months, except for the Chinese Lunar New Year effect in January. Similarly, the core CPI[15] inflation rate was negative for seven consecutive months from June 2009 (Chart 2.13). The annual CPI and core CPI inflation rates in 2009 were -0.87% and -0.14%, respectively, lower than the 3.53% and 3.08% a year earlier.

The average WPI inflation rate from January to February 2010 accelerated to 6.31%, while the average CPI and core CPI inflation rates registered 1.30% and -0.06%, [16] respectively, over the same period (Chart 2.13). As the prices of crude oil and agricultural and industrial raw materials keep ascending in line with the upturn in global demand and abundant liquidity in the banking system, the DGBAS projects the annual WPI and CPI inflation rates in 2010 to rise to 4.78% and 1.27%,[17] respectively.

Chart 2.13 Consumer and wholesale price inflation rates



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

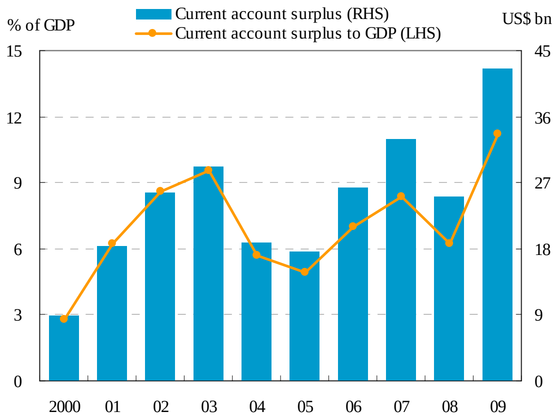
[14] The figures are based on a DGBAS press release on 22 February 2010.
[15] The term "core CPI" in this report refers to a consumer price index excluding perishable fresh fruits and vegetables, fish and shellfish, and energy.
[16] The figures are based on a DGBAS press release on 5 March 2010.
[17] The figures are based on a DGBAS press release on 22 February 2010.

Persisting current account surpluses and abundant foreign exchange reserves

Taiwan's imports and exports both experienced declines in the first three quarters of 2009. Nevertheless, the decrease in imports was larger than that of exports, and hence the current account surplus persisted. Meanwhile, there was an ongoing accumulation of the trade surplus caused by import and export surges in Q4. As a result, the annual current account surplus was US$42.57 billion in 2009, increasing notably by 69.46% compared to that in 2008. The ratio of the current account surplus in relation to annual GDP registered 11.22%[18] through the whole of 2009 (Chart 2.14).

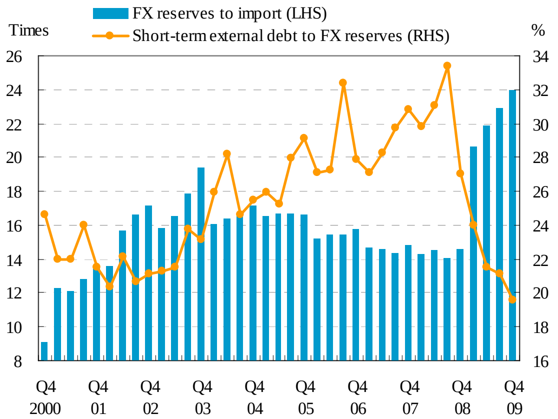
The balance of payments recorded a surplus of US$54.13 billion in 2009 owing to the continued current account surplus and sustained net inflows in the financial account from non-resident securities investments and other investments. This, coupled with the fact that major currencies (such as the euro and pound) held as part of the foreign exchange reserves appreciated against the US dollar over the same period, caused Taiwan's foreign exchange reserves to continue accumulating and reach a high of US$348.2 billion at the end of 2009, and further up to US$355 billion at the end of March 2010. Therefore, it reflects that foreign exchange reserves are sufficient. Moreover, foreign exchange reserves at the end of 2009[19] were enough to cover 23.96 months of imports, while the ratio of short-term external debt to foreign exchange reserves dropped sharply to 19.60% over the same period.[20] This was affected by the increase in foreign exchange reserves, as well as the decline in imports and short-term

Chart 2.14 Current account surplus



Note: Current account surplus and GDP are annual figures.
Sources: CBC and DGBAS.

Chart 2.15 Short-term external debt servicing capacity



Notes: 1. FX reserves and external debt are end-of-period figures.
2. Imports are average monthly figures.
Sources: CBC, DGBAS and MOF.

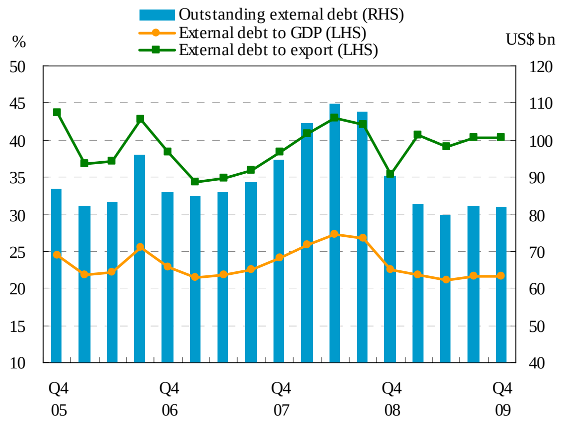
[18] For the ratio of current account deficit to GDP, the cutoff point for risk is 3%. A country in which the reading is greater than 3% and has risen by at least 5 percentage points from the previous year is considered to be at relatively high risk.
[19] A country with an import cover of foreign exchange reserves more than three months is considered to be at relatively low risk.
[20] The general international consensus is that a reading of less than 50% indicates relatively low risk.

external debt. These data imply that Taiwan's foreign exchange reserves have a strong capacity to meet payment obligations for imports and to service short-term external debt (Chart 2.15).

External debt contracted and debt servicing capacity remained strong

There was a substantial reduction in Taiwan's external debt[21] in the first half of 2009 caused by a fall in private external debt. However, external debt increased in 2009 Q3, triggered by increasing foreign capital inflows to local bond investments. Outstanding external debt rose to US$82 billion, or 21.62% of annual GDP, at the end of 2009.[22] Moreover, the ratio of external debt to annual exports stood at 40.27% as of the end of 2009, higher than a year earlier. Nevertheless, export revenues were still sufficient to cover external debt (Chart 2.16), and there were no signs of servicing pressure on external debt.[23]

Chart 2.16 External debt servicing capacity

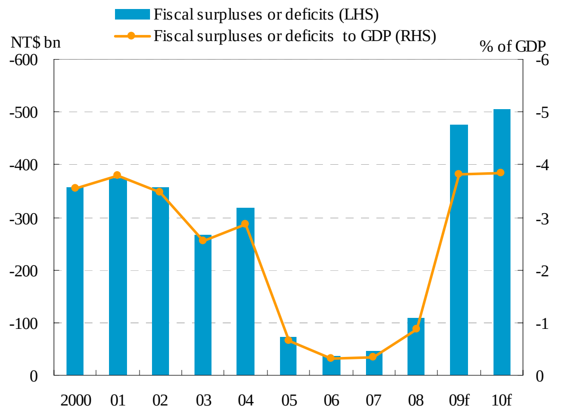


Notes: 1. External debt are end-of-period figures.
2. GDP and exports are annual figures.
Sources: CBC and DGBAS.

Rising fiscal deficits increased government debt

Driven by the implementation of measures aimed at revitalizing the economy and promoting consumption from September 2008 onwards, fiscal deficits trended upwards. The fiscal budget deficit in 2009 expanded to NT$476.4 billion, or 3.80% of

Chart 2.17 Fiscal position



Notes: 1. Fiscal position data includes those of central and local governments.
2. Data of fiscal surpluses (deficits) are end-of-period figures. Figures for 2009 and 2010 are budgeted ones.
Sources: MOF and DGBAS.

[21] External debt is defined by the CBC as 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 (starting from December 2004, figures for public external debt include outstanding foreign debt arising from repo transactions between the CBC and international financial institutions). The term "private external debt" refers to private-sector foreign debt that are not guaranteed by the public sector.

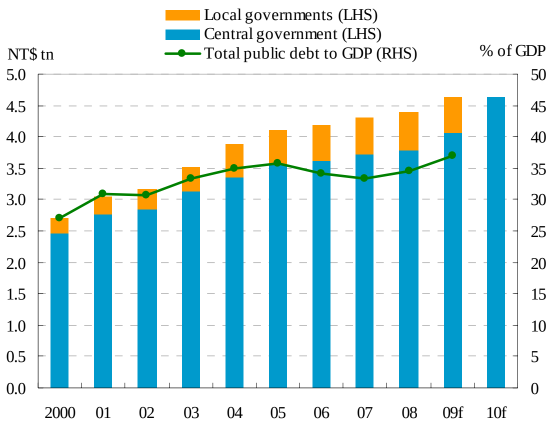
[22] The general international consensus is that a country with the ratio of external debt to GDP lower than 50% is deemed to be at relatively low risk.

[23] The general international consensus is that a ratio of external debt to exports of less than 100% indicates relatively low risk.

annual GDP, and the ratio may further increase to 3.85%[24] in 2010 (Chart 2.17).

In 2009, outstanding public debt at all levels of government[25] expanded to NT$4.64 trillion, or 37.03%[26] of annual GDP, well above the NT$4.38 trillion[27] in 2008, as fiscal deficits increased and central and local governments relied on debt issuance to finance debt servicing expenditures. It is expected that public debt is likely to grow further in 2010 on the back of increasing public debt for supporting the expansion of infrastructure construction expenditures (Chart 2.18).

Chart 2.18 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. Outstanding public debt for 2009 and 2010 are budgeted figures; data of 2010 for local governments is not available.

Sources: MOF and DGBAS.

[24] Under the 1992 European Union Maastricht Treaty and the subsequent Stability and Growth Pact, fiscal deficits in EU member nations are not allowed to exceed 3% of GDP.

[25] 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. Final audited figures for outstanding one-year-or-longer non-self-liquidating public debt (NT$4.4 trillion) issued by all levels of government during the 2008 fiscal year is equivalent to 35.01% of the average GNP for the preceding three fiscal years (NT$12.5 trillion). This figure is below the ceiling of 48% (i.e. 40% for central government and 8% for local governments) set out in the Public Debt Act.

[26] Under the Maastricht Treaty and the subsequent Stability and Growth Pact, outstanding debt in EU member nations is not allowed to exceed 60% of GDP.

[27] If adding in debt with a maturity of less than one year and self-liquidating debt, outstanding public debt at the end of 2008 stood at NT$5.33 trillion.

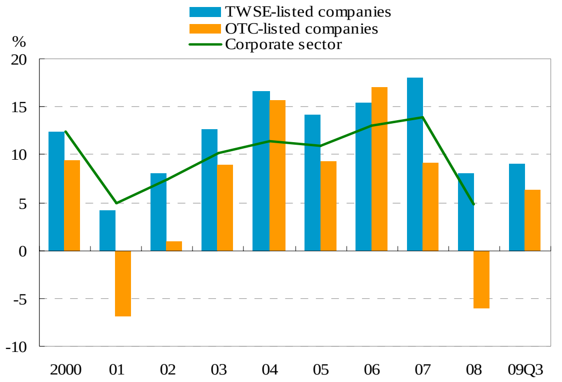
III. Non-financial sectors

The corporate sector, household sector, and real estate market constitute the main sources of risk for credit exposure of Taiwan's financial institutions. The degree of indebtedness and solvency in the corporate sector and household sector as well as the real estate cycle, have far-reaching impacts upon the asset quality and profitability of financial institutions.

3.1 Corporate sector

From 2008 Q4 onwards, the profitability of the corporate sector[28] declined dramatically and its financial structure and indebtedness weakened, impacted by both domestic and international economic recessions. Nevertheless, as a result of the fiscal and monetary policies adopted by various countries aimed at boosting their economies, the global economy began to recover in the middle of 2009. The profitability of TWSE-listed and over-the-counter (OTC) listed companies[29] increased and their financial structures and short-term debt servicing capacity strengthened for the first three quarters of 2009, while non-performing loan (NPL) ratios of corporate loans declined slightly. In view of the closer trade and investment relations with China, Taiwan's corporations warrant giving more attention to business risks that may emerge as a result of tight monetary policy in China, increasing pressure on RMB appreciation as well as structural economic adjustments and serious labor shortage in China.

Chart 3.1 Return on equity in corporate sector



Notes: 1. Return on equity = net income before interest and tax / average equity.
2. The data are on an annual basis as 2009 Q3 figures are annualized results.
3. Latest data for the corporate sector is as of the end of 2008, while that for TWSE-listed and OTC-listed companies are as of the end of 2009 Q3.

Sources: JCIC and TEJ.

[28] The corporate sector data including TWSE-listed and OTC-listed companies are from the corporate financial report database operated by the Joint Credit Information Center (JCIC), excluding that for financial and insurance companies, public administration and defense, and compulsory social security.

[29] The data for TWSE-listed and OTC-listed companies are from the Taiwan Economic Journal Co., Ltd (TEJ), excluding that for financial and insurance companies and emerging stock-listed companies.

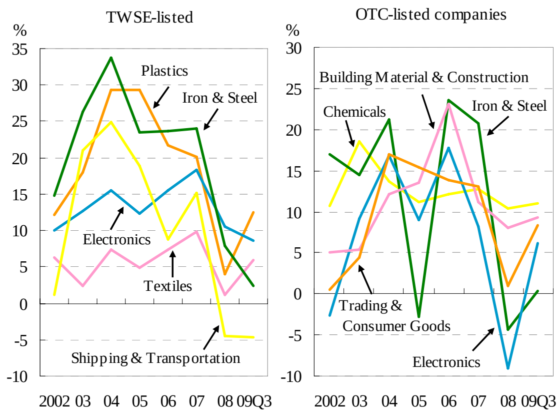
Profitability increased gradually in 2009

The profitability of the corporate sector declined dramatically in 2008, inflicted by the global recession in the second half of 2008, which resulted in a slump in exports and more cautious private consumption. The return on equity (ROE) for the corporate sector declined dramatically to 4.76% in 2008 as the Taiwan Stock Exchange (TWSE) listed and OTC-listed companies' ROEs dropped to 8.07% and -5.97%, respectively. From 2009, the easy monetary policies and economic stimulus packages employed by various countries provided a positive upshot that contributed to the global economic recovery. The rates of decline of Taiwan's exports and imports decelerated, private consumption confidence rose; thus, the profitability of the corporate sector improved gradually. The annual ROEs for TWSE-listed and OTC-listed companies rose to 8.99% and 6.37%, respectively, for the first three quarters of 2009, much higher than that reported in 2008 (Chart 3.1).

To break this down by sector, for TWSE-listed companies, the annual ROEs for plastics industry and textile industry rose moderately for the first three quarters of 2009. The ratios for the electronics industry and the iron and steel industry remained lower than that of 2008, but with a diminished rate of decline. However, the shipping and transportation industry's ROE remained negative. For OTC-listed companies, the ROE for the electronics industry, which accounted for more than 70% of the total revenue of OTC-listed companies, rose tremendously, while most of the other industries also saw better performance than 2008 (Chart 3.2).

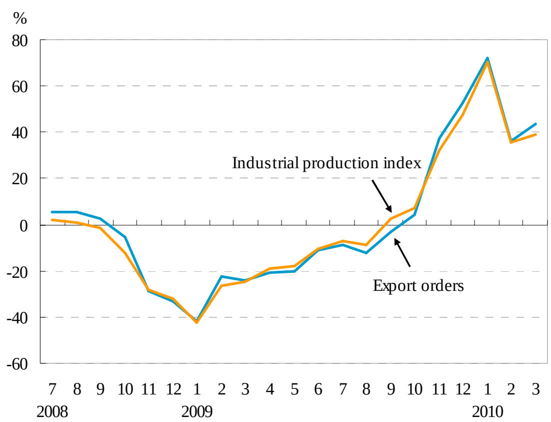
Owing to the downturn in global demand,

Chart 3.2 Return on equity of TWSE-listed and OTC-listed companies by major industries



Notes: 1. Return on equity = net income before interest and tax / average equity.
2. The data are on an annual basis as 2009 Q3 figures are annualized results.
Source: TEJ.

Chart 3.3 Annual growth rates of export orders and industrial production index



Note: Industrial production index in 2006 was 100.
Source: MOEA.

Taiwan's annual growth rates for export orders and the industrial production index were constrained dramatically from 2008 Q3 and reached historical lows of -41.67% and -42.64%, respectively, in January 2009. Then, the situation improved and both reported positive growth rates from October 2009. In 2010 Q1, due to the global expansion in demand and lower base year effect, the growth rates of export orders and the industrial production index increased prominently (Chart 3.3). Taiwan, an export-driven country,[30] benefited as export orders, industrial production and private consumption improvements enhanced the profitability of the corporate sector following the global economic recovery.

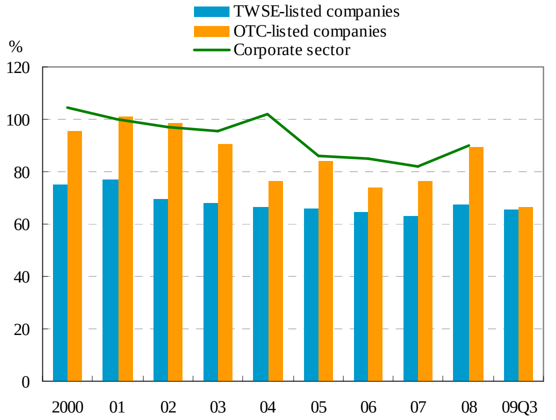
Financial structure enhanced

For the corporate sector as a whole, the financial structure deteriorated and the average leverage ratio rose to 90.02% at the end of 2008 due to the dramatic decrease in its profitability in the same year. In 2009, domestic corporations experienced contracted investments in the face of the economic downturn, which, in turn, led to a reduction in their liabilities. As a result, the average leverage ratio for TWSE-listed companies reported 65.26% at the end of September 2009, slightly down from 67.59% at the end of 2008. The financial structure for OTC-listed companies saw better improvement as the average leverage ratio dropped to a ten year low of 66.29%, supported by a great decrease in their liabilities (Chart 3.4).

Short-term debt servicing capacity remained acceptable

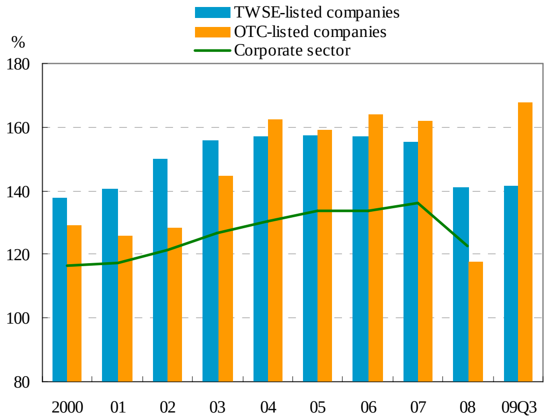
In 2008, short-term debt servicing capacity of

Chart 3.4 Leverage ratio in corporate sector



Notes: 1. Leverage ratio = total liabilities / equity.
2. End-of-period figures.
3. Latest data for the corporate sector is as of the end of 2008, while that for TWSE-listed and OTC-listed companies are as of the end of 2009 Q3.
Sources: JCIC and TEJ.

Chart 3.5 Current ratio in corporate sector

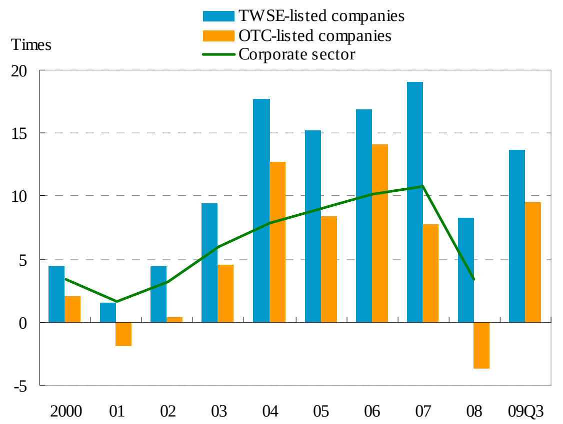


Notes: 1. Current ratio = current assets / current liabilities.
2. End-of-period figures.
3. Latest data for the corporate sector is as of the end of 2008, while that for TWSE-listed and OTC-listed companies are as of the end of 2009 Q3.
Sources: JCIC and TEJ.

[30] The export to GDP ratio climbed annually from 46.58% in 2000 to reach 63.49% in 2008 before dropping to 53.68% in 2009.

the corporate sector as a whole eroded when both the current ratio and the interest coverage ratio declined moderately. The short-term debt servicing capacity remained acceptable for TWSE-listed companies for the first three quarters of 2009 as the current ratio stopped declining and remained over 140% with steady cash flows and higher cash positions. The current ratio for OTC-listed companies also surged to over 160% (Chart 3.5) as short-term liabilities contracted dramatically. Moreover, interest expenses for TWSE-listed and OTC-listed companies decreased prominently for the first three quarters of 2009 compared to the same period of the previous year due to diminished liabilities and lower interest rates. As a result, the interest coverage ratio for TWSE-listed companies rose to 13.70, while the ratio for OTC-listed companies surged to 9.53, representing improved interest servicing capacity (Chart 3.6).

Chart 3.6 Interest coverage ratio in corporate sector

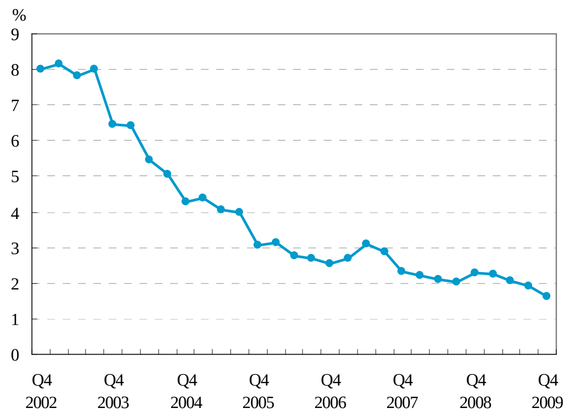


Notes: 1. Interest coverage ratio = income before interest and tax / interest expenses.
2. Figures are on an annual basis as 2009 Q3 referred to the accumulation from January to September 2009.
3. Latest data for the corporate sector is as of the end of 2008, while that for TWSE-listed and OTC-listed companies are as of the end of 2009 Q3.
Sources: JCIC and TEJ.

NPL ratio of corporate loans remained low

The NPL ratio of corporate loans continued to decline throughout 2009 and reached 1.62% at the end of December (Chart 3.7). This is partially a result of the Debt Renegotiation Relief Program launched by the Bankers Association of the Republic of China, an effort aimed at assisting Taiwan's corporations to overcome financial difficulties, whereby some restructured loans were exempted from being counted as non-performing loans.[31] The likelihood of a surge in the NPL ratio for corporate loans remains low in the short run under the following considerations: (1) the Debt Renegotiation Relief Program was extended to the end of 2010; (2) the SMEs

Chart 3.7 NPL ratio of corporate loans



Note: End-of-period figures.
Source: JCIC.

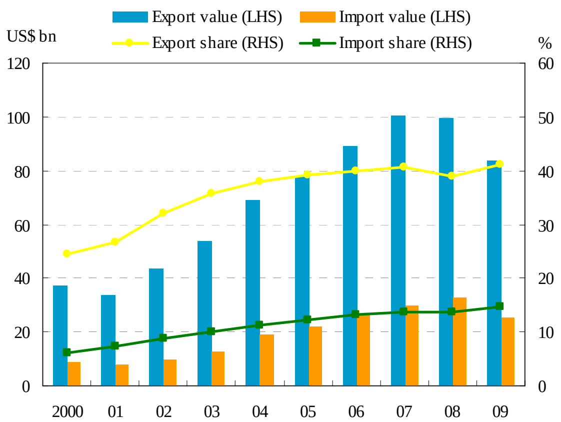
[31] According to the news release of the Bankers Association of the Republic of China on 26 November 2009, debt renegotiations submitted to and approved by financial institutions amounted to 2,766 cases, or NT$ 83.2 billion; applications made via the Ministry of Economic Affairs amounted to 135 cases, or NT$ 166.5 billion.

