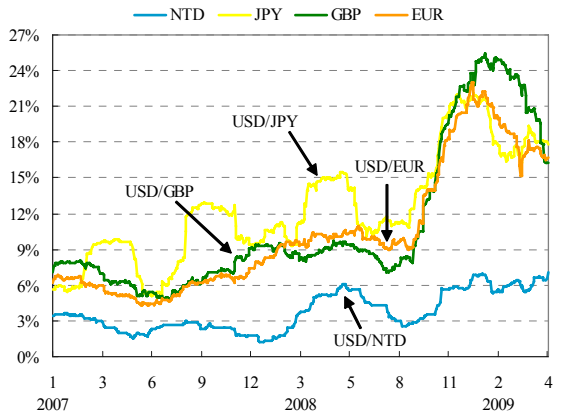
NT dollar exchange rate volatility against the US dollar increased but was relatively stable compared to other currencies

Chart 5.12 Exchange rate volatility of various currencies against US dollar



Note: Volatility refers to the annualized standard deviation of 60-day daily returns.
Source: CBC.

In the second half of 2008, volatility in the NT dollar exchange rate against the US dollar increased dramatically and the average volatility over Q4 reached up to 5%. In early 2009, the NT dollar exchange rate depreciated hastily and the average volatility accordingly stood at a high of 6.92% in January. Although the volatility declined for a short time after a peak in January, the appreciation of the NT dollar exchange rate in March caused it to rise again and reach 7.04% at the end of April. Notwithstanding the increase in the volatility in the NT dollar exchange rate against the US dollar, the NT dollar exchange rate was relatively stable compared to the volatility in the exchange rates of major currencies such as the pound, euro and yen against the US dollar (Chart 5.12).

5.2 Financial institutions

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

5.2.1 Domestic banks

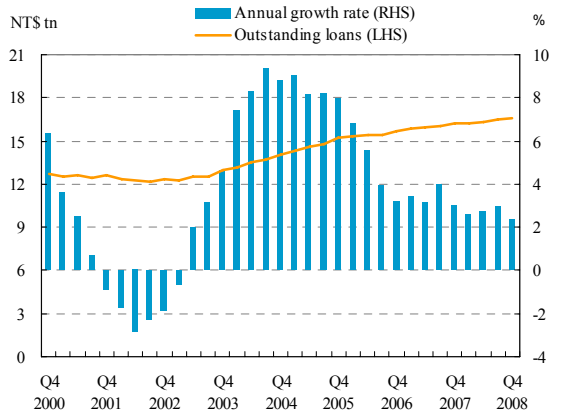
The growth in loans extended by domestic banks slowed down and credit risk in real estate-related loans and corporate loans increased modestly in the second half of 2008. Asset quality remained sound but showed signs of potential deterioration. Market risk relating to stock prices increased substantially; however, its impact on capital adequacy ratios was limited. Liquidity risk remained low as the banking system benefited from holding ample liquidity. The profitability of domestic banks declined substantially in 2008 as their profit sources were continuously eroded. Despite the fact that domestic banks as a whole remained adequately capitalized, closer monitoring of their increasing credit and market risks is warranted.

Credit risk

Customer loan growth slowed