Guarantee Fund offered more guarantee facilities to SMEs that faced difficulties in obtaining finance from financial institutions; and (3) the improved performance of the corporate sector resulting from the global economic recovery.

Evolving China's economic and financial environment has a greater influence on Taiwan's corporations

China has become Taiwan's largest export market and the second largest origin of imports next to Japan. The export ratio to China and Hong Kong reached 41.09% in 2009, up from 24.44% in 2000, while the import ratio reported 14.65% in 2009 from 6.11% in 2000 (Chart 3.8), representing Taiwanese corporations' closer trade relations with China. Therefore, the evolution of China's economy and financial markets will impact Taiwanese corporations to an increasing extent. Consequently, this warrants closer attention with respect to business risks that may arise in China resulting from a combination of the following: tight monetary policy; increasing pressure for RMB appreciation; structural economic adjustments; and serious labor shortages.

Chart 3.8 Exports to and imports from China and Hong Kong

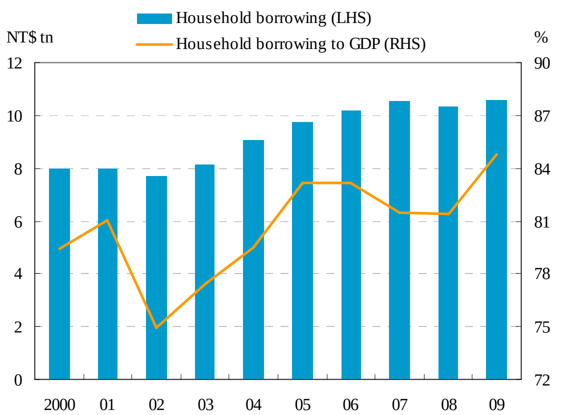


Source: Directorate General of Customs, MOF.

3.2 Household sector

As interest rates declined, short-term household debt servicing capacity strengthened even as borrowing increased and debt burdens became heavier. Furthermore, overall credit quality remained satisfactory. Household debt servicing capacity should strengthen as the domestic economy recovered gradually and regular earnings resumed positive growth from November 2009. Nevertheless, the potential impacts caused by the high unemployment rate and possible reversal of interest rates warrant closer attention.

Chart 3.9 Household borrowing to GDP



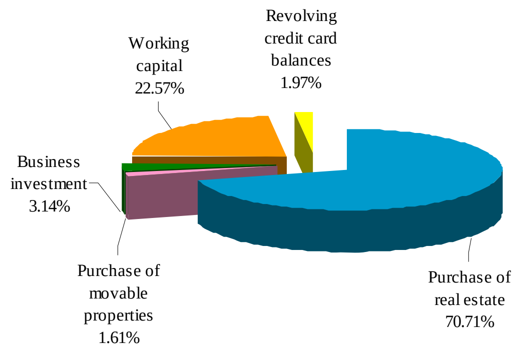
Note: Household borrowing data are end-of-period figures.
Sources: CBC, JCIC and DGBAS.

Household borrowing increased

Following sluggish local stock and real estate markets, the growth rate of household borrowing[32] turned negative from the second half of 2008. From the beginning of 2009, triggered by local stock and real estate market rebounds, accompanied by the government offering of NT$400 billion in preferential mortgages for homebuyers, household borrowing rose to NT$10.58 trillion as of the end of December, increasing by 2.35% year on year (Chart 3.9). The main reason behind this was that real estate purchase loans increased by 2.53%. Meanwhile, the outstanding borrowing for margin purchase and short sale of securities increased dramatically by 76.77%. The single largest share of household borrowing at the end of 2009 went for the purchase of real estate (70.71%), followed by working capital loans[33] (22.57%), whereas revolving credit card balances accounted for only 1.97% (Chart 3.10).

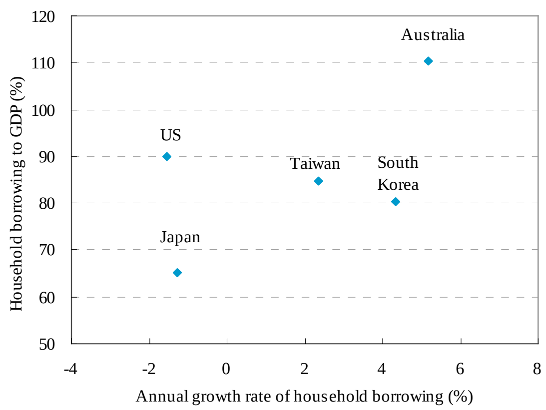
The ratio of household borrowing to GDP rose to 84.76% at the end of 2009 (Chart 3.9), higher than that in South Korea and Japan but lower than that in the United States and Australia. The growth rates of household borrowing in 2009 in Taiwan, South Korea and Australia were positive while those in the United States and Japan were in negative territory (Chart 3.11).

Chart 3.10 Household borrowing by purpose



Note: Figures are as of the end of 2009.
Sources: CBC and JCIC.

Chart 3.11 Household indebtedness in selected countries



Note: Figures for Taiwan are as of the end of 2009. The others are as of the end-September 2009.
Sources: Fed, BOJ, BOK, ABS, IMF, DGBAS, CBC and JCIC.

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[32] The term "household borrowing" as used in this section refers to outstanding loans and revolving credit card balances taken out by households from the following financial institutions:
(1) Depository institutions: Domestic banks (including medium business banks), local branches of foreign banks, credit cooperatives, credit departments of farmers' associations, credit departments of fishermen's associations, and the Remittances & Savings Department of Chunghwa Post Co.
(2) Other financial institutions: trust and investment companies, life insurance companies, securities finance companies, and securities firms.

[33] The term "working capital loans" includes outstanding cash card loans.

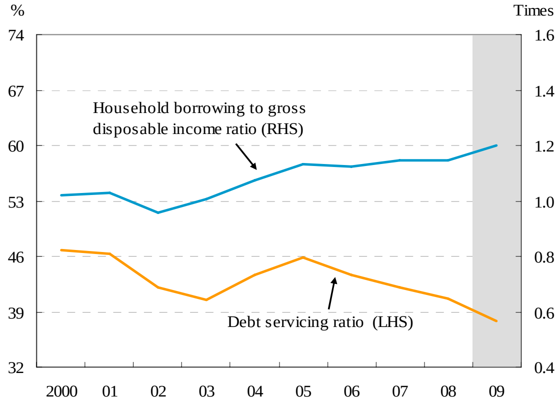
Household debt burden became heavier, but short-term debt servicing capacity improved gradually as interest rates declined

The ratio of household borrowing to gross disposable income[34] stood at 1.20 as of the end of 2009, up from 1.15 in 2008, representing a heavier household debt burden. Nevertheless, as interest rates declined, the debt servicing ratio decreased and registered 37.88% as of the end of 2009, showing enhanced short-term debt servicing capacity (Chart 3.12).

NPL ratio of household borrowings declined

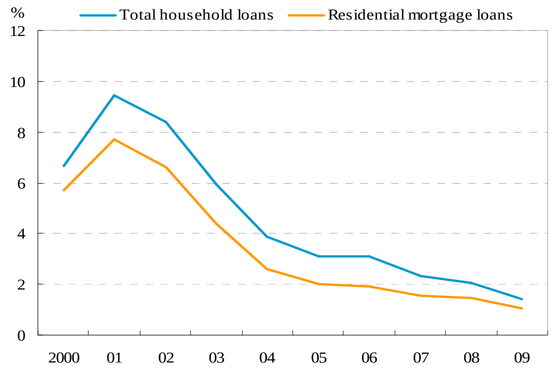
The NPL ratio of household borrowings from banks kept falling to 1.41% as of the end of 2009, lower than 2.04% a year earlier (Chart 3.13). The main reason behind this was that NPLs for real estate purchases, the largest share of household borrowing, contracted due to the real estate market rebound in 2009. Household debt servicing capacity might improve because the domestic economy recovered in the second half of 2009, along with positive regular earnings growth from November 2009. Nevertheless, the potential impacts on household debt servicing capacity caused by the high unemployment rate and the possible reversal of interest rates warrant closer attention (chart 3.14).

Chart 3.12 Household debt servicing ratio



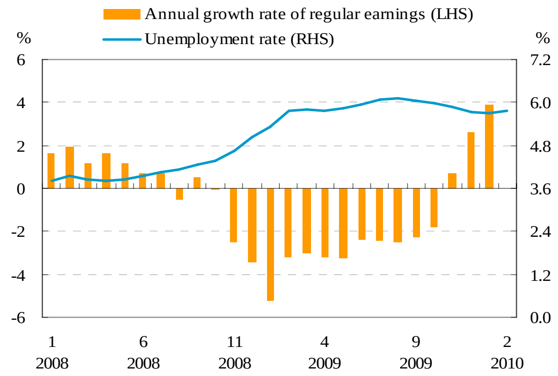
Notes: 1. Gross disposable income in shadow area is CBC estimate.
2. Debt servicing ratio = borrowing service and principal payment / gross disposable income.
Sources: CBC, JCIC and DGBAS.

Chart 3.13 NPL ratio of household borrowings



Note: End-of-period figures.
Source: JCIC.

Chart 3.14 Unemployment rate and regular earnings growth rate



Source: DGBAS.

[34] Gross disposable income = disposable income + rental expenses + interest expenses.

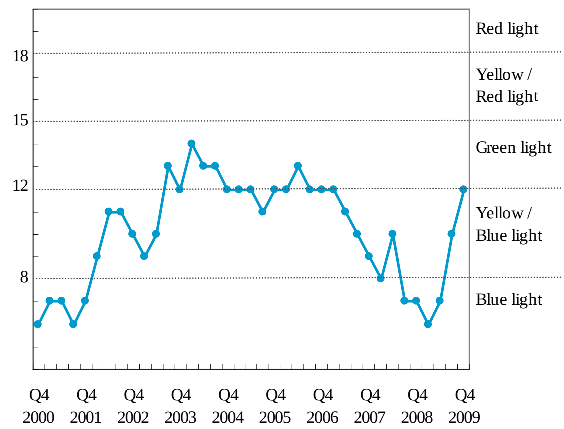
3.3 Real estate market

Real estate transaction volume expanded from 2009 Q2 and was concentrated in Taipei City and Taipei County. The price for existing housing reached a new high, and the price for newly constructed housing almost reached a historical high. The debt burden for property purchasers became heavier even though vacancy rates still remained high.

Real estate market rebounded

Taiwan's real estate cycle indicators [35] remained under a blue light, reflecting sluggish market, in the first half of 2009. However, the real estate market rebounded gradually, and appeared under a green light, reflecting stable market, in 2009 Q4 (Chart 3.15). The composite indexes of leading indicators[36] and coincident indicators[37] also displayed upward trends and increased by 0.6% and 4.42%, respectively, year on year in 2009 Q4, adding further evidence that the real estate market rebound was strengthening.

Chart 3.15 Real estate cycle indicators

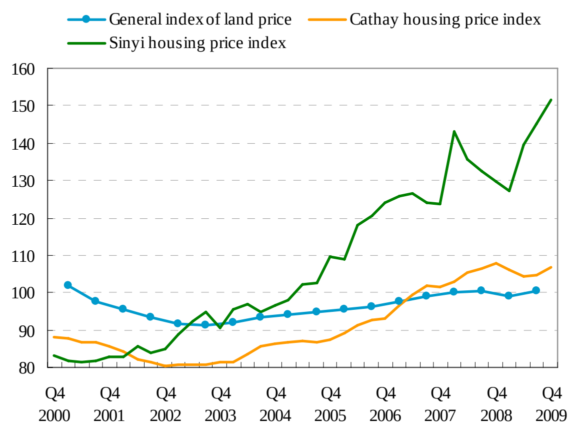


Source: "Quarterly Report of Taiwan Real Estate Cycle Indicators," Architecture and Building Research Institute, Ministry of the Interior (MOI).

House prices rose as transaction volume expanded

In general, land prices remained stable in metropolitan areas as the general index of land prices stood at 100.38 in September 2009, a slight year-on-year decline of 0.13%. Housing prices for existing buildings increased dramatically from 2009 Q2 as the Sinyi

Chart 3.16 Land and house price indices



Note: General index of land price is released semiannually (i.e. in March and September).
Sources: MOI, Cathay Real Estate, and Sinyi Real Estate Inc.

[35] The real estate cycle indicators show five types of market outlooks with different colored lights. A red light indicates a "heated market," a yellow/red light indicates a "moderately heated market," a green light indicates a "stable market," a yellow/blue light indicates a "moderately declining market," and a blue light indicates a "sluggish market."

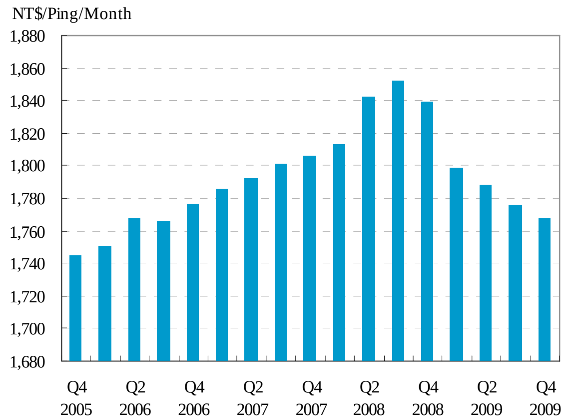
[36] The composite index of leading indicators is made up of the following five components: GDP, monetary aggregate M2, construction sector stock price index, volatility in outstanding construction loans, and consumer price index.

[37] The composite index of coincident indicators is made up of the following six components: undeveloped land transaction index, base lending rate, construction permit floor space, standard unit price for new construction projects, new loans for property purchases, and housing occupancy rate.

housing price index (for existing building sales) registered 151.7 in Q4, increasing by 16.81% year on year. Housing prices in Taipei City, Taipei County, and Taichung City increased significantly, with each increasing more than 20%. The Cathay housing price index (for new housing construction) declined for the first two quarters of 2009, then increased in Q3, and reached a near-historical high of 106.92 in Q4. However, the index slightly decreased by 0.78% year on year (Chart 3.16). For metropolitan areas, prices for newly constructed housing in Taipei City rebounded moderately, while prices in Taichung, Tainan and Kaohsiung fell in Q4. The average office rental rate in Taipei City, impacted by the economic slowdown, declined in the first half of 2009, and continued to decline in the second half of the year even as the economy recovered. The average office rental rate dropped to NT$1,768 per ping (approximately 3.3 square meters) per month in Q4, a year-on-year decline of 3.86% (Chart 3.17).

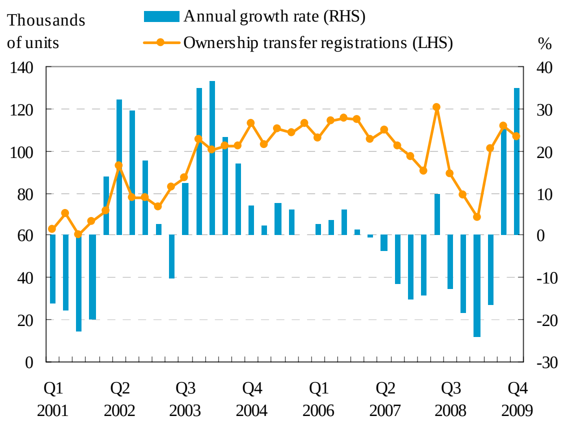
As for transactions in the real estate market, transaction volume expanded moderately from 2009 Q2 as the number of building ownership transfers registered 388 thousand units for the whole year of 2009, a year-on-year increase of 2.38%, showing that transactions in the real estate market had warmed up (Chart 3.18). Nevertheless, the real estate market cooled down slightly during the first two months of 2010. The reasons underlying this were that housing prices remained high and the government adopted some targeted prudential measures aimed at cooling down the real estate market.

Chart 3.17 Average office rental rate in Taipei



Source: Colliers International "Taipei Office Market Overview."

Chart 3.18 Building ownership registrations



Source: Monthly Bulletin of Interior Statistics, MOI.

The supply of new property shrank but residential property vacancies remained high

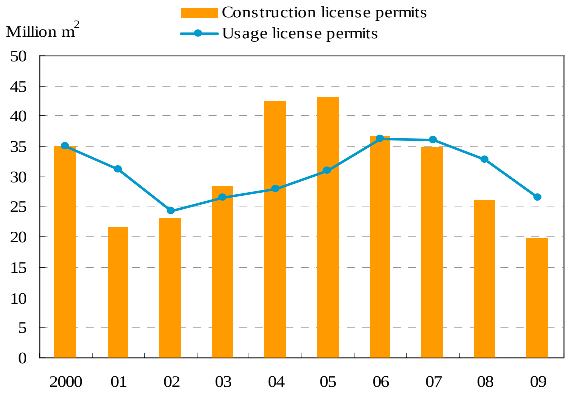
In 2009, the total floor space of construction license permits steadily shrank in the first half of the year. Despite an increase in Q3, there was a substantial decline in new construction for the year as a whole, with the total floor space of construction decreasing by 23.87% year on year. As a result of the shrinkage of new construction, the supply of new property contracted dramatically in 2009. Total floor space of usage permits decreased by 18.88% year on year (Chart 3.19), with the largest decline of 26.56% for residential property. Total supply of new residential property in 2009 registered 76 thousand units, representing a year-on-year contraction of 31.76%.

In addition, the average number of vacant residential properties was about 1,458 thousand units in 2009, increasing by 26 thousand units, or 1.79%, compared to the previous year. For the first two months of 2010, the average number of vacant residential properties climbed to 1,530 thousand units, a slight year-on-year increase of 1.38% (Chart 3.20).

Mortgage burden became heavier, especially in Taipei City

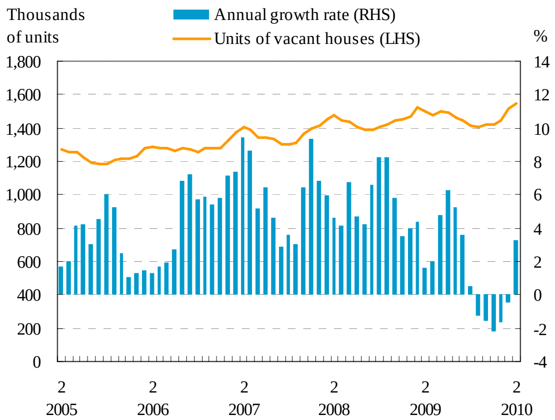
As a consequence of climbing housing prices and limited real income growth, the average house price to income ratio for the five metropolitan areas[38] reached 7.09 in the second half of 2009 as the average mortgage burden ratio registered 28.23%, both higher than those in the first half of the year. Among the metropolitan areas, the mortgage burden was heaviest in Taipei City as the

Chart 3.19 Floor space of construction license permits and usage license permits



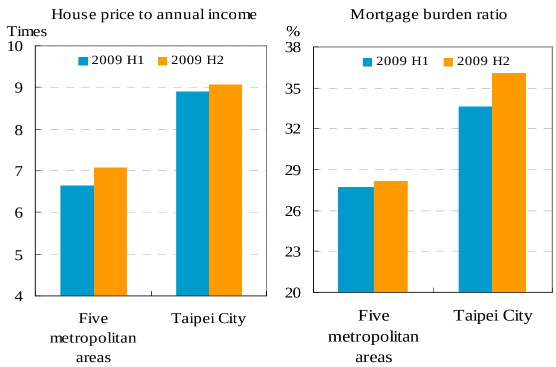
Source: Monthly Bulletin of Interior Statistics, MOI.

Chart 3.20 Estimated units of vacant houses



Source: Taiwan Power Company.

Chart 3.21 House price to income ratio and mortgage burden ratio



Note: Mortgage burden ratio = monthly mortgage expenditure / household monthly income.
Source: "Taiwan Housing Demand Survey Report," MOI.

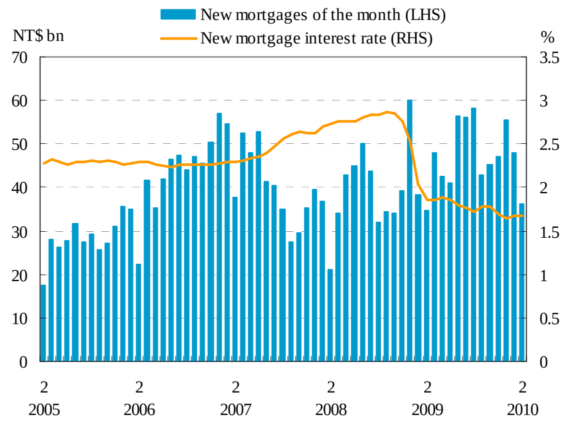
[38] Five metropolitan areas refers to Taipei City, Taipei County, Taoyuan and Hsinchu City and County, Taichung City and County and Kaohsiung City and County.

housing price to income ratio and the mortgage burden ratio reached 9.06 and 36.12%, respectively (Chart 3.21).

Real estate-related loans turned to grow, while mortgage interest rates rebounded slightly after a continued decline

New loans for house purchases granted by the five largest banks expanded to NT$55.5 billion in December 2009, but contracted in January and February 2010 (Chart 3.22) before recovering to NT$51.7 billion in March. The interest rate for new mortgages gradually declined and registered 1.64% in December 2009, slightly increased to 1.67% in February 2010 (Chart 3.22) and dropped back to 1.64% in March.

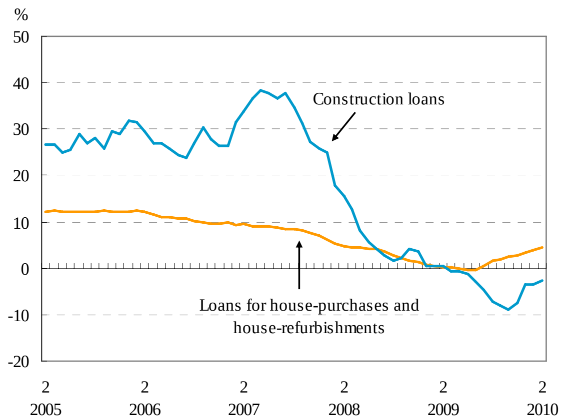
Chart 3.22 New mortgages – amount and interest rate



Source: CBC.

Outstanding loans for house purchases and house refurbishments granted by banks[39] continued to expand to NT$5.71 trillion at the end of 2009, and further increased by 0.13% for the first two months of 2010 with an annual growth rate of 4.35%. Construction loans kept shrinking for the first three quarters of 2009 but climbed to NT$1.03 trillion as of the end of December, and further increased by 0.91% for the first two months of 2010 with a negative annual growth of -2.55% (Chart 3.23).

Chart 3.23 Annual growth rate of real estate-related loans



Source: CBC.

In view of high housing prices in certain areas and excessive concentration in real estate-related loans, the CBC has adopted a series of targeted prudential measures since October 2009 to further enhance financial stability, including: requiring banks to enhance their risk management of real estate-related loans; signaling that the CBC will take asset prices into account in its monetary policy; requesting the Bankers

[39] Refers to domestic banks and the local branches of foreign banks.

Association of the Republic of China to remind borrowers regarding the risk of repayment and that effective interest rates will increase as soon as grace periods expire; as well as urging banks to strengthen risk management on loans to real estate investors in certain areas. The policies have delivered positive effects with the cooperation of banks through adjusting their mortgage policies regarding loan to value ratios, interest rates and grace periods.

In addition to the above measures, the Council for Economic Planning and Development, Executive Yuan, invited participants from industries, academia and relevant government agencies to issue the Real Estate Market Enhancement Program (Box 1) to enhance the fundamentals of the real estate market and the stability of society and the economy, and to meet the basic housing needs for low- and middle-income families as well as salary earners. The Program was approved by the Executive Yuan on 22 April 2010. Relevant government agencies were urged to implement related measures under the Program in an aggressive and effective manner.

Box 1
The Real Estate Market Enhancement Program

The Real Estate Market Enhancement Program proposed by the Council for Economic Planning and Development, Executive Yuan, in April 2010, was aimed at stabilizing public confidence and the property market, taking care of the lower socioeconomic class, and meeting the basic housing needs of low- and middle-income groups as well as salary earners. The measures implemented under the Program were based on the following six principles:

1. Tailor measures to the needs of localities and populations;
2. Be moderate and effective;
3. Be sound and stable;
4. Pursue social fairness;
5. Be transparent; and
6. Include relevant supplementary measures.

With these prerequisites, 21 principles and 44 measures were adopted for the Program, where they were grouped into six categories, including:

1. Balancing the supply of and demand for residential property in Taipei metropolitan areas;
2. Assisting low- and middle-income families as well as salary earners in increasing their ability to purchase or rent residential properties;
3. Providing residential property information;
4. Strengthening risk management of real estate-related loans;
5. Pursuing social fairness; and
6. Including relevant supplementary policy measures.

In what follows, categories 3 and 4 related to real estate information disclosure and finance and part of category 5 related to house and land taxation are listed in Table B1.1.

Table B1.1 Measures relating to real estate information, finance and taxation

Issues	Principles	Measures
I. Providing residential property information	1. Consolidating and periodically disclosing residential property information.	Enhancing the consolidation of the following sources of information: 1. E-house servicing internet system, MOI; 2. Housing Statistics, MOI; 3. Residential property internet system, MOI; 4. Real estate prices internet system, MOI; and 5. Real estate foreclosure information.

	2. Disclosing housing prices by the Joint Credit Information Center (JCIC).	Assisting the JCIC in setting up a real estate information platform to provide the acquired information to the MOI for further integration and announcement.
	3. Urging real estate brokers to disclose real estate transaction information.	1. Accomplishing the revision of the Real Estate Broking Management Act; 2. Implementing real estate brokers' trading price reporting systems; and 3. Regulating real estate brokers' qualifications, and their rights and obligations.
	4. Setting up an agency for disclosing residential property information on a regular basis.	Evaluating the costs and benefits of setting up a real estate agency for disclosing relevant information on a regular basis.
	5. Establishing safe and protection mechanisms for real estate transactions.	1. Announcing standard contracts for real estate transactions; 2. Announcing revised Standard Contract for Presale House to improve the transparency of presale house transactions; 3. Establishing a presale house buyers' protection mechanism; and 4. Promoting standard contracts for house leasing available at convenience stores.
II. Strengthening risk management of real estate-related loans	1. Enhancing financial supervision on real estate-related loans.	1. Enhancing on-site examination of real estate-related loans; 2. Enhancing supervisory review of capital adequacy; 3. Promoting real estate supervisory policies; 4. Improving the transparency of real estate valuation; and 5. Requiring that mortgage contracts should disclose relevant risks.
	2. Urging banks to strengthen their risk management of loans for specific mortgage borrowers.	Urging banks to take differential credit terms such as loan to value ratios, interest rates and grace periods on mortgages for investments purposes.
III. Pursuing social fairness	1. Reviewing the current house tax system.	1. Inviting representatives from city and county governments to review the current house tax system. 2. Authorizing city and county governments to review and appropriately adjust government announced house values for those areas exhibiting abnormal property price fluctuations in short periods of time.
	2. Reviewing the current land tax system.	1. Inviting representatives from city and county governments to review the current land tax system. 2. Authorizing city and county governments to review and appropriately adjust government announced land values for those areas exhibiting abnormal property price fluctuations in short periods of time.

Source: The Real Estate Enhancement Program, issued by the Council for Economic Planning and Development in April 2010.

IV. Financial sector

4.1 Financial markets

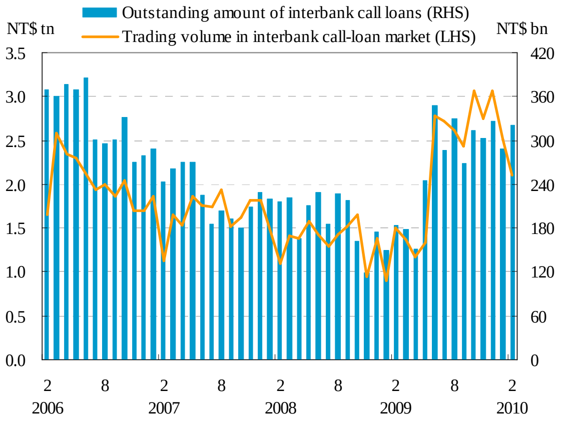
In 2009, the trading volume of interbank call loans increased materially; however, trading volumes contracted notably in the bond market and remained virtually unchanged in the bills market, while yield spreads between long-term and short-term rates swung between 90 and 117 basis points. As for the stock market, stock indices trended up from January 2009, with a marked increase in trading value and turnover. Nevertheless, the upward trend flattened out and stock indices fluctuated within a narrow range in January-February 2010. As for the foreign exchange market, the NT dollar exchange rate appreciated by 2.59% against the US dollar during 2009 and was relatively stable compared to the exchange rates of major currencies.

4.1.1 Money and bond markets

Trading volume picked up in interbank call loans but contracted notably in the bond market

The average monthly trading volume of interbank call loans in 2009 increased by 54.77% year on year. The average daily outstanding amount of interbank call loans in December 2009 also recorded an increase of 87.59% against same month of 2008, primarily because a large proportion of the funds remitted into Taiwan by foreign portfolio investors were channeled into interbank call loans from May 2009. In January-February 2010, the average trading volume and outstanding amount of interbank call loans remained at a high level, even though registering a slight decrease compared to

Chart 4.1 Interbank call-loan market



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

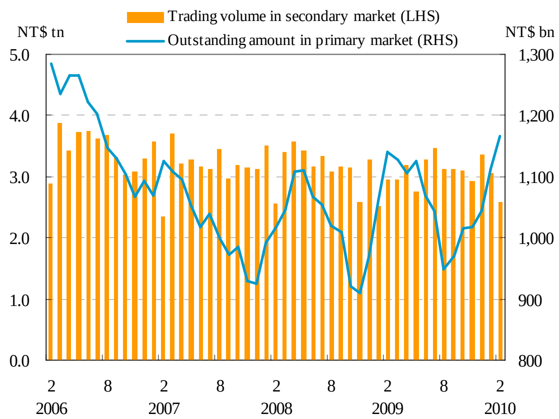
December 2009 (Chart 4.1).

In the primary bills market, the outstanding amount of bills issuance at the end of 2009 rose by 7.55% year on year, primarily because of an increase of NT$108.2 billion, or 101.3%, in the outstanding issuance of treasury bills. However, the outstanding amount of commercial paper issuance at the end of 2009 dropped by NT$39.8 billion, or 5.6%, compared to the end of 2008. The reasons behind this were that corporations decreased their needs of short-term financing and preferred obtaining loans from banks rather than issuing commercial paper due to the lower cost of bank loans.

As for the secondary bills market, its trading volume[40] was affected by a decrease in the issuance of commercial paper[41] and decreased by 3.86% year on year in 2009. In January-February 2010, driven by a rise in the outstanding issuance of commercial paper and treasury bills, the outstanding amount of bills issuance increased. Nevertheless, the trading volume of the secondary market remained at a low level (Chart 4.2).

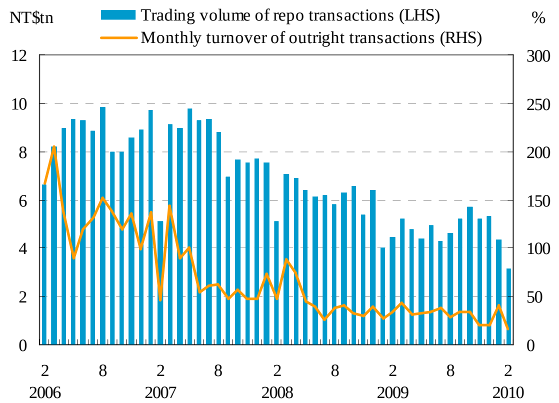
In the bond market, the trading volume for the year of 2009 decreased by 28.01% over 2008. Of the components, outright transactions and repo transactions decreased by 34.05% and 23.25%, respectively. Because of a diminishing investment willingness of bond dealers and less bonds being traded in the market as many financial institutions held large amounts of government bonds[42] and were reluctant to sell them into the market for the sake of effectively managing their idle funds,

Chart 4.2 Primary and secondary bills markets



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

Chart 4.3 Bond transaction and turnover



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

[40] Source: Banking Bureau, Financial Supervisory Commission, Executive Yuan, R.O.C.
[41] Although outstanding issuance of Treasury bills increased by 101.3%, the trading value of Treasury bills was less than 5% of the trading volume in the secondary market for bills. The effect of its change on the total trading volume is trivial.
[42] The average ratio of holdings of central government bonds by banks in 2009 was 44.14%, an increase of 3.61 percentage points compared to the previous year.

outright transactions dropped significantly and their monthly turnover ratio fell to a trough of 20.51% in November 2009, a seven-year low. The trading volume of repo transactions in 2009 also slid owing to banks' lack of willingness to trade bonds due to ample funds and lower bond holdings of bills finance companies and securities firms. In January-February 2010, both the repo trading volume and outright turnover ratio in the bond market remained at a low level (Chart 4.3).

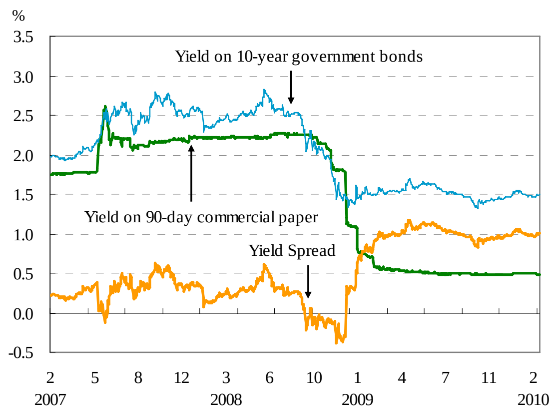
Yield spreads fluctuated between 90 and 117 basis points

In 2008 Q4, affected by the worsening financial crisis and slump in stock markets, investors sought a safe haven in bond markets, resulting in declining government bond yields. However, short-term rates remained at a high level during the same period. The outcome was the reversal of yield spreads between 10-year government bonds and 90-day commercial paper as the short-term rate became higher than long-term rate (Chart 4.4).

Entering into 2009, the CBC initiated interest rate cuts and expanded the scope of repo facility operations, resulting in a significant drop in short-term interest rates. However, bond yields continued fluctuating in a low range between 1.4% and 1.6%. As a result, yield spreads between short-term and long-term rates reversed to positive and stayed above 90 basis points, and hit a peak of 117 basis points in May 2009. In January-February 2010, due to the sluggish stock market, strong demand from insurance companies for long-term bonds and dealers' operations aimed at building up their bond positions, bond yields trended down and yield spreads between government bonds and commercial paper narrowed slightly (Chart 4.4).

Declining bond yields and a widening yield spread may generate capital gains for financial institutions holding long bond positions. However, if the trend of low interest rates is reversed, new bond holdings which financial institutions invested in during the period of low interest rates will face higher interest rate risk.

Chart 4.4 Yield spread



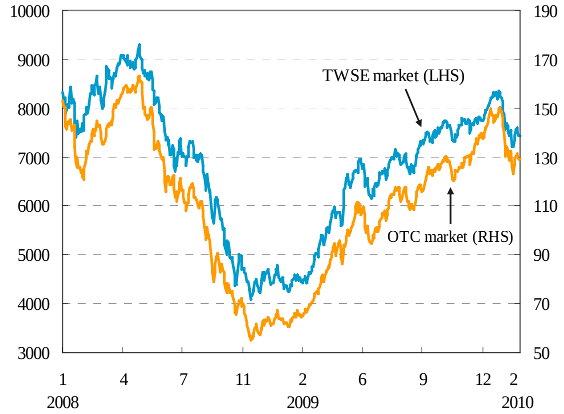
Note: Yield spread refers to yield on 10-year government bonds minus yield on 90-day commercial paper.
Source: Bloomberg.

4.1.2 Equity markets

Stock indices dropped after marked increases, while volatility rebounded slightly after sharp falls

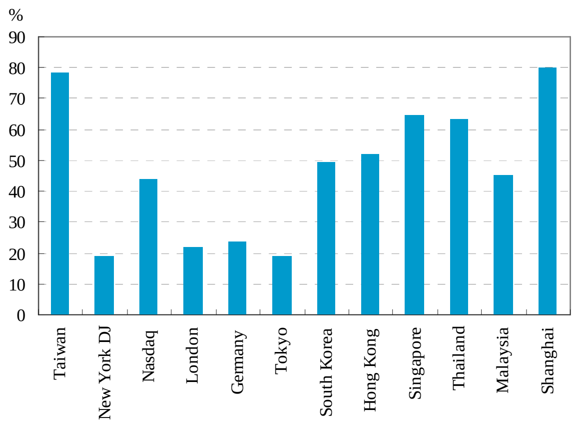
Amid the strengthening global financial and economic recoveries, the world's major stock markets began to trend up. Moreover, affected by the preliminary effects of easing restrictions on cross-strait securities investment and the signing of three Cross-strait Financial Supervisory Cooperation Memorandums of Understanding (MOUs), together with massive net buying from foreign investors,[43] the Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan stock Exchange (TWSE) market climbed from its lowest point of 4,242 on 20 January 2009 to its highest point of 8,188 at the end of the same year, a rise of 93%. In January-February 2010, however, owing to the lower-than-expected economic growth in the US and the outbreak of the European sovereign debt crisis, the TAIEX index dropped to 7,436 at the end of February, a decrease of 9.18% compared to the high of last December. Meanwhile, Taiwan's GreTai Securities Market Index (GTSM Index) of the OTC market closely tracked the movements of the TAIEX, climbing to a peak of 150 at the end of 2009, an increase of 148.06%, after hitting a new low of 60 in January of the same year, and then falling to 129 at the end of February 2010, a decrease of 14% from the end of last December (Chart 4.5). Compared with major stock markets around the world, the Taiwan stock market increased by 78.34% in 2009,

Chart 4.5 Taiwan stock market indices



Sources: TWSE and GTSM.

Chart 4.6 Comparison of major stock market performances



Notes: 1. Figures are for 2009.
2. Taiwan's data is for the TWSE market.
Source: TWSE.

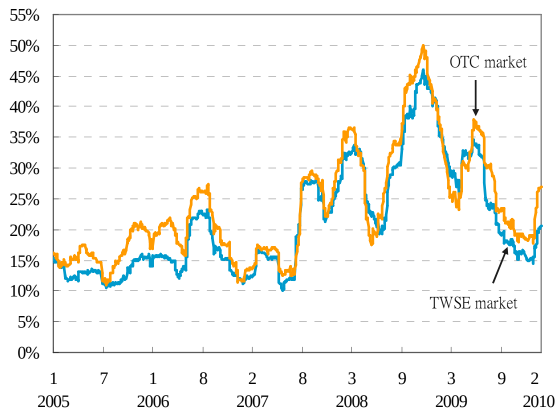
[43] In 2009, foreign investors (foreign institutional investors, overseas Chinese, and foreign individual investors) were net buyers of NT$480.1 billion worth of securities in Taiwan, while net accumulated inward remittances of foreign investors increased by US$26.2 billion.

second only to the market in Shanghai (Chart 4.6).

Broken down by sectors, most indices were in bullish territory in 2009 and half of them outperformed the TAIEX. The indices for the electronic products distribution sector and other electronics-related sector performed the best due to an increase in purchase orders, increasing by 161.02% and 149.51%, respectively, whereas the indices for the cement sector as well as the petroleum and gas sector experienced limited growth, increasing by more modest figures of 27.23% and 26.03%, respectively. In January-February 2010, most indices entered bearish territory following falls on international stock markets, while the indices for the plastic products sector and glass and ceramic sector performed well, with increases of 4.41% and 5.29%, respectively, at the end of February 2010 compared to the end of 2009. These two sectors resisted the downward trend due to soaring oil prices and the China government-funded project to expand construction materials demand in the country's vast rural areas.

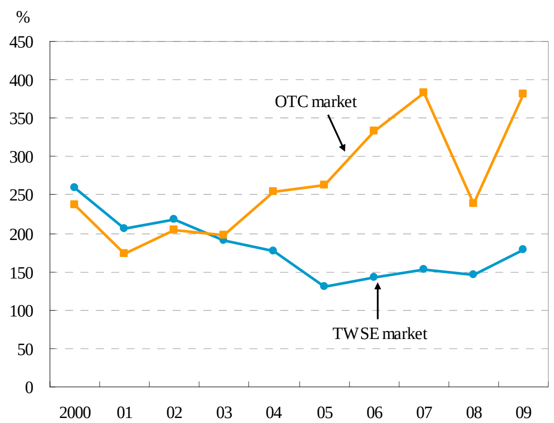
The volatility in the TWSE and OTC markets trended down and reached 14.86% and 18.24%, respectively, at the end of 2009, after hitting a new high in June 2009. This reflected the mitigation of risks in equity investments. However, as global stock markets got the jitters and slumped from the beginning of 2010, the volatility in the TWSE and OTC markets increased and stood at 20.50% and 26.95%, respectively, at the end of February 2010 (Chart 4.7), illustrating how risks in equity investments have increased somewhat.

Chart 4.7 Stock price volatility



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

Chart 4.8 Annual turnover ratio in Taiwan's stock markets

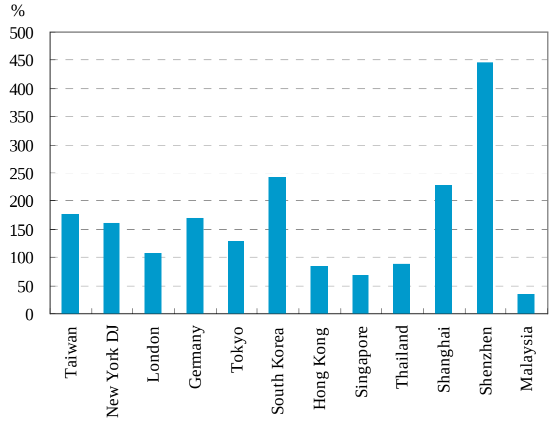


Sources: TWSE and GTSM.

Trading value and turnover ratio increased dramatically to hit 5-year high

The TWSE and OTC markets were active and saw significant increases in total trading values in 2009. The average monthly trading value on the TWSE market in 2009 was NT$2.47 trillion, an increase of 13.65% year on year, while its turnover ratio in terms of trading value in the same year increased and stood at 178.28%, touching a 5-year high (Chart 4.8). However, affected by foreign investors' net selling and Chinese lunar new year holidays, the turnover ratio and monthly trading value in the TWSE market in February 2010 moved in a downward direction. Furthermore, the trading value in the OTC market saw a significant increase in 2009. The trading value in the OTC market was NT$436.6 billion in 2009 and increased markedly by 59.46% year on year, resulting in a significant rise in the turnover ratio to 380.61%, which was much higher than the 238.71% posted last year (Chart 4.8).

Chart 4.9 Comparison of turnover ratios in major stock markets



Notes: 1. Figures refer to accumulated turnover ratios in 2009.
2. Taiwan's data is for the TWSE market.
Source: TWSE.

Compared to major stock markets around the world, the annual turnover ratio in the TWSE market in 2009 was lower than the neighboring stock markets in South Korea, Shanghai and Shenzhen, while approximately equal to those in New York's Dow Jones and Germany, but higher than those in London, Tokyo, Hong Kong, Singapore, Thailand and Malaysia (Chart 4.9).

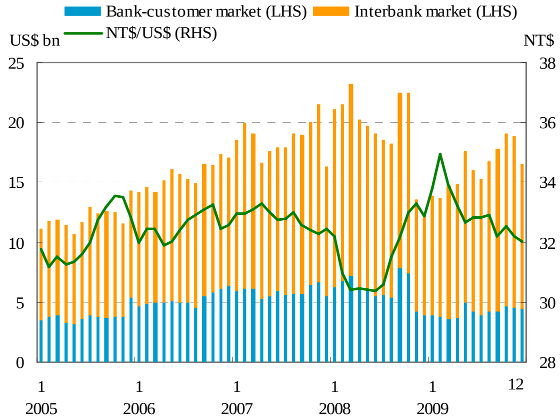
4.1.3 Foreign exchange market

The NT dollar exchange rate reversed to appreciation and trading volume increased slightly starting from 2009 Q2

Based on shrinking exports and increasing hedging needs for US dollars, the NT dollar exchange rate experienced depreciation in early 2009, once reaching 35 against the US dollar in early March. Afterwards, it turned to enter a period of appreciation mainly due to the weakening of the US dollar caused by capital inflows to emerging markets and high yield assets, as well as the inflow of residents' overseas funds caused by new policies of the government. The NT dollar exchange rate stood at 32.03 against the US dollar at the end of 2009, appreciating slightly by 2.59% compared to 32.86 at the end of 2008 (Chart 4.10). From early 2010, due to capital inflows by foreign investors, together with positive export growth, the NT dollar exchange rate kept appreciating, reaching a high of 31.755 against the US dollar in January. Later, owing to capital outflows by foreign investors and the increasing hedging needs for US dollars arising from the debt crisis of some countries in the euro area, it reversed to enter a period of depreciation and fell to 32.085 against the US dollar at the end of February. As for other key international currencies, the value of the yen went up as a result of the increasing hedging needs for international funds. However, Japan's decreasing trade surplus put more pressure for depreciation on the yen, causing the NT dollar to appreciate against the yen by 4.33% year on year at the end of 2009. Conversely, the NT dollar depreciated by 6.92% and 0.46% against the British pound and the euro, respectively, over the same period (Chart 4.11).

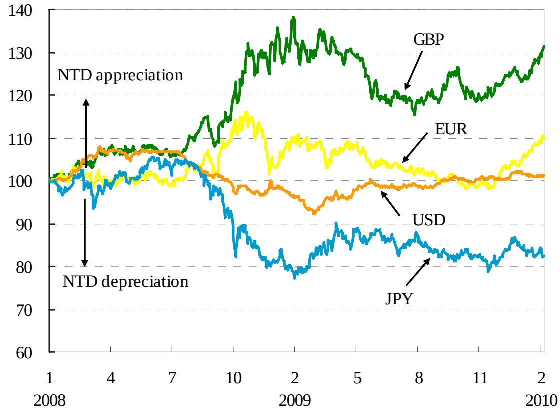
As a result of shrinking financial transactions caused by the global financial crisis and decreasing exports and imports caused by the global recession, the average foreign exchange daily trading volume fell to a new low of US$14.1 billion in 2009 Q1, after hitting a low point of US$16.1 billion in 2008 Q4, but saw a slight increase in 2009 Q2. Consequently, the average foreign exchange daily trading volume decreased by 16.24% year on year and registered US$16.2 billion in 2009 (Chart 4.10). A breakdown by counterparties shows that the average daily trading volume in the interbank market accounted for 74.12% of the total in 2009, while the bank-customer market made up a 25.88% share. As for types of transactions, spot trading accounted for 44.87% of the total, followed by foreign exchange swaps with 39.47%.

Chart 4.10 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 4.11 Movements of NT dollar exchange rates against key international currencies

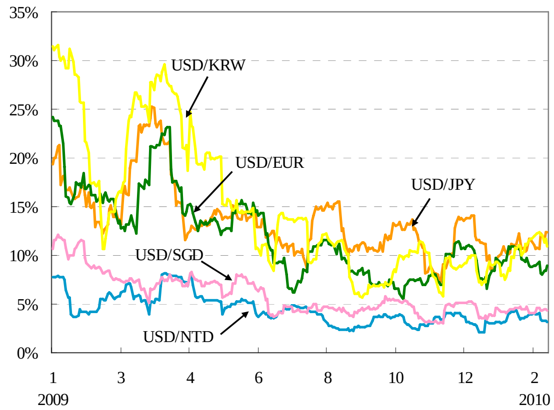


Note: 2 January 2008 = 100.
Source: CBC.

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

While the fluctuation of the NT dollar exchange rate increased slightly in the first half of 2009 before declining, the annual average volatility stood at 4.56% for the year as a whole. In January-February 2010, the volatility in the NT dollar exchange rate against the US dollar decreased further to 3.58%. 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 4.12).

Chart 4.12 Exchange rate volatility of various currencies against US dollar



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

4.2 Financial institutions

This section analyses the relatively important financial institutions, including domestic banks, life insurance companies and bills finance companies.

4.2.1 Domestic banks

In the second half of 2009, the growth in loans extended by domestic banks returned to positive territory. Credit risk in corporate loans slightly decreased, but credit risk concentration was still high. Although the NPL ratio continuously decreased, special mention loans,[44] not reported as NPLs, rose and resulted in slight increases in both classified asset amounts and ratios, showing a slight decline in asset quality. The estimated Value at Risk (VaR) for market risk exposures decreased with limited influence on capital adequacy. Liquidity risk remained low as the banking system benefited from ample liquidity. The profitability of domestic banks rose substantially in 2009 compared to the previous year, and the average capital adequacy ratio continued to increase, strengthening the capability of domestic banks to bear risks.

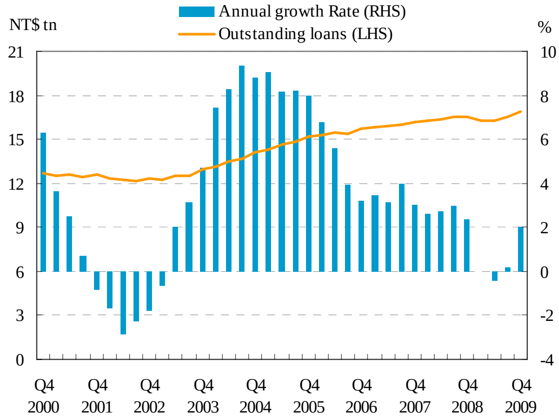
[44] Special mention loans refer to:
(1) Loans for which borrowers' financial situations and debt repayment capacities are experiencing difficulties, and, upon agreement, are approved to delay principal repayments while interest has to be repaid on time.
(2) Loans for which borrowers applied for debt restructuring and repaid principal and interest as agreed, according to related rules; and
(3) Loans for which principal and interest are overdue by one to three months, or not yet due but already some poor credit exists.

Credit risk

Customer loan growth turned positive

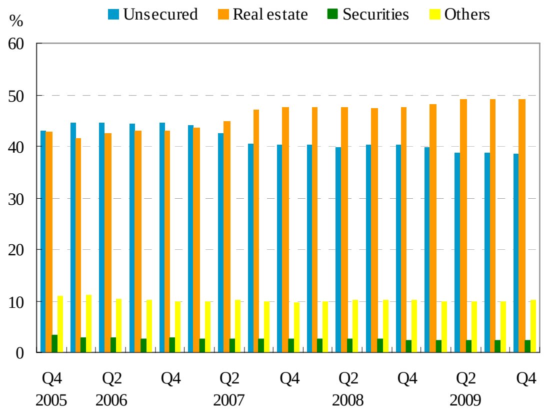
Customer loans[45] were the major type of credit exposure for domestic banks. The outstanding loans of the local business units of domestic banks at the end of 2009 stood at NT$16.9 trillion and accounted for 53.92% of total assets. The annual growth rate in loans slowed markedly in 2009 and even turned from positive to -0.45% in June. In 2009 Q3, due to the warming up of the economy and increasing customer funding demand, the annual growth rate turned from negative to positive and reached 2.00% at the end of 2009 (Chart 4.13). To analyze the borrowers specifically, the annual growth rate of individual loans was negative from January 2008; however, it turned positive from July 2009 and kept expanding by larger amounts, finally reaching 4.08% at the end of 2009. The annual growth rate of corporate loans turned negative from April 2009, following substantial contractions, while the decreases slowed and the annual growth rate registered -2.51% at the end of 2009.

Chart 4.13 Outstanding loans and annual loan growth rate in domestic banks



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

Chart 4.14 Credit by type of collateral in domestic banks



Note: End-of-period figures.
Source: CBC.

Credit exposure significantly concentrated in the real estate market

The concentration of credit exposure in the real estate loans trended upward from the beginning of 2009. Outstanding real estate-related loans[46] of domestic banks reached NT$7.11 trillion and accounted for 42.07% of total loans as of the end of 2009. In addition, real estate secured credit granted by

[45] The term "customer loans" herein refers to amounts lent by local business units of domestic banks to their customers. It excludes interbank lending.

[46] The term "real estate-related loans" includes loans for construction, house purchases, and house refurbishments.

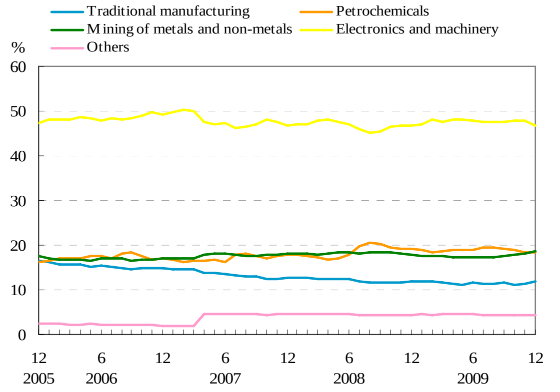
domestic banks amounted to NT$9.62 trillion, or 49.08% of total credit, at the end of 2009, which was 1.58 percentage points higher than the figure of the previous year (Chart 4.14). Among individual banks, fifteen had ratios of real-estate secured credit to total credit of over 60% as of the end of 2009, two banks more compared with the end of 2008.

The real estate market warmed up recently, while the NPL ratio of real estate-related loans remained relatively low. However, the debt servicing capability of residential mortgage borrowers may be undermined in the face of high unemployment rates and the potential rebound of interest rates. Moreover, with consideration of the upsurge of property prices in some specific areas (particularly Taipei City and Taipei County), the government adopted several measures such as stopping the auction sales of national land and urging banks to manage the risks associated with housing loans. Banks with credit exposures highly concentrated in real estate-related loans should review their credit policies to cope with the potentially increasing risks.

Credit risk of corporate loans slightly declined

Outstanding corporate loans of the local business units of domestic banks stood at NT$7.31 trillion at the end of 2009, decreasing by NT$0.19 trillion over the previous year, while loans to the manufacturing sector stood at NT$3.37 trillion and accounted for the largest share of 46.05% of the total, decreasing by 0.96 percentage points. This reflected the slight decline of industrial credit concentration. Within the manufacturing category,[47] the larger proportion of loans were for electronics, electric machinery and machinery-related industries, which stood at NT$1.57 trillion and accounted for 46.71% of the total[48] (Chart 4.15).

Chart 4.15 Weight of loans to the manufacturing sectors by domestic banks



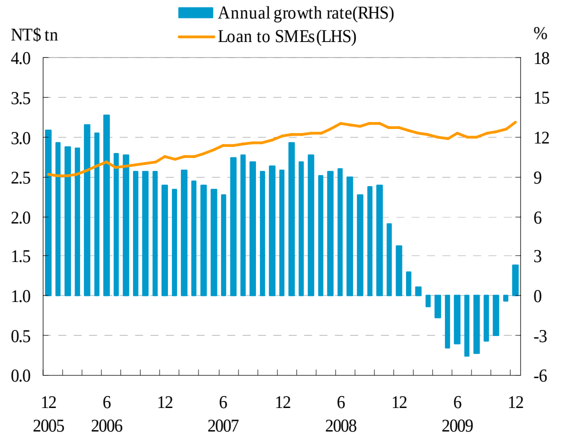
Notes: 1. End-of-period figures.
2. Weight of each sector = loans to each sector / loans to the whole manufacturing sector.
Source: CBC.

[47] Loans to the manufacturing sector are divided into four categories by industry, including (1) electronics, electric machinery and machinery-related industries, (2) mining of metals and non-metals related-industries, (3) petrochemicals related-industries and (4) traditional manufacturing industries. The remainders are classified as “others.”

[48] The production value of electronics, electric machinery and machinery-related industries accounted for 42.46% of total manufacturing production value at the end of 2009, which is less than loans to electronics, electric machinery and machinery makers as a percentage of total loans to the manufacturing sector.

When the global financial crisis deepened in 2008 Q4, SMEs, which play an important role in Taiwan's economy, immediately faced difficulties to obtain funds from banks. Outstanding corporate loans to SMEs of domestic banks continuously decreased, and from March 2009, the year-on-year growth rate turned from positive to negative. After the government adopted a series of measures to assist SMEs to obtain necessary operating funds, the growth rate of loans to SMEs eventually returned to positive territory and the outstanding amount was NT$3.19 trillion at the end of 2009, which accounted for 43.66% of total corporate loans, with an annual growth rate of 2.34% (Chart 4.16 and Box 2). In addition, in line with the government's Economic Vitalization Package, the Small and Medium Enterprise Credit Guarantee Fund of Taiwan (SMEG) also implemented several plans to loosen the qualification requirements for credit guarantees, allowing the outstanding loans guaranteed by the SMEG to rise from a low of NT$456.7 billion in March 2009 to NT$505.8 billion at the end of 2009. This represented a 5.71% year-on-year increase and accounted for 15.85% of total SME loans. During the same period, the guarantee amount and guarantee coverage percentage also grew to NT$372.8 billion and 73.72%, respectively.

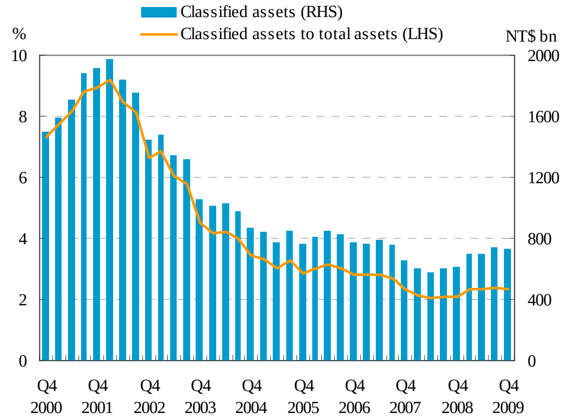
Chart 4.16 Loans to SMEs by domestic banks



Note: End-of-period figures.
Source: FSC.

Due to economic recovery at home and abroad, profitability rebounded, financial structures strengthened and short-term debt repayment capacities improved in the corporate sector. The credit risk of domestic banks related to corporate loans is expected to drop.

Chart 4.17 Classified assets of domestic banks



Notes: 1. End-of-period figures.
2. Excludes interbank loans.
Source: CBC.

Asset quality declined slightly

In 2009, the outstanding classified assets[49] of

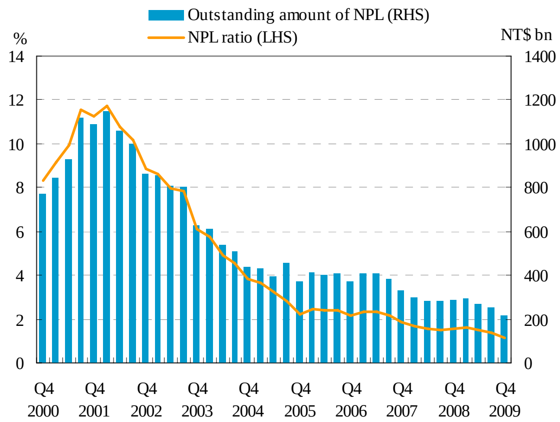
[49] The Regulations Governing the Procedures for Banking Institutions to Evaluate Assets and Deal with Non-performing/Non-accrual Loans break down all assets into five different categories, including: category one – normal credit assets; category two – credit assets requiring special mention; category three – substandard credit assets; category four – doubtful credit assets; and category five – loss assets. The term "classified assets" herein includes all assets classified as category two to five.

domestic banks increased year on year by a significant 19.50% and stood at NT$731.7 billion at the end of December. At the same time, the average classified asset ratio was 2.34%, increasing by 0.26 percentage points over the previous year (Chart 4.17). The asset quality of domestic banks showed little sign of deterioaration. Nevertheless, most of the increase of classified assets belonged to the special mention category, which has a relatively low loan loss reserve ratio.[50] Moreover, there was a reduction in the "loss" category, which has a relatively high loan loss reserve ratio. As a result, the expected losses[51] at the end of 2009 declined by 8.43% year on year to NT$97.1 billion and the ratio of expected losses to loan loss provisions stood at 39.95%. The provisions set aside by domestic banks were still sufficient to cover expected losses.

As a result of write-offs and sales of NPLs amounting to NT$126 billion for the year as a whole, the outstanding NPLs of domestic banks stood at NT$215.8 billion at the end of 2009, contracting dramatically by 24.52% year on year. Meanwhile, the average NPL ratio remained at a low level of 1.15% (Chart 4.18). Among individual banks, all had NPL ratios of less than 5%, except for one[52] with a ratio as high as 15.50%, while thirty-two banks had ratios of less than 2% (Chart 4.19). Compared to the US and neighboring Asian countries, the average NPL ratio of domestic banks in Taiwan was relatively low (Chart 4.20).

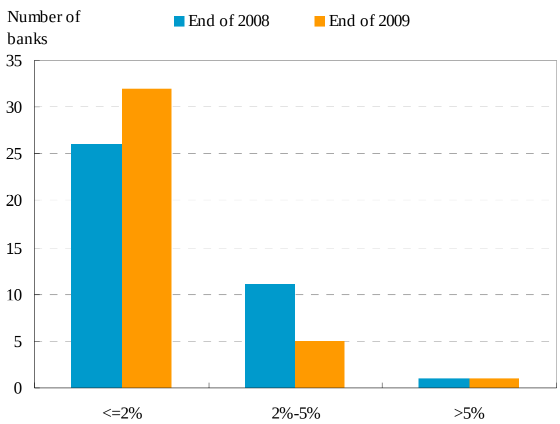
Together with the decrease in NPLs and the increase in loan loss provisions, the NPL coverage ratio at the end of 2009 rose dramatically to 90.35%, while the loan loss reserve ratio slightly reduced to 1.04% (Chart

Chart 4.18 Average NPL ratio of domestic banks



Notes: 1. End-of-period figures.
2. Excludes interbank loans.
Source: CBC.

Chart 4.19 Distribution of NPL ratios of domestic banks



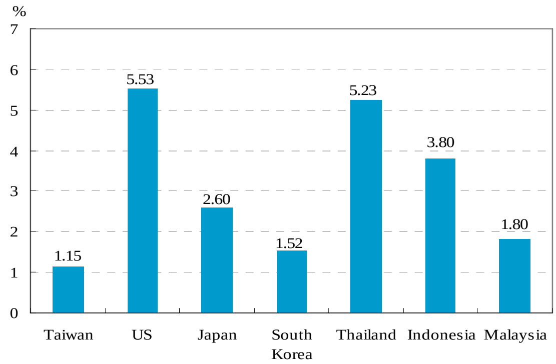
Note: Excludes interbank loans.
Source: CBC.

[50] The "loan loss reserve ratio" imposed on loans of category one to five are 0%, 2%, 10%, 50% and 100%, respectively.
[51] Loss herein refers to the losses from loans, acceptances, guarantees, credit card revolving balances, and factoring without recourse.
[52] This bank was taken into conservatorship by the Central Deposit Insurance Corporation (CDIC) in September 2008.

4.21).

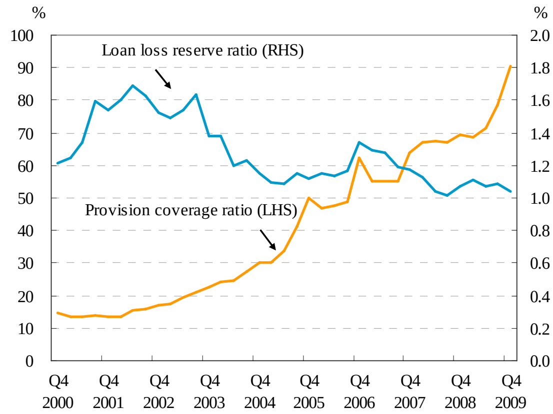
Although the outstanding NPLs and the NPL ratio both declined in 2009, special mention loans not reported as NPLs increased significantly with an outstanding amount of NT$412.9 billion at the end of 2009. If special mention loans are combined with NPLs, they amount to NT$628.7 billion and account for 3.36% of total loans, higher than the figure of 2.83% in the previous year, suggesting that the loan quality of domestic banks declined slightly.

Chart 4.20 NPL ratios of banks in selected countries



Note: Figure for Japan is end-September 2009 data. The others are end-December 2009.
Sources: CBC, FDIC, FSA, FSS, BOT, BI, and BNM.

Chart 4.21 NPL coverage ratio and loan loss reserve ratio of domestic banks



Notes: 1. NPL coverage ratio = loan loss provisions / non-performing loans. Loan loss reserve ratio = loan loss provisions / total loans.
2. Excludes interbank loans.
Source: CBC.

Market risk

Estimated Value-at-Risk dropped

Using market data as of the end of February 2010, the estimated total VaR[53] calculated by the CBC's market risk model for foreign exchange, interest rate and equity exposures of domestic banks at the end of 2009 stood at NT$96.9 billion. The figure contracted significantly by 34.92% year on year (Table 4.1), mainly resulting from the decrease in the volatility of all types of risk.

The effects of market risk on capital adequacy ratios were limited

According to the estimated results mentioned above, market risk would cause a decrease of 0.48 percentage points in the average capital adequacy ratio and induce the current ratio of

[53] The CBC modified the market risk model in September 2009. The new model describes dependencies among foreign exchange, interest rate and equity positions returns series, and provides a correlation structure between returns series. By means of a semi-parametric method, the new model constructs the sample distribution function of each asset return series using a Gaussian Kernel estimate for the interior and a generalized Pareto distribution (GPD) estimate for the upper and lower tails. The confidence level of the model is 99%, a holding period of ten trading days is used and exposure positions are assumed unchanged. The models are estimated using 1000 foreign exchange rate, interest rate, and equity price samples.

11.79%[54] to fall to 11.31%. Nevertheless, the effects may be considered as somewhat limited.

Table 4.1 Market risk in domestic banks

Unit: NT$ bn

Types of risk	Items	End-Dec. 2008	End-Dec. 2009	Changes	
				Amount	%
Foreign exchange	Net position	43.6	47.6	4.0	9.17
	VaR	2.6	1.4	-1.2	-46.15
	VaR / net postiton	5.96	2.94		-3.02
Interest rate	Net position	3,191.6	3,755.5	563.9	17.67
	VaR	133.0	50.1	-82.9	-62.34
	VaR / net position	4.17	1.33		-2.84
Equity	Net position	451.9	502.9	51.0	11.29
	VaR	73.8	50.9	-22.9	-31.03
	VaR / net position	16.33	10.12		-6.21
Total VaR		148.9	96.9	-52.0	-34.92

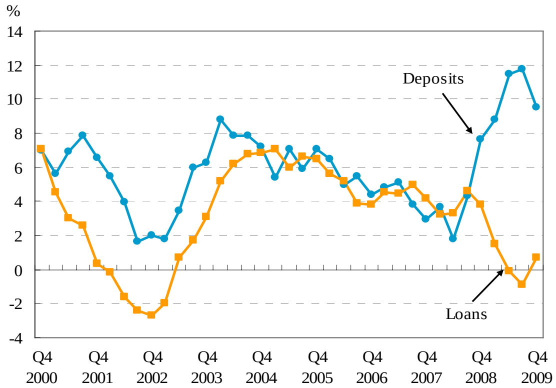
Note: The total VaR was estimated by a revised model in 2009, and the model takes the correlation among three risk categories into consideration; therefore, the sum of individual VaRs of the three types of risks is not equal to the total VaR.
Source: CBC.

Liquidity risk

Banking system liquidity remained ample

Owing to a large amount of overseas funds continuously flowing back to Taiwan, deposits in domestic banks increased materially in 2009, and the growth rate of deposits even reached 11.76% year on year in September, before slightly declining to 9.54% in December. As for loans, the annual growth rate dropped markedly and turned negative in the first three quarters of 2009 due to the weak demand for corporate

Chart 4.22 Annual growth rate of deposits and loans of domestic banks



Source: CBC.

[54] The term "capital adequacy ratio" used herein is based on regulatory capital which has deducted unamortized deferred losses on the sale of NPLs.

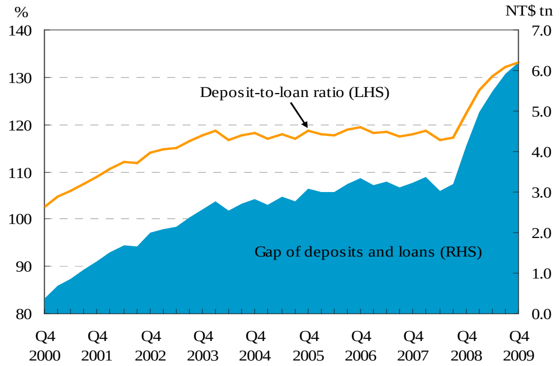
finance and banks' more conservative credit policies. However, the growth of loans turned to positive 0.67% in 2009 Q4 as a result of the warming up of economic activity and increasing financing demand (Chart 4.22). Owing to the substantial increase in deposits and sluggish growth of loans, the average deposit-to-loan ratio of domestic banks climbed dramatically and reached 133.13% at the end of 2009. The funding surplus (i.e. deposits exceeding loans) registered NT$6.20 trillion, reflecting abundant liquidity in domestic banks (Chart 4.23).

As for the sources of funds, relatively stable customer deposits accounted for the largest share of 77% of the total, increasing slightly compared to the previous year, followed by interbank deposits and borrowings at 9%, while debt securities issues contributed a mere 3% at the end of 2009. Regarding the uses of funds, customer loans accounted for the biggest share of 59% with a year on year decline of 3 percentage points, while cash and due from banks increased from 12% at the end of the previous year to 15% of the total in 2009 (Chart 4.24).

Overall liquidity risk was moderate

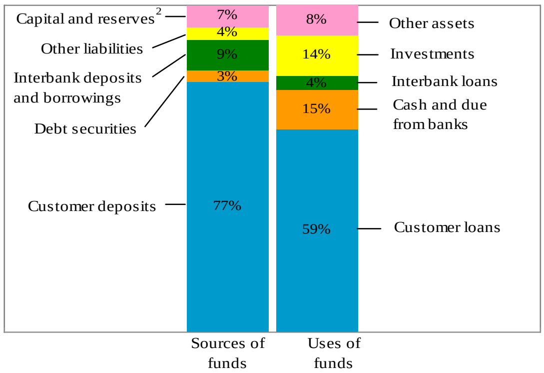
The average NT dollar liquid reserve ratio of domestic banks continuously went up to 29.78% in December 2009, well above the statutory minimum of 7% (Chart 4.25), and the ratio of each domestic bank was higher than 12%. In the same period, Tier 1 liquid reserves, mainly consisting of certificates of

Chart 4.23 Deposit-to-loan ratio in domestic banks



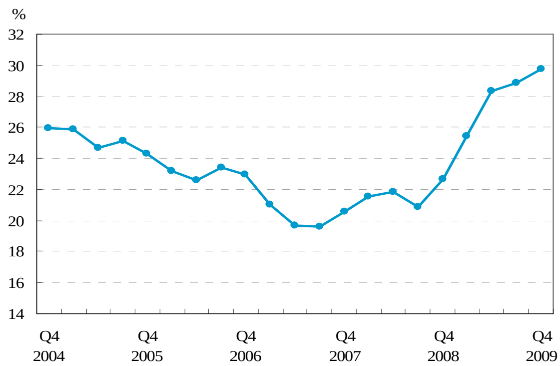
Notes: 1. Deposit-to-loan ratio = total deposits / total loans.
2. Gap of deposits and loans = total deposits - total loans.
Source: CBC.

Chart 4.24 Sources and uses of funds in domestic banks



Notes: 1. Figures are end-December 2009.
2. Interbank deposits include deposits at CBC.
Source: CBC.

Chart 4.25 Liquid reserve ratio of domestic banks



Note: Figures are the average daily data in the last month of quarters.
Source: CBC.

deposit issued by the CBC, accounted for 95.88% of total liquid reserves,[55] while Tier 2 and Tier 3 reserves accounted for 3.77% and 0.35%, respectively. This reveals that the quality of liquid assets held by domestic banks remained satisfactory and overall liquidity risk was moderate.

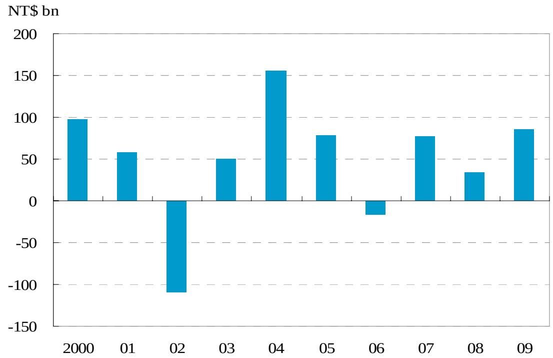
Profitability

Profitability rebounded significantly in 2009

Owing to the high earnings of investment positions and the significant reduction in bad debt expenses, domestic banks reported a net income before tax of NT$85.1 billion in 2009, much higher than the figure of NT$34.4 billion in 2008 (Chart 4.26). The average return on equity (ROE) and return on assets (ROA) elevated to 4.52% and 0.28%, respectively (Chart 4.27). If the bank[56] which was taken into conservatorship by the Central Deposit Insurance Corporation (CDIC) is subtracted from the other domestic banks, the net income before tax and ROE will both increase slightly to NT$86.5 billion and 4.55%, respectively, with nearly no influence on the ROA. Compared to the US and Asia-Pacific neighboring countries, the profitability of domestic banks was relatively low, barely higher than that of the US, where the global financial turmoil originated from, and almost the same as that of South Korea (Chart 4.28).

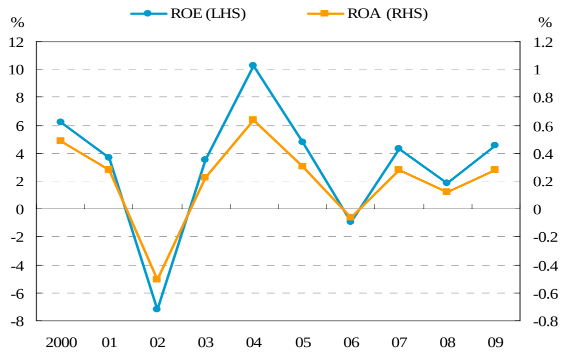
Among the total thirty-eight domestic banks, thirteen banks suffered declining profitability

Chart 4.26 Net income before tax in domestic banks



Source: CBC.

Chart 4.27 ROE & ROA of domestic banks



Note: ROE (return on equity) = net income before tax / average equity. ROA (return on assets) = net income before tax / average total assets.
Source: CBC.

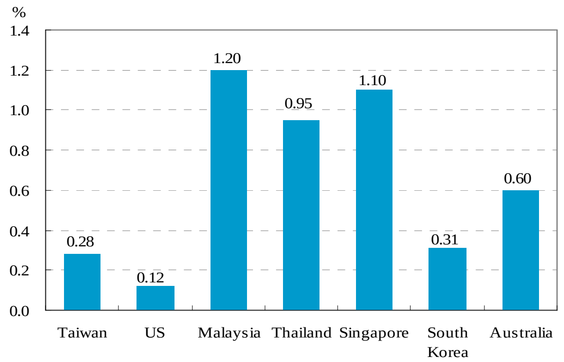
[55] Tier 1 liquid reserves include excess reserves, net due from banks in the call-loan market, re-deposits at designated banks with terms to maturity of no more than one year, certificates of deposit issued by the CBC, government bonds and treasury bills. Tier 2 liquid reserves include NT dollar-denominated bonds issued in Taiwan by international financial organizations, negotiable certificates of deposit, bank debentures, banker's acceptances, trade acceptances, commercial paper and corporate bonds. Tier 3 liquid reserves include beneficial securities issued in accordance with the asset securitization plan and other liquid assets as approved by the CBC.

[56] Same as foot note 52, this bank's net loss was NT$1.35 billion in 2009.

in 2009 compared to the previous year, mostly attributable to the contraction of net interest income, while several were also affected by the large amount of loss provisions set aside to resolve disputes over the sale of structured notes. Moreover, four of the thirty-eight banks posted negative ROEs,[57] decreasing markedly from seventeen in 2008. The number of banks achieving a profitable ROE of 10% or more was merely two (Chart 4.29).

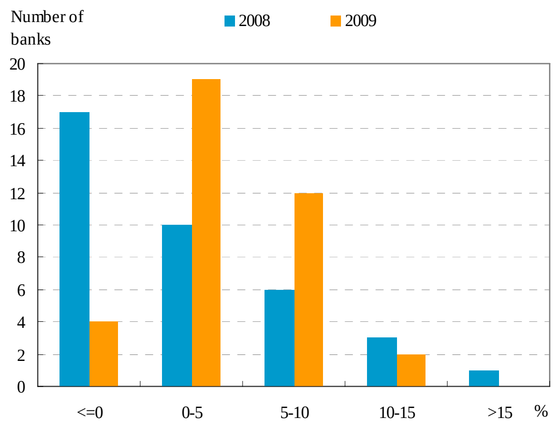
As for operating revenues and costs, total operating revenues of domestic banks stood at NT$454.4 billion in 2009, a slight decline of NT$0.4 billion, or 0.09% year on year. Of which, net interest income, accounting for 60% of the total revenues, declined substantially by NT$86 billion year on year as a result of narrowed interest rate spreads between deposits and loans. As global capital markets returned to normality and investors gradually regained confidence, non-interest income (primarily including net gains on financial instruments and net fee and commission income) showed a significant expansion and partly neutralized the adverse impact caused by the fall in net interest income. On the cost side, various provisions decreased sharply as a result of declining loan losses. Accompanied with effective control of business and administrative expenses, operating costs fell by NT$49.3 billion, or 11.74% year on year (Chart 4.30).

Chart 4.28 Comparison of ROA of banks in selected countries



Note: Data for Singapore is for end-September 2009, and data for South Korea and Australia are for end-June 2009 , while the others are for end-December 2009.
Sources: CBC, FDIC, BNM, BOT, MAS, FSS and APRA.

Chart 4.29 Distribution of ROE of domestic banks



Source: CBC.

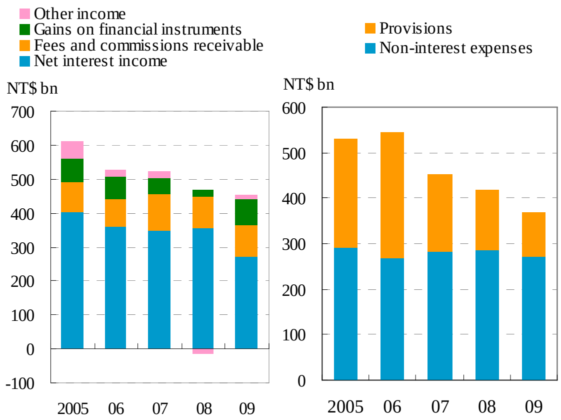
Factors that might undermine future profitability

Along with the recovery of both the global and domestic economies, the real sector's credit risk is expected to decline and benefit domestic banks' future profitability. However, there are several uncertainties worth paying attention to: (1) in the short run, narrowed interest rate spreads between

[57] Excluding one bank with negative net worth in 2008 and 2009.

deposits and loans are unlikely to return to previous higher levels and, therefore, will limit the growth of net interest income; (2) the ascending sovereign risks in several countries facing huge public debt and fiscal deficits triggered turmoil in global financial markets. If the situation deteriorates further, domestic banks' foreign credit and investment positions might suffer losses; (3) the third revision of Taiwan's Statements of Financial Accounting Standards (SFAS) No.34 "Financial Instruments: Recognition and Measurement" will cover loans and accounts receivable and take effect from the beginning of 2011. Accordingly, domestic banks are required to set aside additional loan loss provisions, and this might impact their future profitability[58]; (4) More open cross-strait financial policies will bring domestic banks new business opportunities while also exposing them to more challenges of intense competition and mergers.

Chart 4.30 Composition of incomes and costs of domestic banks



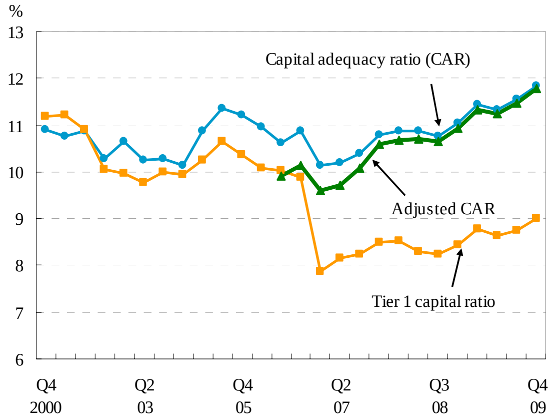
Source: CBC.

Capital adequacy

Capital adequacy ratios continued rising

Benefiting from accumulated earnings and a booming stock market, the unrealized gains on available-for-sale financial assets of domestic banks increased and pushed stockholder's equity higher. As a result, the average capital adequacy ratio rose from 11.04% at the end of 2008 to 11.85% at the end of 2009. The Tier 1 capital ratio of domestic banks also increased from 8.43% to 9.01% (Chart 4.31). If unamortized deferred assets of NT$11.59 billion[59] arising

Chart 4.31 Capital adequacy ratio of domestic banks



Notes: 1. End-of-period figures.
2. The data are on a semiannual basis prior to June 2006 and on a quarterly basis beginning June 2006.
3. Adjusted capital adequacy ratio = (eligible capital - unamortized deferred assets arising from losses recorded on the sale of non-performing assets) / risk -weighted assets.

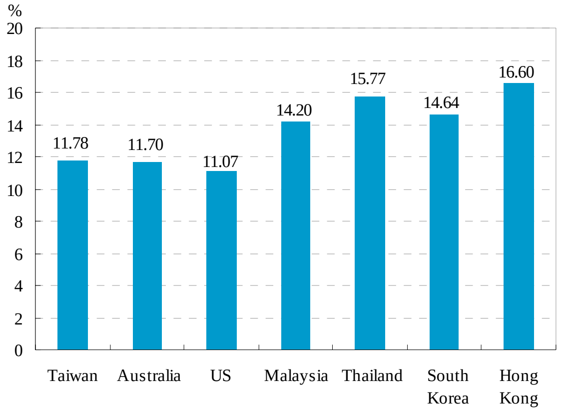
Source: CBC.

[58] The loan loss reserve ratios currently used by domestic banks are set by the government (See footnotes 50 and 51). However, in the future, the loan loss evaluation will implement the "incurred loss model," under which banks have to evaluate the impairment of each asset. This might impact banks' profitability but help to improve the transparency of financial reports.

[59] Article 4 and 14 of the Regulations Governing the Capital Adequacy and Capital Category of Banks as amended on 30 June 2009 requires that unamortized losses recorded on the sale of non-performing assets should be deducted from Tier 1 capital. This requirement does not apply to sales made on or before 4 January 2007. The amount mentioned here occurred before the end of 2006.

from losses recorded on the sale of classified assets were deducted from regulatory capital, the adjusted capital adequacy ratio came to 11.79%, up by 0.87 percentage points from the end of 2008. These figures reflect that the capital adequacy of domestic banks was continuously improving in 2009. Compared to the US and some Asia-Pacific neighboring countries, the average capital adequacy ratio of domestic banks is about the same as those of Australia and the US, but much lower than those of some Asian countries including South Korea (Chart 4.32).

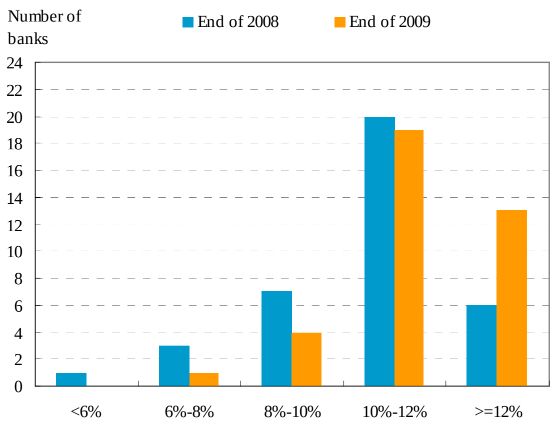
Chart 4.32 Comparison of capital adequacy ratios in selected countries



Notes: 1. Figures for Australia, South Korea and Hong Kong are end-September 2009 data, while the others are end-December 2009 data.
2. The figure for Taiwan is adjusted capital adequacy ratio.
Sources: CBC, APRA, FDIC, BNM, BOT, FSS and HKMA.

Further breaking down the components of regulatory capital, Tier 1 capital, which features the best risk bearing capacity, accounted for 76.06% of eligible capital, while Tier 2 capital registered 23.71% and Tier 3 capital contributed a mere 0.23% at the end of 2009. The ratio of Tier 2 capital moderately increased in 2009, while those of Tier 1 and Tier 3 capital slightly decreased.

Chart 4.33 Number of domestic banks classified by adjusted capital adequacy ratios



Source: CBC.

Only one bank held insufficient capital

None of the domestic banks had capital adequacy ratios under the statutory minimum (8%) at the end of 2009. As for adjusted capital adequacy ratios, there was only one bank, with assets accounting for only 1.11% of the total, that had a ratio below the statutory minimum. However, this had limited impact on the banking system. In addition, there were thirteen banks with ratios above 12%, seven more compared with the end of 2008 (Chart 4.33).

Credit ratings

Average credit rating level slightly slid

Based on Standard & Poor's "Banking Industry Country Risk Assessment (BICRA)" [60] and Fitch Ratings' "Banking System Indicator / Macro-Prudential Indicator (BSI/MPI)", [61] Taiwan's banking system rating remained unchanged in Group 4 and at level C/1, respectively, in February 2010 (Table 4.2). Compared to other Asian economies, the risks in Taiwan's banking industry were higher than those in Hong Kong and Singapore, about the same as those in Japan, South Korea and Thailand, but much lower than those in China, Indonesia and the Philippines.

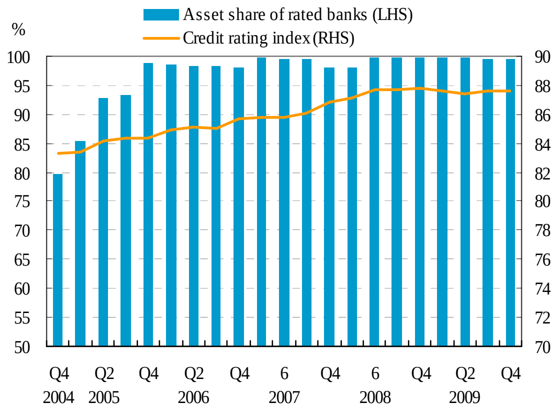
However, according to the rating results of individual banks released by credit rating agencies, there were eight banks downgraded in 2009, resulting in a slight slide in the credit rating index.[62] It reflected that the overall credit rating of domestic banks marginally declined (Chart 4.34).

Table 4.2 Systemic risk indicators for the banking system

Banking System	Standard and Poor's	Fitch
	BICRA	BSI/MPI
Hong Kong	2	B/1
Singapore	2	B/1
Japan	2	C/1
South Korea	4	C/3
Taiwan	**4**	**C/1**
Thailand	6	C/1
China	6	D/1
Indonesia	8	D/1
Philippines	8	D/1

Note: Figures are end-February 2010 data.
Sources: Standard and Poor's and Fitch Ratings.

Chart 4.34 Credit rating index of rated domestic banks



Note: End-of-period figures.
Source: CBC.

[60] The classification scheme used by the Banking Industry Country Risk Assessment (BICRA) is a synthetic assessment developed by Standard & Poor's Corporation that is based on the credit standing of financial institutions in the context of the structure and performance of the economy, legal and regulatory infrastructure supporting the financial system, and the competition and operation environment of the banking sector, while factoring out the potential for government support for banks. Assessment results reflect relative country risk and banking sector credit quality, and are indicated with a score of 1 (strongest) to 10 (weakest).

[61] Fitch Ratings has devised two complementary measures, the Banking System Indicator (BSI) and Macro-Prudential Indicator (MPI), to assess banking system vulnerability. The two indicators are brought together in a Systemic Risk Matrix that emphasizes the complementary nature of both indicators. The BSI, based on the synthetic assessment results composed of individual ratings and systematic risks in the banking system, measures intrinsic banking system quality or strength on a scale from A (very high quality) to E (very low quality). On the other hand, the MPI indicates the vulnerability to stress on above-trend levels of private sector credit, a bubble in real asset prices, and/or major currency appreciation, measuring the vulnerability of the macro environment on a scale from 1 (low) to 3 (high) in terms of banking system vulnerability.

[62] The credit rating index is an asset-weighted average rating score of rated domestic banks, measuring the overall creditworthiness of those banks on a scale from 1 (weakest) to 100 (strongest). The rating score for banks is determined according to their long-term issuer ratings from Taiwan Ratings Corporation or national long-term ratings from Fitch Ratings.

Uncertainties over future credit ratings are alleviating

Most of the thirty-six rated banks maintained credit ratings of twAA/twA (Taiwan Ratings) or AA(twn)/A(twn) (Fitch Ratings) at the end of 2009, and none of them was rated below twBB/BB(twn), or speculative (Chart 4.35). In addition, ten banks received negative rating outlooks or CreditWatch at the end of 2009. However, the number declined to nine in February 2010, showing that uncertainties over future credit ratings were alleviating.

4.2.2 Life insurance companies

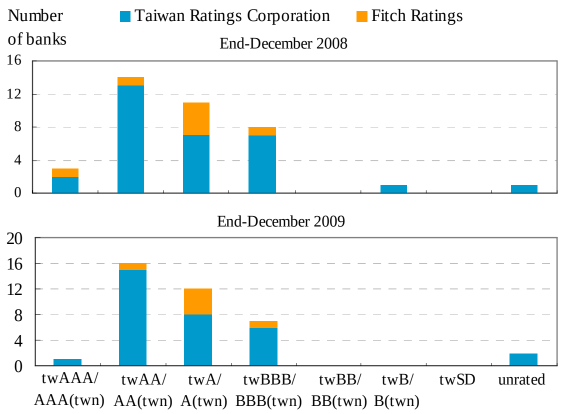
The total assets of life insurance companies increased and their performance improved in 2009. However, the potential losses driven by negative interest rate spreads and the high volatility of investment performance might continue to erode their future profits. The average risk-based capital (RBC) ratio at the end of June 2009 ascended slightly as a result of an increase in net worth but still remained below the statutory minimum of 200%. Nevertheless, it is expected to improve as the profits of life insurance companies grew significantly in the second half of 2009.

As for credit ratings, four companies were downgraded during 2009 and three companies were listed on negative rating outlooks or CreditWatch at the end of February 2010. Although life insurance companies generally performed better in 2009, they still face several challenges in the future.

Assets grew as fast as the years before the financial crisis

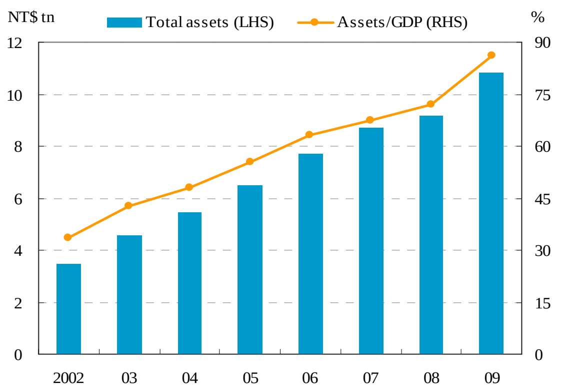
The total assets of life insurance companies increased by 18.03% year on year in 2009,

Chart 4.35 Number of domestic banks classified by credit ratings



Sources: Taiwan Ratings Corporation and Fitch Ratings.

Chart 4.36 Total assets of life insurance companies



Note: Total assets are end-of-period figures.
Source: FSC.

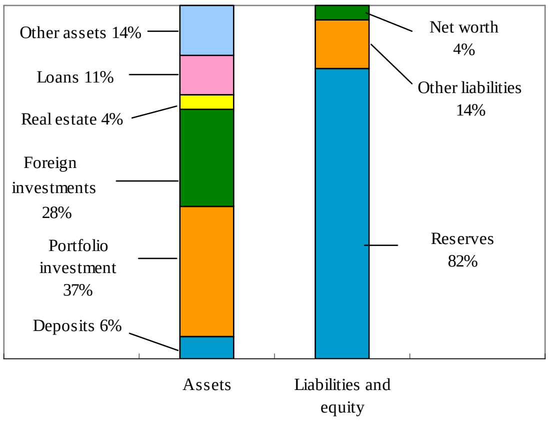
as fast as the years before the financial crisis, and reached NT$10.81 trillion at the end of 2009, equivalent to 86.28% of annual GDP (Chart 4.36). The asset increase was mainly supported by a surge of securities investments due to the recovery of global financial markets. In addition, insurance products held in segregated custody accounts, the major component of other assets, rose 37.00% year on year owing to the increase of investment-linked insurance policies as domestic investors gradually regained confidence resulting from the alleviation of the financial crisis and the settlement of customer disputes regarding structured products.

The structure of the life insurance industry changed little in 2009. As of the end of 2009, twenty-two domestic life insurance companies held a 98.69% market share by assets, while eight foreign life insurance companies[63] commanded a share of only 1.31%. In terms of assets, the top three companies held a combined market share of 54.17%, while in terms of premium income, the top three companies held a combined market share of 52.92%. As a few European life insurance companies sold their subsidiaries in Taiwan to domestic insurance companies, market concentration might elevate further.

Funds invested in securities grew significantly

The funds of life insurance companies at the end of 2009 were mainly invested in domestic and foreign securities, accounting for 65% of funds, while 11% of funds were in loans and 4% in real estate. As for the sources of funds, various policy reserves constituted 82%, while net worth accounted for 4% (Chart 4.37). Regarding the analysis of growth of usable funds of life insurance companies in 2009, domestic and foreign portfolio investment increased by 16.18% and 23.49%, respectively; deposits registered an increase of 33.18%, while real estate investments also increased by 17.09% due to their stable revenue and loosened restrictions on real estate investments of life insurance companies.

Chart 4.37 Asset/liability structure of life insurance companies



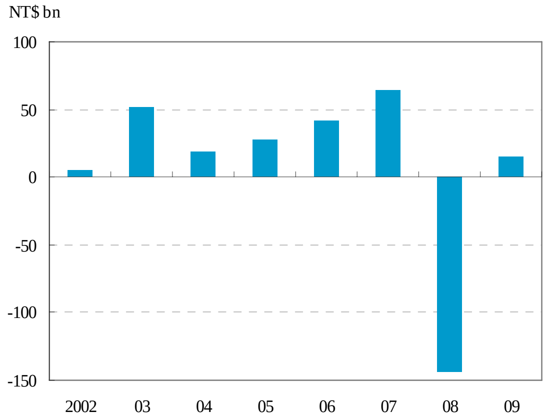
Note: Figures are end-December 2009 data.
Source: FSC.

[63] Including foreign affiliates.

Returning to profit in 2009

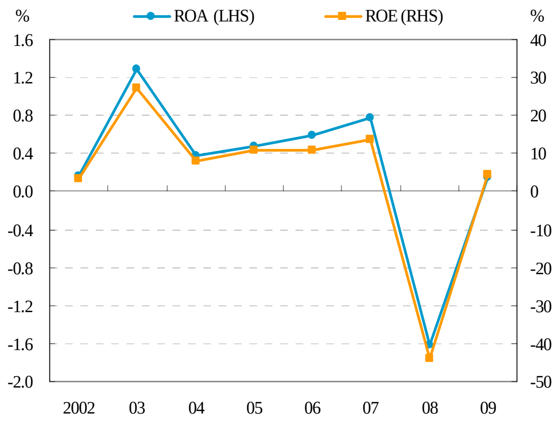
After experiencing enormous losses in 2008, life insurance companies as a whole registered a net profit before tax of NT$14.9 billion in 2009, mainly led by the profit in domestic and foreign portfolio investments, which benefited from the recovery of the global economy, more sanguine financial markets and rapidly rebounding stock markets (Chart 4.38). This was reflected in the marked improvement in the operating performance of life insurance companies. During the same period, average ROE and ROA also rose substantially and stood at 4.53% and 0.15%, respectively, much higher than -44.03% and -1.61% registered in 2008, but still lower than the levels in 2007 before the global financial crisis (Chart 4.39). One company which was taken into receivership by the Financial Supervisory Commission (FSC) [64] is excluded, other life insurance companies as a whole registered a net profit before tax of NT$20.0 billion and average ROE and ROA of 5.13% and 0.21%, respectively, in 2009 .

Chart 4.38 Net income before tax of life insurance companies



Source: FSC.

Chart 4.39 ROE & ROA of life insurance companies



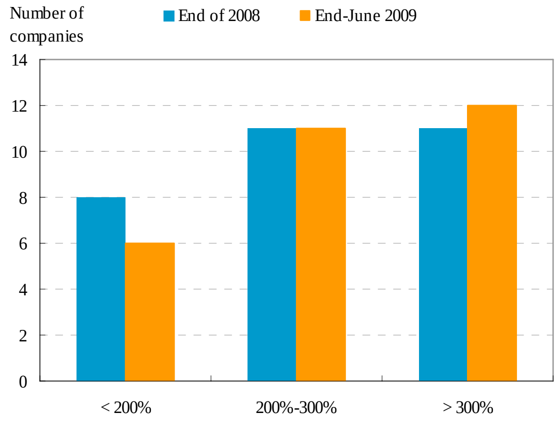
Notes: 1.ROA = net income before tax / average assets.
2.ROE = net income before tax / average equity.
Source: FSC.

As a consequence of the rebound in domestic and foreign financial markets, the average return on investment of life insurance companies rose to 3.55% in 2009, compared to 1.87% in 2008. However, the impact of negative interest rate spreads on profits is still a concern before global interest rates begin to turn up. Furthermore, the high volatility of global financial markets also put pressure on the performance of life insurance companies. In order to provide more stable and long term investment instruments, the FSC relaxed certain regulations related to real estate and securities investments to enhance the

[64] The FSC took Kuo Hua Life Insurance Co. into receivership on 4 August 2009 and entrusted the Insurance Stabilization Fund as the conservator of the company under the authorization of the Insurance Act. Kuo Hua Life Insurance Co. registered an net loss before tax of NT$5.05 billion in 2009.

flexibility and efficiency of funds usage under consideration of their safety, liquidity and profitability.

Chart 4.40 Number of life insurance companies classified by RBC ratios



Source: FSC.

Average RBC ratio rebounded slightly

As a result of the recovery of profit and net worth, the average RBC ratio for life insurance companies increased slightly from 190.37% at the end of 2008 to 198.27% at the end of June 2009, but was still below the statutory minimum of 200%.[65] Since profit in the second half of 2009 improved significantly, the average RBC ratio was expected to increase further. At the end of June 2009, there were twelve companies with ratios of over 300%. However, there still were six companies with ratios below 200% (Chart 4.40), the combined assets of which accounted for 8.57% of the total[66]. Their financial structures needed to be improved. Considering the current economic and financial situation, the FSC announced the amendment of RBC regulations[67] on 5 February 2010, and the amendment was put into practice immediately with the intention of enhancing the stability of capital adequacy and the solvency of life insurance companies.

Credit ratings for the top three companies remained above twA+ or A+ (twn)

Of the ten domestic life insurance companies rated by credit rating agencies, four companies were downgraded in 2009. This somewhat reflects the weak capital level for those companies and concerns about the potential impact of mergers & acquisitions on their financial health. There still were three companies listed on negative rating outlooks or CreditWatch at the end of February 2010. Nevertheless, the top three companies in terms of assets and premium market share were rated above twA+ or A+(twn),[68] respectively, signifying their strong ability to meet all financial commitments.

[65] Excluding the life insurance companies with negative equity, the average RBC ratio for other companies was 269.39%.
[66] Excluding Kuo Hua Life Insurance Co., the ratio became 6.08%.
[67] The main amendments were: (1) the issuance of bonds with a capital nature or preferred stock of a liability type shall be included in eligible capital; (2) the funds invested in bonds with a capital nature or preferred stock of a liability type shall be deducted from eligible capital; (3) the special reserve for major events can be included in eligible capital; and (4) 80% of unrealized gains and 100% of unrealized losses arising from investments on stocks, exchange-traded funds (ETFs) and mutual funds can be included in eligible capital.
[68] Ratings prefixed with “tw” are from the Taiwan Ratings Corporation, while ratings suffixed with “(twn)” are from Fitch Ratings.

The challenges faced by life insurance companies

Declining global interest rates and greater volatility in the financial investment environment decreased the investment return and, in turn, amplified the impact of negative interest rate spreads on Taiwan's life insurance industry. The root of the negative interest rate spreads problem was the duration mismatch of assets and liabilities of life insurance companies as they have long-term and fixed-rate liabilities and hold short-term and floating-rate assets. Life insurance companies should take responsive deliberate measures to improve their asset allocations and enhance their interest rate risk and foreign exchange rate risk management in order to maintain safety and soundness in the current environment with a cyclical economy and volatile financial markets (Box 3).

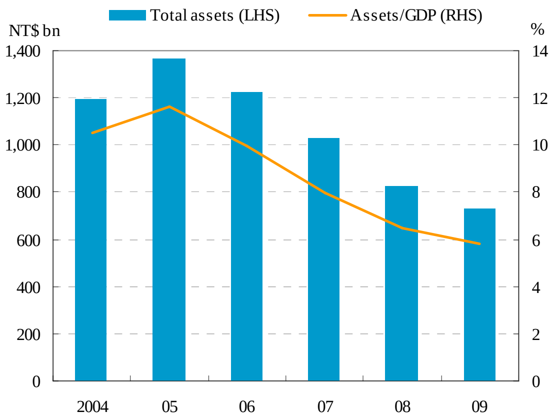
4.2.3 Bills finance companies

The total assets of bills finance companies continued to contract in 2009. Their profitability increased significantly, mainly due to the interest rate cuts by the CBC, and both asset quality and capital adequacy were enhanced. Although bills finance companies still faced the situation of maturity mismatch between assets and liabilities, their liquidity risk was expected to decline as the amended regulations of limiting the financial leverage of bills finance companies was put into practice. Moreover, as the guarantee business of bills finance companies has contracted over the years, they face the need to search for new business niches for the sake of long-term performance.

Total assets continued to contract

Driven by the reduction of bonds and bills investments in order to alleviate the risk of interest rate reversals, the total assets of bills finance companies continued to decline and stood at NT$729.1 billion, or 5.82% of annual GDP, as of the end of 2009, a decrease of 11.53% year on year (Chart 4.41). The three largest bills finance companies commanded a market share by assets of 71.01% in total, while each of the other firms had a market share below 7%.

Chart 4.41 Total assets of bills finance companies



Note: Total assets are end-of-period figures.
Sources: CBC and DGBAS.

As for asset/liability structure at the end of 2009, bonds and bills investments on the asset side accounted for 91.28% of total assets, an increase of 1.37 percentage points compared to the end of the previous year, while bills and bonds payable under repo agreements as well as borrowings on the liability side accounted for 81.67%, a decrease of 2.46 percentage points (Chart 4.42).

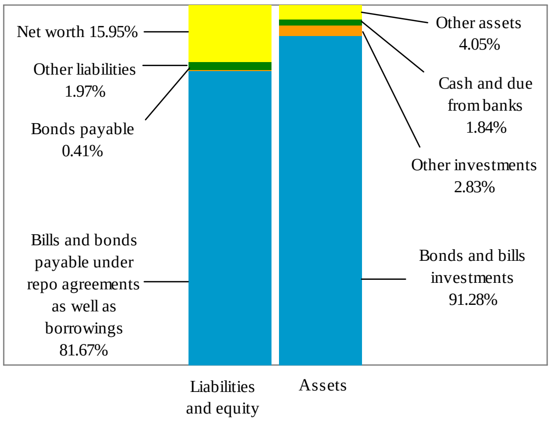
Profitability saw a great improvement

Bills finance companies posted a net income before tax of NT$11 billion in 2009, a big increase compared to a loss of NT$0.8 billion in 2008 (Chart 4.43). At the same time, ROE and ROA rose dramatically to 9.60% and 1.41%, respectively (Chart 4.44). The increase in profitability was mainly underpinned by a significant reduction of interest expenses, as the interest rates of repos and overnight borrowing, the two main funding sources, fell due to CBC's rate cuts. Once interest rates reverse and trend up, however, higher funding costs and valuation losses in bonds and bills investments might erode the future profits of bills finance companies.

The average capital adequacy ratio increased and financial leverage continued to improve

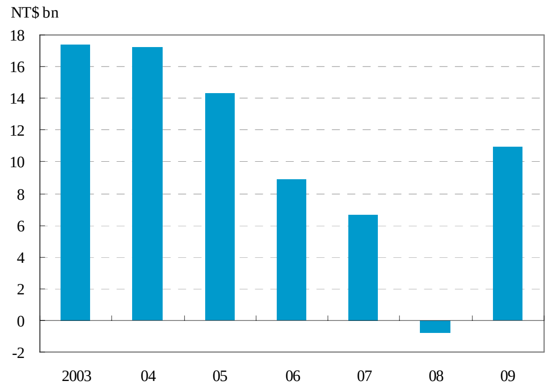
Because of the obvious contraction of risky assets, the average capital adequacy ratio of bills finance companies rose and registered

Chart 4.42 Asset/liability structure of bills finance companies



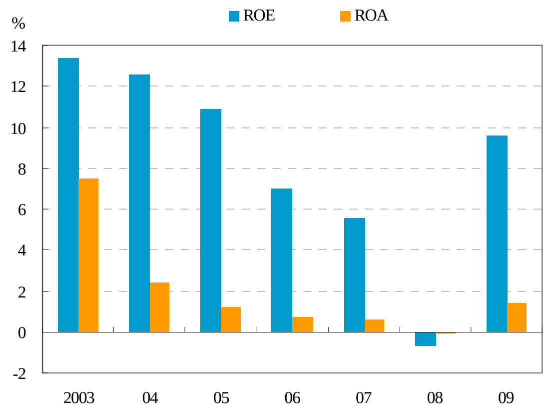
Note: Figures are end-December 2009 data.
Source: CBC.

Chart 4.43 Net income before tax of bills finance companies



Source: CBC.

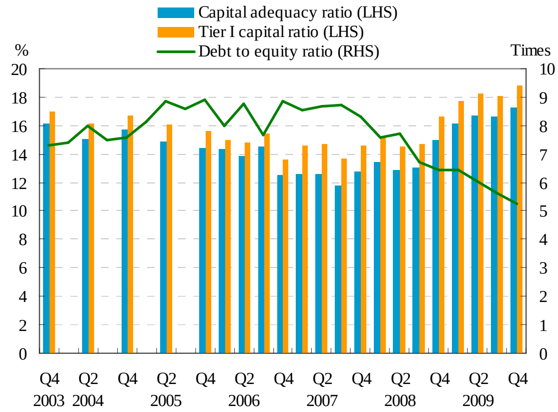
Chart 4.44 ROE & ROA of bills finance companies



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

17.28% as of the end of 2009, while all companies had ratios above 13%. The average Tier 1 capital ratio also rose and stood at 18.84%. Furthermore, owing to a contraction in debt and an increase in equity, the average debt to equity ratio of bills finance companies continued to slide to 5.27 as of the end of 2009 (Chart 4.45), reflecting an improvement in financial leverage.

Chart 4.45 Capital adequacy ratio and leverage of bills finance companies

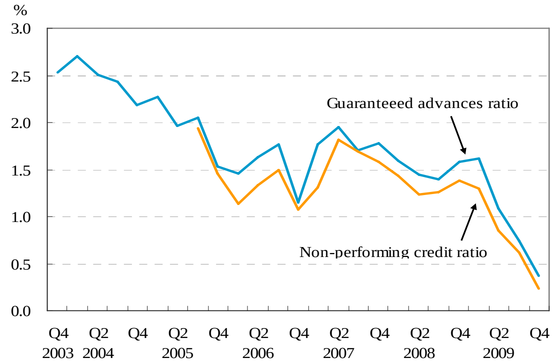


Source: CBC.

Credit quality remained satisfactory

The guaranteed advances ratio and non-performing credit ratio [69] for the guarantee business dropped significantly to 0.37% and 0.23%, respectively, at the end of 2009 (Chart 4.46), mainly driven by a large amount of write-offs during the year. The credit quality of bills finance companies remained satisfactory.

Chart 4.46 Guaranteed advances ratio of bills finance companies



Notes: 1. Guaranteed advances ratio = overdue guarantee advances / (overdue guarantee advances + guarantees). Non-performing credit ratio = non-performing credit / (overdue guarantee advances + guarantees).
2. The data of non-performing credit ratios are compiled from September 2005 onwards.

Source: CBC.

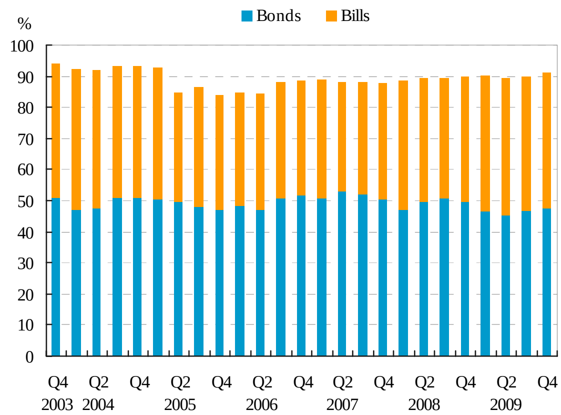
Maturity mismatch between assets and liabilities remained, but liquidity risk is expected to mitigate

Affected by the global financial crisis, liquidity risk of bills finance companies ascended in 2008 Q4. Nevertheless, the risk alleviated in 2009 due to better performance of companies and ample liquidity in the financial market. However, the maturity mismatch between assets and liabilities of bills finance companies still persisted. At the end of 2009, bonds and bills investments constituted 91.28% of total assets, in which bonds investments accounted for 47.50% (Chart 4.47), while repos and short-term borrowings made up 81.67% of total assets. These figures showed that the liquidity risk of bills finance companies was somewhat high. In order to reduce their liquidity risk, the FSC promulgated the amendments to the Directions for Ceilings on the Total

[69] Non-performing credit for guaranteed advances refers to those guarantee advances that are more than three months overdue.

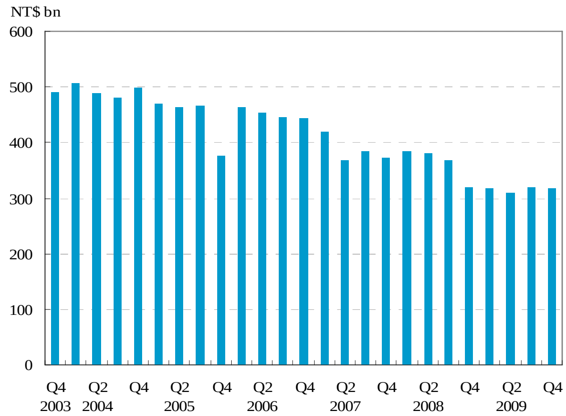
Amounts of the Major Liabilities and Reverse Repo Transactions Conducted by Bills Houses on 9 April 2010. The amended directive states that the major liabilities of a bills finance company may not exceed ten times, eight times or six times its net worth depending on the level of its capital adequacy ratio, compared to fourteen times for all companies in the pre-amended directive. If a bills finance company is a subsidiary of a financial holding company or its bank shareholder meets safe and sound criteria, the ceiling will be raised by an additional two times its net worth. With the implementation of this directive, it is expected that the liquidity risk of bills finance companies will be reduced.

Chart 4.47 Bond & bill positions as percentage of assets at bills finance companies



Note: End-of-period figures.
Source: CBC.

Chart 4.48 Outstanding commercial paper guarantees



Note: End-of-period figures.
Source: CBC.

With the guarantee business shrinking, bills finance companies should search for new business niches

The outstanding balance of commercial paper guaranteed by bills finance companies continued to decline in 2009 and registered NT$316.3 billion as of the end of the year (Chart 4.48). The main reason was that bills finance companies tended to be more conservative in granting credit lines and enterprises preferred borrowing from banks rather than issuing commercial paper due to ample funding in the banking system. In order to reduce the credit risk of bills finance companies as well as encourage them to act as brokers and traders but not creditors, the FSC promulgated the amendments to the Directions for Outstanding Amount of Guarantees and Endorsements of Short-term Bills by Bills Houses on 24 February 2010. Compared to eight times, the ceiling of the ratio of outstanding commercial paper guaranteed to net worth for all bills finance companies before the amendment, the amended directive requires that the above ratios shall not exceed five, four, three and one times, respectively, if their capital adequacy ratios are above 12%, 11%-12%, 10%-11% or below 10%, respectively. This new direction will not impact the guarantee business of bills finance companies immediately as all bills finance companies had capital adequacy ratios above 12% and had ratios of outstanding commercial paper guarantees to net worth below five times. However, bills finance companies should search for new business niches for the sake of long-term performance.

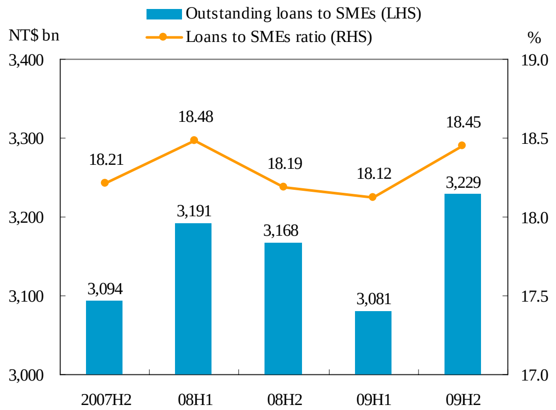
Box 2
Loans to small and medium enterprises

Small and medium enterprises (SMEs) play an important role in Taiwan's economic development and have far-reaching impacts on economic growth and social stability. The total number of SMEs registered 1.235 million, accounting for 97.70% of the total number of corporations at the end of 2008. In terms of number of workers, 7.966 million workers worked for SMEs, which was equivalent to 76.58% of national employment that year. The total sales revenues for SMEs amounted to NT$10.46 trillion, or 29.69% of the corporate sector as a whole[1]. Their main source of funding is loans from banks[2]. Nevertheless, compared to large corporations, SMEs encounter more difficulties in obtaining loans from banks because of a lack of transparency, relatively unsound financial structures and insufficient collateral. In view of the pro-cyclical nature of banks' lending behavior[3] and that currently the economy has not yet fully recovered, the relevant government authorities would actively adopt measures so as to increase banks' incentives for extending loans to SMEs.

1. Loans to SMEs

The outstanding amount of total loans to SMEs granted by banks amounted to NT$3,229.4 billion as of the end of 2009, increasing by NT$61.6 billion, or 1.94%, year on year, representing an increase of NT$ 38.3 billion, or 1.2%, when compared with that of June 2008 before the onset of the global financial crisis. Loans to SMEs accounted for 18.54% of total loans as of the end of 2009, up by 0.26 percentage points from that of the previous year-end, but slightly down by 0.03 percentage points from that of the end of June 2008[4]. In general, loans to SMEs have returned to the level they were at before the financial crisis struck (Chart A2-1).

Chart B2-1 Outstanding and ratio of Loans to SMEs in Banks



Notes: 1.The term "banks" here refers to domestic banks and local branches of foreign banks.
2. End-of-period figures.
Source: FSC.

Most loans to SMEs were granted by state banks, in line with government policies. Loans to SMEs granted by the 8 widely-defined state banks[5] reported NT$2,261.4 billion, with a market share of

70.03%, which was relatively concentrated; loans extended to SMEs by the local branches of foreign banks was merely NT$37.5 billion or 1.16% of the market.

2. Measures Adopted by the Government to Assist SMEs

Considering the current economic environment's impacts on corporate finances, the CBC continued to adopt easy monetary policies to lower banks' costs of funding and inject ample liquidity into the market so as to increase the lending capacity of the banking sector. Other relevant government agencies also took the following responses to assist SMEs in obtaining operation funds:

2.1 The Small and Medium Enterprise Credit Guarantee Fund of Taiwan (SMEG) adopted several measures to increase banks' incentives to extend loans to SMEs

In view of full compliance with the government's policy, the SMEG launched a new Special Guarantee Program to Promote Employment and Funding. Under the Program, credit lines were increased and restrictions on credit guarantees that enterprises can utilize to apply for loans were relaxed, guarantee fee rates were lowered, and both guarantee coverage percentages and the standard payment rate after claims for loans under the Package Credit Guarantees were increased. Through the credit guarantees of this program, credit risks faced by banks were largely reduced, and as a consequence, banks' incentives to extend loans to SMEs were increased significantly. In 2009, the SMEG helped SMEs obtain financing of NT$613.1 billion (of which NT$462.0 billion was guaranteed by the SMEG), an increase of NT$94.2 billion from NT$518.9 billion (where SMEG guarantees amounted to NT$327.3 billion) extended in 2008.

2.2 The government and contracted financial institutions donated more to expand the capacity of the SMEG

In 2009, donations from the government and contracted financial institutions increased to NT$6 billion and NT$2 billion, respectively. As a result, the net worth of the SMEG registered NT$27.7 billion as of the end of 2009, representing a ceiling of credit guarantees of NT$554.0 billion. When compared with outstanding credit guarantees of NT$393.9 billion granted by the SMEG[6] in the same year, there was still ample capacity for guarantees available.

2.3 The FSC required domestic banks to extend more loans to SMEs

Domestic banks' loans to SMEs have increased gradually since the Domestic Banks

Loans to SMEs Enhancement Project was initiated by the Financial Supervisory Commission (FSC) in July 2005. As of the end of 2009, loans to SMEs granted by domestic banks stood at NT$3.19 trillion, increasing by NT$73.1 billion from the previous year. The ratio of their loans to SMEs to their overall corporate loans reached 43.66%, an increase of 2.07 percentage points from the previous year. To help SMEs obtain operation funds, the FSC continued to promote the Project, and loans to SMEs granted by domestic banks were expected to increase by NT$100 billion by the end of 2010.

Notes: 1. SMEs Outlook 2009, issued by Small and Medium Enterprise Administration, Ministry of Economic Affairs (MOEA).
2. Sources from the Department of Statistics, MOEA.
3. Loans granted by banks increase during economic expansions while they decrease markedly during contractions, which may worsen the volatility and instability of the macro-economy.
4. Figures are taken from the Banking Bureau, Financial Supervisory Commission.
5. These banks here refer to the Bank of Taiwan, Land Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank, Chang Hwa Commercial Bank, Taiwan Business Bank and Mega International Commercial Bank.
6. Including NT$21 billion of government project finance.

Box 3
Current issues facing Taiwan's life insurance companies and possible solutions

1. Current issues facing life insurance companies

1.1 Duration mismatch and negative interest rate spread

The fundamental issue facing life insurance companies in Taiwan is that long-term liabilities' share in total liabilities is persistently higher than long-term assets' share in total assets, owing to a lack of long-term investment instruments in the domestic market. This leads to a duration mismatch that may cause a higher risk of losses when market prices exhibit larger fluctuations. On the other hand, the assumed interest rates of life insurance policies issued in earlier periods are still higher than the current rates of investment return due to a worldwide downward trend of interest rates, resulting in the existence of a negative interest rate spread.

1.2 Average risk-based capital ratio needs to be improved

The return on investment of life insurance companies significantly declined in 2008 due to the deepening global financial crisis. In addition, operating losses during the same year further caused a decrease in their net worth. As a result, the average RBC ratio for life insurance companies dropped to 190.37% at the end of 2008, even though the Financial Supervisory Commission temporarily relaxed the regulation of risk-based capital (RBC) for the insurance industry. In the first half of 2009, unrealized gains and losses from domestic and foreign securities investments turned positive, but the average RBC ratio merely increased to 198.27% at the end of June 2009, still below the statutory minimum requirement of 200%. Among all insurance companies, there were six with RBC ratios below 200% where further improvement was needed.[1]

2. Possible solutions

The following measures may contribute to improving the performance of life insurance companies and lowering the potential unfavorable effects:

(1) If the government issues more long-term government bonds, it will help to provide sufficient long-term investment instruments for life insurance companies and, in turn, ease the mismatch problem of the asset-liability term structure;

(2) Life insurance companies are encouraged to focus on selling traditional life insurance

policies, but not investment-linked insurance policies, during low interest rate environments. Losses from negative interest rate spreads may be reduced accordingly;

(3) Insurance policies with high assumed interest rates should be closely monitored by supervisory agencies and be put under the risk control mechanism of insurance companies so as to reduce the risk arising from over competition in the life insurance industry; and

(4) Life insurance companies with RBC ratios lower than the statutory minimum standards should raise more capital within a certain time period. Furthermore, a 2% sales tax levied on life insurance companies may be considered by the government to be appropriated to the Insurance Stabilization Fund so as to expand the scale of the Fund and, in turn, contribute to adopting appropriate supervisory measures for problematic life insurance companies or implementing a market exit mechanism.

Note: 1. As the profitability of life insurance companies improved markedly in the second half of 2009, the average RBC ratio is expected to increase at the end of 2009.

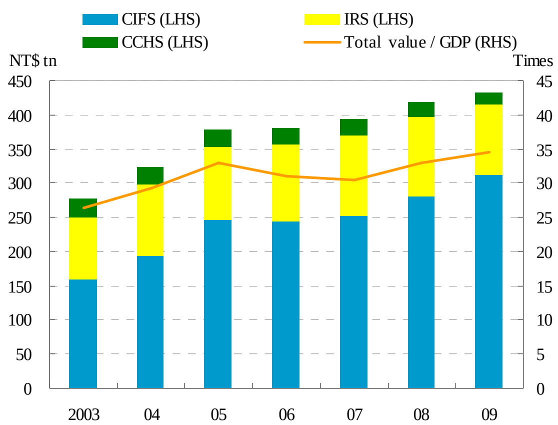
4.3 Financial infrastructure

4.3.1 Payment and settlement systems

Overview of major payment and settlement systems

The three major payment systems processing domestic interbank payments are the CBC Interbank Funds-Transfer System (CIFS), the Interbank Remittance System (IRS) and the Check Clearing House System (CCHS), with the CBC, the Financial Information Service Co., Ltd. (FISC) and the Check Clearing House as operators, respectively. In 2009, the total transaction value of the three major systems increased by NT$15 trillion from the previous year to NT$433 trillion, which was equivalent to 34.6 times annual GDP (Chart 4.49).

Chart 4.49 Transaction value of the three major payment systems



Source: CBC.

Of the three major payment systems, the CIFS was the most important one and accounted for 72% of the total transaction value. The CIFS also handled the final settlement of interbank funds transfers relating to the settlement of bonds, bills and stocks transactions. In 2009, the transaction value of the CIFS reached NT$312 trillion, an increase of NT$31 trillion from a year earlier (Chart 4.49).

Three major payment systems accomplished self-assessment

To ensure the soundness and efficiency of the CIFS, which played a pivotal role in domestic interbank payment systems, the CBC completed its self-assessment in 2007 based on the *Core Principles for Systemically Important Payment Systems* issued by the Bank for International Settlements (BIS). The assessment results showed that most requirements were satisfied. Moreover, the CBC encouraged the other two major payment system operators, the FISC and the Check Clearing House, to conduct self-assessment so as to ensure the compliance of their operations with the core principles. In 2009, the CBC finished the review of their self-assessment reports and required them to take corrective actions to address the deficiencies not conforming to the core principles.

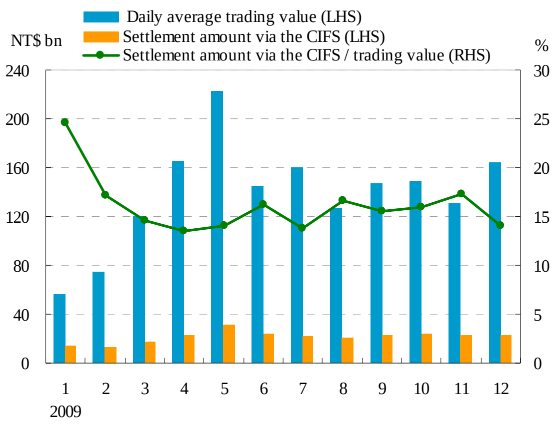
The securities market launched a new clearing and settlement mechanism

In order to strengthen their competitiveness, many capital markets around the world have attempted to enhance financial innovation as well as undertake clearing and settlement system reforms. To cope with the trend, the TWSE and the GreTai Securities Market (GTSM) jointly appointed the Taiwan Depository & Clearing Corporation to provide consolidated securities depository services for securities transactions in 1995. At that time, however, each market had its own funds clearing agreement and thus market participants had to deal with different funds clearing institutions. In order to streamline the operations, the TWSE and the GTSM consolidated their funds clearing operations for stock transactions in 2003 and assigned them to the TWSE as the single central operator for the clearing of funds.

As for the funds settlement of stock transactions, the TWSE originally assigned it to one domestic commercial bank. Nevertheless, in view of the benefits of being safe, efficient and competitively neutral, funds settlement was made through the CIFS from 2007 and adopted the T+2 DVP (delivery-versus-payment) settlement mechanism in 2009 to meet the requirements of international recommendations (Box 4).

The total daily average trading value of securities listed on the TWSE and the GTSM was NT$164.7 billion in December 2009, including NT$130.6 billion from the TWSE and NT$34.1 billion from the GTSM. The daily average settlement amount of security transactions via CIFS was NT$23.1 billion, accounting for 14% of the total trading value (Chart 4.50), significantly reducing the amount of funds needed for settlement.

Chart 4.50 The clearing amount of stock market transactions via CIFS



Sources: TWSE and GTSM.

4.3.2 Extension of the interim blanket guarantee for deposits to the end of 2010

The financial system in Taiwan was temporarily in turmoil in 2008 Q4 in the wake of the deepening international financial crisis. To enhance depositors' confidence and stabilize the financial system, the government announced the measure of a blanket guarantee for deposits in October 2008, accompanied by a package of relevant measures aiming to strengthen financial supervision and regulation. These measures effectively stabilized the market and diminished banks' liquidity risks.

This measure of a blanket guarantee for deposits was initially put into effect until the end of 2009. However, the government announced its extension to the end of 2010 on 8 October 2009, considering the persistence of global economic and financial instability and extensions of the blanket deposit guarantee schemes adopted by neighboring countries, such as Singapore and Hong Kong. The scope of the coverage and special premium surcharges imposed on interbank call loans remains the same. The FSC also takes necessary actions to enhance financial supervision and requires financial institutions to strengthen their liability management, as well as implements Prompt Corrective Actions to impaired banks.

4.3.3 Establishing cross-strait financial supervisory cooperation mechanism and opening cross-strait financial interactions

In line with the government's policy of opening-up cross-strait interactions, the FSC and the relevant Chinese supervisory and regulatory agencies jointly signed three Cross-strait Financial Supervisory Cooperation Memorandums of Understanding (MOUs) in November 2009. Moreover, there were three revised regulations governing the permission of cross-strait financial activities in banking, insurance, and securities and futures which were subsequently promulgated by the FSC in March 2010. It was a response to manage deeper financial interactions between the financial markets on the two sides of the Taiwan Strait and, at the same time, to maintain Taiwan's economic soundness and financial stability.

As Taiwan's financial institutions apply sound risk management and possess a leading edge in the fields of financial innovation, coupled with the advantage of sharing the same language and culture with China, they could find niches for expanding business and creating revenues in the China market after the opening of cross-strait financial activities and investments. Nevertheless, those institutions should be vigilant regarding the potential risks that might emerge from accessing China's market and adopt appropriate business and risk management strategies to prevent the potentially unsafe and unsound operations that may exist in China from compromising the soundness of Taiwan's financial system.

Signing MOU with China

According to Principle 25 of the *Core Principles for Effective Banking Supervision* published by the Basel Committee on Banking Supervision (BCBS), cross-border consolidated supervision requires the cooperation and information exchange between home supervisors and other supervisors involved, primarily host banking supervisors. To help cross-strait cooperation, the FSC signed three MOUs, involving banking, insurance, and securities and futures services, with the China Banking Regulatory Commission, the China Insurance Regulatory Commission and the China Securities Regulatory Commission, respectively, on 16 November 2009. The content of these MOUs covered supervisory cooperation including information exchanges, confidentiality, financial examinations, and cross-strait contacts. The terms were effective as of 16 January 2010. The signing of these MOUs not only improves the cooperation of cross-strait supervision and bolsters the pursuit of international supervision standards, but also helps Taiwan's supervisory authorities to get the full picture of the operations of Taiwan's financial institutions in China in order to maintain financial stability.

Amendments of the regulations governing cross-strait financial activities

To respond to the need for managing financial activities between the cross-strait financial markets, the FSC amended three regulations governing approvals of banking institutions, insurance companies, and securities and futures firms to engage in business and investment activities between Taiwan and China on 16 March 2010. Under the principle of consolidated supervision and effective management, these regulations will guide an orderly entrance of Taiwan's financial institutions into China's market and gradually allow China's financial institutions to access Taiwan's market.

The key amendments to the regulations governing banking services primarily include augmenting regulations governing the establishment of offices, branches or subsidiaries and equity investments by Taiwan's financial institutions, easing restrictions on offshore banking units of Taiwan's financial institutions extending credit to Taiwanese enterprises in China, and expanding the scope of cross-strait credit card and debit card business transactions processed by domestic financial institutions in Taiwan. In the case of the regulations governing insurance companies, the most notable revisions are allowing Taiwan's insurance auxiliary companies[70] to establish branches or subsidiaries in China and to have equity investments in China's insurance auxiliary companies, and allowing China's insurance companies to establish offices in Taiwan and have equity investments in Taiwan's insurance companies. The major changes to the regulations governing securities and futures firms involve allowing securities and futures firms from China to establish offices and to have equities investments in Taiwan.

[70] The insurance auxiliary industry includes insurance agents, insurance brokers and insurance surveyors.

The three amended regulations were made effective on 16 March 2010. However, the relevant regulations relating to equities investments by China's banks in Taiwan's banks and financial holding companies will not enter into force until a later date to be determined on the basis of the development of the Economic Cooperation Framework Agreement.

4.3.4 The gradual conformability of Taiwan's SFAS to IFRS

The convergence[71] of Taiwan's Statement of the Financial Accounting Standards (SFAS) toward International Financial Reporting Standards (IFRS) started from 1999. It aimed not only to enhance the comparativeness of the financial reports of international corporations, but also to help Taiwan's corporations to raise funds at lower costs from international capital markets. Accordingly, the Accounting Research and Development Foundation in Taiwan, with reference to the IFRS, made numerous amendments to Taiwan's SFAS. Among those amended SFAS, the third amendment to Taiwan's SFAS 34 (*Financial Instruments: Recognition and Measurement*) and SFAS 40 *(Insurance Contracts*), having close ties with the financial sector, will be adopted from 1 January 2011. Their impact on the domestic financial industry is worth drawing attention to.

Furthermore, given the global trend towards full adoption of the IFRS, the FSC announced in May 2009 its plan for the full adoption of the IFRS in Taiwan, starting from 2013. The plan was to adopt the IFRS in two phases.[72]. As the implementation of the IFRS will affect financial institutions and other enterprises, both of them need to engage in early preparation, evaluate the potential impacts and plan for appropriate responses.

The third amendment to Taiwan's SFAS 34

Taiwan's SFAS 34 mainly refers to International Accounting Standards No.39 (IAS 39), namely *Financial Instruments: Recognition and Measurement*. According to IAS 39, financial assets including loans and receivables are subject to impairment assessment. However, in order to alleviate the impacts on enterprises, especially banks, originated loans and receivables were temporarily excluded from the scope of Taiwan's SFAS 34 when it was issued in 2003. Nevertheless, the third amendment to Taiwan's SFAS 34 will be effective from January 2011 and require enterprises, including banks, to assess originated loans and

[71] To realize the goal of developing a single set of accounting standards, the International Financial Reporting Standards (IFRS), countries can either "converge" with or "adopt" the IFRS. Countries deciding to converge with the IFRS will publish local statements of financial accounting standards referring to the IFRS. Others, which adopt the IFRS, will be required to translate and adopt the IFRS.

[72] In phase I, listed companies and financial institutions supervised by the FSC, except for credit cooperatives, credit card companies, and insurance intermediaries, will be required to adopt the IFRS starting from 2013. Early adoption starting from 2012 is optional. In phase II, unlisted public companies, credit cooperatives, and credit card companies will be required to adopt the IFRS starting from 2015, with optional early adoption starting from 2013.

receivables if there is any objective evidence of impairment and determine whether any impairment losses should be recognized. If their present value of estimated cash flows discounted at the original effective interest rate is lower than their carrying amount, banks are required to recognize the impairment losses. The current regulation of loan loss provisions in Taiwan requires banks to break down credit assets into five categories and set aside different percentages of provisions,[73] which is quite different from the accounting treatment in Taiwan's SFAS 34. Therefore, it is expected to have significant impacts on the banking sector. A prompt response by individual banks to this matter is warranted.

Taiwan's SFAS 40 - Insurance Contracts

Taiwan's SFAS 40, referring to phase I of the IFRS 4,[74] requires insurance companies to implement liabilities adequacy tests by assessing whether their insurance liabilities are adequate to cover their estimated future cash flows arising from insurance contracts. If it is inadequate, the entire deficiency should be recognized in profit or loss. However, Taiwan's SFAS 40 does not specify the discount rate for the test. That is, currently, the best estimated discount rate can still be used. In addition, Taiwan's SFAS 40 requires insurance companies to assess the impairment of reinsurance assets and to disclose the information that helps users understand the amount of insurers' financial statements that arise from insurance contracts. Insurance companies should adjust their policies and information systems as soon as possible to cope with the adoption of SFAS 40.

[73] See Note 49 and 50.

[74] IFRS 4 was adopted in two phases. In phase I, the standard required insurance companies to classify insurance contracts and implement liability adequacy tests. In phase II, insurance contracts should be tested based on their fair value. The European Union started to implement IFRS phase I in January 2005. Standards of phrase II are still being set out.

Box 4
Taiwan Stock Exchange introduced T+2 DVP Settlement System

With the aim of coming further into line with international standards and enhancing the efficiency of Taiwan's securities market, the Taiwan Stock Exchange (TWSE) launched a series of reforms in the securities market. Among the reforms, the TWSE implemented a new settlement system called "T+2 DVP (Delivery-Versus-Payment, DVP)," which became effective from 2 February 2009. The implementation of the T+2 DVP Settlement System can shorten the settlement time gap between securities and funds and, in turn, reduce settlement risk.

1. Deficiencies in the original settlement system

The fund/securities settlement operation of the Taiwan Stock Exchange is divided into two tiers: (1) settlements between investors and securities companies, and (2) settlements between securities companies and the TWSE. Under the original settlement system, there was a one-day gap for investors between the delivery of securities/funds and the receipt of funds/securities. This time gap between delivery and receipt was not only unfair to investors, but also could become a source of settlement risk.

2. Comparisons of the original system and the new system

Item	Original System	New System
Tier I :Investors and securities companies	Investors should deliver securities or funds to securities companies before 12 p.m. of T+1. Securities companies should deliver securities or funds to investors after 10 a.m. of T+2.	Investors should deliver securities or funds to securities companies before 10 a.m. of T+2. Securities companies should deliver securities or funds to investors after 11 a.m. of T+2.
Tier II :Securities companies and the TWSE	Sell-side securities companies should deliver securities to TWSE before 6 p.m. of T+1. Buy-side securities companies should deliver funds to TWSE before 10 a.m. of T+2. TWSE should deliver securities to buy-side securities companies and deliver funds to sell-side securities companies after 10 a.m. of T+2.	Sell-side securities companies should deliver securities to TWSE before 10 a.m. of T+2. Buy-side securities companies should deliver funds to TWSE before 11 a.m. of T+2. TWSE should deliver securities to buy-side securities companies and deliver funds to sell-side securities companies after 11 a.m. of T+2.

Note: "T" represents the day on which investors buy/sell securities from/to securities companies.

3. Benefits of the new system

The new T+2 DVP system requires the delivery and receipt of either securities or funds to occur on the same day (i.e. day T+2). It not only enhances the usability of securities and funds, but also brings the TWSE's settlement system further into line with international standards and expedites the internationalization of Taiwan's securities market.

V. International financial reform proposals and their policy implications for Taiwan

The impact of the recent global financial crisis on Taiwan's financial system was moderate in comparison with what happened in the US and European countries. This was because Taiwan did not suffer from such investment banking problems: its asset securitization was not as developed, and its regulatory system was comparatively sound in general. Nevertheless, a succession of international financial reforms that will influence the future development of global financial regulation were proposed. Taiwan's financial authorities should closely monitor their progress and take this opportunity to review the differences between Taiwan's current regulatory framework and the international proposals, as well as contemplate further improvements in Taiwan's future financial reform, so as to strengthen financial regulation.

5.1 International financial reform

From the beginning of 2009, advanced countries (e.g. the US and the UK) and international organizations successively proposed a number of plans or recommendations on financial reform in hopes of preventing future financial crises. These include: (1) *The Turner Review* and the white paper on *reforming financial markets* in the UK; (2) A comprehensive plan for financial regulatory reform and related draft legislation proposed by the US; (3) Initiatives or resolutions relating to financial regulatory reform made by the G20 and the European Union (EU) summit members; (4) A series of proposals to enhance the Basel II framework and strengthen the liquidity risk monitoring framework announced by the BCBS; and (5) Policy recommendations issued by the IMF, etc.

Table 5.1 summarizes the key recommendations on the above-mentioned financial regulatory reform issues, focusing not only on prevention of systemic risks and macro-prudential supervision, but also on the management of capital adequacy and liquidity risk.

On 21 October 2009, the Senior Supervisors Group (SSG), a forum composed of senior supervisors from seven advanced countries, released a report entitled *Risk Management Lessons from the Global Banking Crisis of 2008*. The report not only conveyed their assessment of current weaknesses of the risk management practices in financial institutions, but also identified ten critical areas in need of improvement that require on-going progress by financial institutions to address issues in governance, remuneration, risk management, and market infrastructure.

Table 5.1 The key international recommendations for financial reform

Items	Issues	Recommendations
1	Coverage of regulation	1. All financial activities that might trigger systemic risk should be monitored appropriately. 2. Strengthening regulation on systemically important financial institutions (SIFIs) and financial instruments.
2	Macroprudential analysis	1. Enhancing macroprudential analysis and policy responses. 2. Developing regulatory tools that are indispensable for monitoring and measuring systemic risk. 3. Taking system-wide considerations on credit expansion, liquidity, asset prices and leverage. 4. Focusing on interconnections among SIFIs and systemic risks.
3	Capital adequacy and accounting	1. Increasing the quality and level of capital. 2. Mitigating the pro-cyclical effects of Basel II. 3. Creating counter-cyclical capital buffers. 4. Establishing lower limits on leverage ratios (i.e. capital/assets), as part of supplementary tools in the Basel II framework. 5. Strengthening stress testing practices in financial institutions.
4	Risk management of financial institutions	1. Requiring financial institutions to implement firm-wide risk management systems; improving the independence of risk management functions and the effectiveness of independent directors' oversight. 2. Improving liquidity management in financial institutions; capital surcharges should be imposed on financial institutions taking higher liquidity risks.
5	Remuneration	1. Remuneration policies should be designed to avoid incentives for taking undue risk. 2. Variable remuneration could take the form of deferred payment or with recourse. 3. Remuneration policies and structures should be transparent. 4. Assuring remuneration committees operate independently. 5. Supervisory authorities should have powers to amend the remuneration structures of financial institutions that perform poorly or require government intervention
6	Supervision and infrastructure of securitization and over-the-counter (OTC) derivatives	1. Requiring originators and issuers of asset securitization to partly take risks arising from the securitized products. 2. Introducing counterparty margin system for OTC derivatives. 3. Developing clearing and central counterparties system for standardized OTC derivatives, in particular for credit default swaps (CDS). 4. Imposing higher capital requirements on non-central-clearing derivative products.
7	Credit rating agencies	1. Credit rating agencies should be subject to registration and supervision. 2. Enhancing transparency in the methodologies of credit rating. 3. Differentiating credit ratings of structured financial products. 4. Reducing reliance on credit ratings for prudential supervision. 5. Clearly communicating with investors regarding the appropriate use of credit ratings.

8	Deposit insurance and resolution of impaired financial institutions	1. Making sure that the vast majority of retail depositors are protected. 2. Establishing a regime for the orderly resolution of impaired financial institutions.
9	Global cross-border financial institutions	1. A crisis coordination mechanism and contingency plans should be in place for domestic regulators, the central bank and the Treasury. 2. Establishing a college of supervisors for large and complex financial institutions. 3. Organizing a task force for crisis management of cross-border financial institutions so as to improve information sharing during emergent times.
10	Consumer protection and anti-money laundering	1. Establishing an independent agency for consumer protection and education. 2. Implementing prudential measures to deal with financial transactions relating to tax havens, money laundering, corruption and terrorists.

Sources: IMF, BCBS, SSG, G-20 Summits, and official government websites in the UK, the US and the EU.

5.2 Implications for financial reform in Taiwan

In view of the above-mentioned international proposals for financial reform, current financial regulation in Taiwan has, in some areas, made significant progress, such as:

- All systemically important financial institutions are covered by current financial regulation;
- A well-established deposit insurance scheme and resolution mechanisms for impaired financial institutions have been put in place;
- Regulators have actively engaged in the improvement of consumer financial education and protection; an exclusive chapter for coping with consumer disputes involving financial services is included in a draft of the Financial Services Act; and
- Significant progress has already been made in facilitating anti-money laundering work. For example, anti-terrorism is governed by the Money Laundering Control Act, which was amended in 2009; the required amount of large cash transactions that should be reported by financial institutions has been lowered to NT$500,000 from NT$1,000,000.

In terms of international cooperation of financial supervision, considering that internationalization with respect to either financial institutions or financial markets in Taiwan is not as developed as that of the US or European countries, the authorities can actively seek opportunities for participation in international cooperation of cross-border supervision.

With regard to other key issues and recommendations listed in Table 5.1, the relevant authorities may make reference to them and make appropriate adjustments. In this fashion, the CBC and the FSC have deliberated on some of the recommendations and are considering the feasibility and alternatives of implementing them in Taiwan. These include:

- Enhancing macro-prudential supervision;
- Increasing the quality and level of capital requirements for financial institutions;
- Strengthening risk management in financial institutions;
- Reforming financial institutions' remuneration systems;
- Enhancing supervision and infrastructure for securitization and OTC derivatives; and
- Improving the surveillance and transparency of credit rating agencies.

Appendix: Financial soundness indicators

Table 1: Domestic Banks

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Earnings and profitability						
Return on assets (ROA)	0.64	0.30	-0.06	0.28	0.12	0.28
Return on equity (ROE)	10.25	4.74	-0.94	4.32	1.86	4.52
Net interest income to gross income	62.60	66.11	68.34	66.38	78.53	59.54
Non interest expenses to gross income	46.59	47.84	51.21	54.07	62.97	59.81
Gains and losses on financial instruments to gross income	10.13	11.49	12.63	9.08	3.91	16.43
Personnel expenses* to non-interest expenses	-	-	55.37	55.93	54.80	57.56
Spread between lending and deposit rates (basis points)	2.55	2.45	2.09	1.83	1.76	1.23
Asset quality						
Non-performing loans to total loans	3.82	2.24	2.15	1.83	1.54	1.15
Provision coverage ratio	30.14	50.06	62.26	64.07	69.48	90.35
Capital adequacy						
Regulatory capital to risk-weighted assets	10.87	11.23	10.87	10.80	11.04	11.85
Tier 1 capital to risk-weighted assets	10.25	10.37	9.88	8.50	8.43	9.01
Capital to total assets	6.28	6.45	6.19	6.42	6.12	6.25
Non-performing loans net of provisions to capital	30.61	15.28	15.16	12.22	10.33	6.41
Liquidity						
Customer deposits to total loans	118.10	118.70	119.41	117.98	122.34	133.13
Liquid assets* to total assets	-	-	-	10.59	12.69	15.20
Liquid assets* to short-term liabilities	-	-	-	15.66	18.39	20.98

Table 1：Domestic Banks (cont.)

Unit: %

Items / Year (end of year)	2004	2005	2006	2007	2008	2009
Credit risk concentration						
Household loans to total loans	44.89	46.51	46.74	46.59	45.48	46.41
Corporate loans to total loans	41.30	41.60	43.02	43.90	45.27	43.26
Large exposures to capital	-	137.32	144.28	136.85	142.38	142.48
Gross asset positions in financial derivatives* to capital	-	-	5.28	10.35	21.92	8.17
Gross liability positions in financial derivatives* to capital	-	-	4.79	5.44	16.48	8.44
Sensitivity to market risk						
Net open position in foreign exchange* to capital	-	-	3.11	5.02	2.41	2.43
Foreign-currency-denominated loans* to total loans	-	-	13.44	15.57	16.54	16.22
Net open position in equities* to capital	-	-	28.63	30.88	24.99	25.69
Foreign-currency-denominated liabilities* to total liabilities	-	-	19.86	22.20	20.41	19.48

Notes: 1. The items with “*” are only available from 2006. Liquidity asset related items are disclosed from 2007.

2. The data of earnings and profitability in 2006 and 2007 exclude Chinese Bank and Bowa Bank.

3. The figuers for "Spread between lending and deposit rates" exclude the data of the medium business banks. The figures for lending and deposit rates exclude preferred deposits rates of retired government empolyees and central government lending rates.

Table 2: Non-financial Corporate Sector

Units: %, times

Items / Year (end of year)	2004	2005	2006	2007	2008	2009
Total liabilities to equity						
Corporate sector	102.15	86.10	85.21	82.20	90.02	-
TWSE-listed companies	66.37	66.06	R 64.27	R 63.23	67.59	65.26
OTC-listed companies	76.67	84.03	R 74.17	R 76.68	R 89.52	66.29
Return on equity						
Corporate sector	11.36	10.88	13.04	13.90	4.76	-
TWSE-listed companies	16.67	14.13	R 15.34	18.03	R 8.07	8.99
OTC-listed companies	15.69	9.26	17.06	R 9.14	-5.97	6.37
Net income before interest and tax / interest expenses (times)						
Corporate sector	7.89	8.97	10.10	10.78	3.39	-
TWSE-listed companies	17.72	15.25	R 16.85	19.07	R 8.25	13.70
OTC-listed companies	12.72	8.38	R 14.07	R 7.81	-	9.53

Notes: 1. The data of all corporates are from JCIC, and those of TWSE-listed and OTC-listed corporates are from TEJ.

2. The figure of "Return on equity" for 2009Q3 is annualized result.

3. The data of “net income before interest and tax / interest expenses” for OTC-listed companies in 2008 is nil due to the net loss of the same year.

4. The figure with “R” is revised data.

Table 3: Household Sector

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Household borrowing to GDP	R 79.50	R 83.15	R 83.17	R 81.47	R 81.41	84.76
Borrowing service and principal payments to gross disposable income	R 43.59	R 45.79	R 43.67	R 42.09	R 40.68	37.88

Notes: 1.The figures of disposable income for 2009 are CBC estimates.
2. The figure with "R" is revised data.

Table 4: Real Estate Market

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
Land price index	93.35	94.68	96.38	98.92	100.51	100.38
Residential real estate loans* to total loans	-	-	29.14	30.14	29.16	30.57
Commercial real estate loans* to total loans	-	-	10.74	11.84	12.14	12.47

Notes: 1.Figures of Land price index are on a end-September basis (March 2008 = 100).
2.The items with "*" are only available from 2006.

Table 5: Market Liquidity

Unit: %

Items \ Year (end of year)	2004	2005	2006	2007	2008	2009
The turnover ratio of trading value in stock market	177.46	131.36	142.20	153.28	145.45	178.28
The monthly average turnover ratio in bond market	135.40	215.69	140.58	74.65	47.93	31.56

Notes: 1.The turnover ratio in terms of trading value in stock market is the cumulative figure of the period.
2.The monthly average turnover ratio in bond market is the average figure of the period.

Explanatory notes:
Compilation of financial soundness indicators

I. General notes

- *To facilitate international comparison, most items listed in "Appendix: Financial Soundness Indicators" are compiled in accordance with the "Compilation Guide on Financial Soundness Indicators" issued by the IMF in July 2004. However, a few indicators are not used for analysis in this report due to insufficient time series data.*

- *Unless otherwise stated, the data of all indicators are on a year-end (stock data) or year-to-date (flow data) basis.*

- *Compilation of Domestic Banks' Indicators*

1. The banks in this report as of the end of 2009 include Bank of Taiwan, Land Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank, Chang Hwa Commercial Bank, Citibank Taiwan, The Shanghai Commercial & Savings Bank, Taipei Fubon Commercial Bank, Cathay United Bank, The Export-Import Bank of the Republic of China, Bank of Kaohsiung, Mega International Commercial Bank Co., Agricultural Bank of Taiwan, China Development Industrial Bank, Industrial Bank of Taiwan, Taiwan Business Bank, Standard Chartered Bank (Taiwan), Taichung Commercial Bank, King's Town Bank, Bank of Taipei, Hwatai Bank, Shin Kong Commercial Bank, Sunny Bank, Bank of Panhsin, Cota Commercial Bank, Union Bank of Taiwan, Far Eastern International Bank, Yuanta Commercial Bank, Bank Sinopac, E. Sun Commercial Bank, Cosmos Bank, Taishin International Bank, Ta Chong Bank, Jih Sun International Bank, EnTie Commercial Bank, Chinatrust Commercial Bank, and Chinfon Commercial Bank, amounting to 38 banks.
2. The domestic banks' related indicators are calculated using unaudited data submitted regularly by domestic banks. The submitted data are different from the data posted on the banks' websites, which are audited and certified by certified public accountants or adjusted by the banks. The statistical basis for these two types of data is different.
3. Domestic banks' related indicators are calculated by aggregating the numerators and denominators of each ratio, and then dividing the total numerator by the total denominator to obtain the peer-group ratios. This methodology differs from the winsorized mean on the quarterly "Condition and Performance of Domestic Banks" report compiled by the Department of Financial Inspection of the Central Bank of the Republic of China (Taiwan).

II. Explanatory notes on the indicators

1. Domestic banks' indicators

1.1 Earnings and profitability

1.1.1 Return on assets (ROA)

This indicator is used to analyze domestic banks' efficiency in using their assets.

ROA = net income before income tax / average total assets

- Net income: net income before income tax plus extraordinary items.
- Average total assets: the average of total assets at the beginning and the end of the period.

1.1.2 Return on equity (ROE)

This indicator is used to analyze banks' efficiency in using their capital.

ROE = net income before income tax / average equity

- Net income: same as 1.1.1.
- Average equity: the average of equity at the beginning and the end of the period.

1.1.3 Net interest income to gross income

This indicator is a measure of the relative share of net interest earnings within gross income.

- Net interest income: interest income less interest expenses.
- Gross income: net interest income plus non-interest income.

1.1.4 Non-interest expenses to gross income

This indicator is a measure of the size of administrative expenses to gross income.

Non-interest expenses include operating expenses other than interest expenses as follows:

- Personnel expenses.
- Other expenses related to operations.
  - Expenses for property and equipment, including: purchasing, ordinary and regular maintenance and repair, depreciation, and building rentals paid.
  - Other expenditure related to operations, including: purchases of goods and services (e.g. advertising costs, staff training service expenses, and royalties paid for the use of other produced or non-produced assets).
  - Taxes other than income taxes less any subsidies received from general government.

Gross income: same as 1.1.3.

1.1.5 Gains and losses on financial instruments to gross income

This indicator is to analyze business revenues from financial market activities as a share of gross income.

Gains and losses on financial instruments include the following items:

- Realized and unrealized gains and losses in the income statement arising on all financial assets and liabilities which are held at fair value through profit or loss, available for sale, and held to maturity.
- Gains and losses on financial assets or liabilities carried at cost.

- Gains and losses on debt instruments without active markets.
- Foreign exchange gains and losses.

Gross income: same as 1.1.3.

1.1.6 Personnel expenses to non-interest expenses

This indicator is to analyze personnel expenses as a share of non-interest expenses.

- Personnel expenses, including: wages and salaries, profit sharing and bonuses, allowances, pensions, social insurance and medical insurance, etc.
- Non-interest expenses: same as 1.1.4.

1.1.7 Spread between lending and deposit rates

This indicator is to analyze the effect of the interest rate spread upon net interest revenues and profitability.

- Spread between lending and deposit rates: the weighted average loan interest rate less the weighted-average deposit interest rate. The annual interest rate spread is the average of four quarters' spreads.

1.2 Asset quality

1.2.1 Non-performing loans to total loans

This indicator is to analyze asset quality in the loan portfolio.

- Non-performing loans

  According to the "Regulations Governing the Procedures for Banking Institutions to Evaluate Assets and Deal with Non-performing / Non-accrual Loans," non-performing loans include the following items:

  - Loans for which repayment of principal or interest has been overdue for three months or more.
  - Loans for which the bank has sought payment from primary/subordinate debtors or has disposed of collateral, although the repayment of principal or interest has not been overdue for more than three months.

- Total loans: Total loans include bills purchased, discounts, accrual and non-accrual loans, but excluding interbank loans.

1.2.2 Provision coverage ratio

This indicator is to analyze the provision policy for loan losses.

- Provision coverage ratio: loan loss provisions / non-performing loans

1.3 Capital adequacy

1.3.1 Regulatory capital to risk-weighted assets

This indicator is to analyze the capital adequacy of domestic banks. The minimum statutory ratio of regulatory capital to risk weighted assets of a bank is 8%, based on Article 44 of the Banking Act.

- Regulatory capital: the eligible capital includes Tier 1 capital, eligible Tier 2 capital and eligible used Tier 3 capital.
- Risk-weighted assets: the term "risk-weighted assets" before the end of 2006 is the

aggregate amount of the risk-weighted assets for credit risk together with the capital requirements for market risk multiplied by 12.5. From the beginning of 2007, it is the aggregate amount of the risk-weighted assets for credit risk together with the capital requirements for market risk and operational risk multiplied by 12.5.

1.3.2 Tier 1 capital to risk-weighted assets

This indicator is to analyze the capital adequacy of domestic banks based on the core capital concept.

- Tier 1 capital: includes common stockholder's equity, non-cumulative perpetual subordinated debt, non-cumulative perpetual preferred stock, capital reserves (except the appreciation reserves of fixed assets), retained earnings, minority interest, and cumulative effect of equity adjustments, less supervisory deductions.
- Risk-weighted assets: same as 1.3.1.

1.3.3 Capital to total assets

This indicator is to analyze the degree of financial leverage on assets funded by other than banks' own funds.

- Capital: equity interest of owners in a bank (i.e. the difference between total assets and liabilities).
- Total assets: the sum of financial and non-financial assets.

1.3.4 Non-performing loans net of provisions to capital

This indicator is to analyze the potential impact on capital of non-performing loans.

Non-performing loans net of provisions to capital = (non-performing loans - specific loan provisions) / capital

- Non-performing loans: same as 1.2.1.
- Specific loan provisions: the minimum provision that a bank should allocate in accordance with Article 5 of "Regulations Governing the Procedures for Banking Institutions to Evaluate Assets and Deal with Non-performing / Non-accrual Loans."
- Capital: same as 1.3.3.

1.4 Liquidity

1.4.1 Customer deposits to total loans

This indicator is a measure of liquidity to indicate the degree of dependence on more stable sources of funds (customer deposits) to illiquid assets (loans).

- Customer deposits: including check deposits, demand deposits, time deposits, saving deposits, and money remittances.
- Total loans: same as 1.2.1.

1.4.2 Liquid assets to total assets

This indicator is to analyze the liquidity available to meet expected and unexpected demands for cash.

- Liquid assets: the core liquid assets comprising cash and cash equivalents, amounts due from the Central Bank, amounts due from banks, and call loans to banks (excluding amounts due from domestic banks which are included in the reporting population).

- Total assets: same as 1.3.3.

1.4.3 Liquid assets to short-term liabilities

This indicator is to analyze the liquidity mismatch of assets and liabilities, and provide an indication of the extent to which banks could meet the short-term withdrawal of funds without facing liquidity problems.

- Liquid assets: same as 1.4.2.
- Short-term liabilities: liabilities with remaining maturity of no more than one year, including deposits, borrowings, debt securities issued, and the net market value of financial derivatives positions (liabilities less assets), but excluding the transactions with domestic banks which are included in the reporting population.

1.5 Credit risk concentration

1.5.1 Household loans to total loans

This indicator is to analyze the concentration of loans to the household sector by domestic business units (DBUs) of domestic banks.

- Household loans: loans from DBUs of domestic banks to the household sector.
- Total loans: total loans (excluding export bills purchased and non-accrual loans) of DBUs of domestic banks.

1.5.2 Corporate loans to total loans

This indicator is to analyze the concentration of loans to local public and private corporate borrowers by domestic business units (DBUs) of domestic banks.

- Corporate loans: loans from DBUs of domestic banks to public and private non-financial corporate borrowers.
- Total loans: same as 1.5.1.

1.5.3 Large exposures to capital

This indicator is to analyze vulnerabilities at domestic banks arising from the concentration of credit risk on single individuals or corporate borrowers.

- Large exposures: refer to the total amount of credit to the first 20 private & government enterprises at domestic banks after integration.
- Capital: same as 1.3.3.

1.5.4 Gross asset positions in financial derivatives to capital

This indicator is to analyze the effect of price changes on gross asset positions in financial derivatives relative to capital.

- Gross asset positions in financial derivatives: total amounts of positive fair value in hedged and non-hedged financial derivatives such as swap, forward, and option contracts, excluding embedded derivatives inseparable from the underlying instruments.
- Capital: same as 1.3.3.
-

1.5.5 Gross liability positions in financial derivatives to capital

This indicator is to analyze the effect of price changes on gross liability positions in financial derivatives relative to capital.

- Gross liability positions in financial derivatives: total amounts of negative fair value in hedged and non-hedged financial derivatives such as swap, forward, and option contracts, excluding embedded derivatives inseparable from the underlying instruments.
- Capital: same as 1.3.3.

1.6 Sensitivity to market risk

1.6.1 Net open position in foreign exchange to capital

This indicator measures the mismatch of foreign currency asset and liability positions at domestic banks to assess the potential vulnerability of capital to exchange rate movements.

- Net open position in foreign exchange: the open foreign currency positions in balance sheet and financial derivatives, which are converted into NT dollars using the exchange rates as of the reporting date.
- Capital: same as 1.3.3.

1.6.2 Foreign-currency-denominated loans to total loans

This indicator is to analyze the share of foreign currency loans within gross loans.

- Foreign-currency-denominated loans: the loans to other financial institutions, corporate entities, and individuals that are payable in foreign currency, or in domestic currency but with the amount to be paid linked to a foreign currency.
- Total loans: including loans to customers and other financial institutions.

1.6.3 Net open position in equities to capital

This indicator is to analyze the effect of the fluctuation of banks' net positions in equities compared with own equity.

- Net open position in equities: the sum of on-balance-sheet holdings of equities and notional positions in equity derivatives.
- Capital: same as 1.3.3.

1.6.4 Foreign-currency-denominated liabilities to total liabilities

This indicator is to analyze the relative importance of foreign currency funding within total liabilities.

- Foreign-currency-denominated liabilities: the liabilities that are payable in foreign currency, or in domestic currency but with the amounts to be paid linked to a foreign currency.
- Total liabilities: the total amounts of current, non-contingent liabilities, and the liabilities positions in financial derivatives.

2. Non-financial corporate sector indicators

2.1 Total liabilities to equity

This indicator is a leverage ratio which is used to analyze the extent of activities that are financed through liabilities other than own funds.

- Total liabilities: including short-term and long-term liabilities.

- Equity: the equity interest of the owners in a corporate entity, including funds contributed by owners, capital surplus, retained earnings, and other items related to owners' equity.

2.2 Return on equity

This indicator is to analyze profitability of non-financial corporations in using their capital.
Return on equity = net income before interest and tax / average equity (the "net income before interest and tax" is adopted according to the FSIs of the IMF).

- Net income before interest and tax: net income before tax plus interest expenses from continuing operation units.
- Average equity: the mean of the equity at the beginning and the end of current year.

2.3 Net income before interest and tax / interest expenses

This indicator is to analyze how well non-financial corporate income covers interest expenses.

- Net income before interest and tax: same as 2.2.
- Interest expenses: the interest expense payments on debt within the specified time period of the statement.

3. Household sector indicators

3.1 Household borrowing to GDP

This indicator is to analyze the level of household borrowing to gross domestic product (GDP).

- Household borrowing: household outstanding loans and credit card revolving balances from financial institutions. Financial institutions include depository institutions and other financial institutions (trust and investment companies, life insurance companies, securities finance companies, and securities firms).

3.2 Borrowing service and principal payments to gross disposable income

This indicator is to analyze the capacity of households to cover their debt payments.

- Borrowing service and principal payments: interest and principal payments made on outstanding loans and credit card revolving balances within the specified time period of the statement.
- Gross disposable income: the aggregate of the wages and salaries from employment, property and corporate income (interest, dividends and rent), and current transfers receipts less current taxes on income and wealth and other current transfers expenditures.

4. Real estate market indicators

4.1 Land price index

This indicator is to analyze the price movement of urban land prices in the Taiwan area.

- Land price index: the general index of urban land prices released by the Ministry of Interior each half year (in March and in September).

4.2 Residential real estate loans to total loans

This indicator analyzes the concentration of domestic banks' loans in residential real estate.

- Residential real estate loans: individual loans that are collateralized by residential real estate. Residential real estate includes houses, apartments, and associated land (including owner use and rental use).
- Total loans: same as 1.2.1.

4.3 Commercial real estate loans to total loans

This indicator analyzes the concentration of domestic banks' loans in commercial real estate.

- Commercial real estate loans including: loans to corporate entities and individuals that are collateralized by commercial real estate, loans to construction companies, and loans to companies involved in the development of real estate. Commercial real estate includes buildings and associated land used by enterprises for retail, wholesale, manufacturing, or other purposes.
- Total loans: same as 1.2.1.

5. Market liquidity

5.1 The turnover ratio of trading value in stock market

This indicator is to analyze the average turnover frequency in the stock market (i.e. stock market liquidity).

- The turnover ratio of accumulated trading value: the accumulated value of monthly turnover ratio in terms of trading value within current year of the statement.
- The monthly turnover ratio in terms of trading value in stock market = total trading value / market value
- Total trading value: total trading value of stock transactions in the month.
- Market value: total market value of listed stocks as of the end of the month.

5.2 The monthly average turnover ratio in bond market

This indicator is to analyze the average turnover frequency in the bond market (i.e. bond market liquidity).

- Monthly average turnover ratio in bond market = total amount of monthly turnover ratio in terms of trading value in bond market / 12
    - Monthly turnover ratio in terms of trading value: trading value in the month / average bonds issued outstanding.
    - Trading value in the month: total bond trading value (excluding repo transactions).
    - Bonds issued outstanding: bonds that have been issued and are in the hands of the public.
    - Average bonds issued outstanding = (bonds issued outstanding at the month end plus bonds issued outstanding at previous month end) / 2

Abbreviations

ABCP	Asset-backed commercial paper
ABS	Australian Bureau of Statistics
APRA	Australian Prudential Regulation Authority
AUD	Australia dollar
BCBS	Basel Committee on Banking Supervision
BI	Bank Indonesia
BICRA	Banking Industry Country Risk Assessment
BIS	Bank for International Settlements
BLS	Bureau of Labor Statistics
BNM	Bank Negara Malaysia
BOJ	Bank of Japan
BOK	Bank of Korea
BOT	Bank of Thailand
BSI	Banking System Indicator
CAR	Capital adequacy ratio
CBC	Central Bank of the Republic of China (Taiwan)
CBRC	China Banking Regulatory Commission
CCHS	Check Clearing House System
CDIC	Central Deposit Insurance Corporation
CDS	Credit default swap
CIFS	CBC Interbank Funds-Transfer System
CNY	Chinese Yuan
CPI	Consumer price index
DBU	Domestic business units
DGBAS	Directorate-General of Budget, Accounting and Statistics of the Executive Yuan
DVP	Delivery-Versus-Payment

ETFs	Exchange-traded funds
EU	European Union
EUR	Eurocurrency
FDIC	Federal Deposit Insurance Corporation
FED	Federal Reserve System
FISC	Financial Information Service Co., Ltd
FSA	Financial Services Agency
FSIs	Financial Soundness Indicators
FSC	Financial Supervisory Commission
FSS	Financial Supervisory Service
G20	Group of Twenty
GBP	Great Britain pound
GDP	Gross domestic product
GPD	Generalized Pareto distribution
GTSM	GreTai Securities Market
HICP	Harmonised Index of Consumer Prices
HKMA	Hong Kong Monetary Authority
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IRS	Interbank Remittance System
JCIC	Joint Credit Information Center
JPY	Japanese yen
KRW	Korean won
MAS	Monetary Authority of Singapore
MOEA	Ministry of Economic Affairs
MOF	Ministry of Finance
MOI	Ministry of Interior
MOU	Memorandum of Understanding
MPI	Macro-Prudential Indicator
NPL	Non-performing loan
NTD	New Taiwan dollar
OTC	Over-the-counter

PBC	People's Bank of China
RBC	Risk-based capital
RMB	Renminbi
ROA	Return on assets
ROE	Return on equity
RRR	Reserve requirement ratio
SFAS	Statement of Financial Accounting Standards
SGD	Singapore dollar
SIFIs	Systemically important financial institutions
SMEG	Small and Medium Enterprise Credit Guarantee Fund of Taiwan
SMEs	Small and medium enterprises
SSG	Senior Supervisors Group
TAIEX	Taiwan Stock Exchange Weighted Index
TEJ	Taiwan Economic Journal Co., Ltd
TWSE	Taiwan Stock Exchange
USD	United States dollar
VaR	Value at Risk
WPI	Wholesale price index

Financial Stability Report

Publisher: Central Bank of the Republic of China (Taiwan)

Address: 2, Section 1, Roosevelt Road, Zhongzheng District, Taipei City 10066, Taiwan, R. O. C.

Tel: 886-2-2393-6161

http://www.cbc.gov.tw

Editor: Department of Financial Inspection

Central Bank of the Republic of China (Taiwan)

Publishing Frequency: June 2008 to May 2009 – semiannually; from May 2010 – annually

Publishing Date: May 2010

First Issue Date: June 2008

Distributors:

Government Publication Bookstore (Songjiang Store)

Address: 1F, 209, Songjiang Road, Zhongshan District, Taipei City 10467, Taiwan, R. O. C.

Tel: 886-2-2518-0207

Government online bookstore: http://www.govbooks.com.tw

Wunan Cultural Plaza Bookstore (Taichung Main Store)

Address: 1F, 6, Jhongshan Road, Zhongzheng District, Taichung City 40042, Taiwan, R. O. C.

Tel: 886-4-2226-0330

Printed by: Jhen Da typesetting printing company

Address: 7, Lane 51, Section 1, Nanchang Road, Zhongzheng District, Taipei City 10074, Taiwan, R. O. C.

Tel: 886-2-2396-5877

Price: NT$300 **GPN: 2009703514** **ISSN: 2071-8519**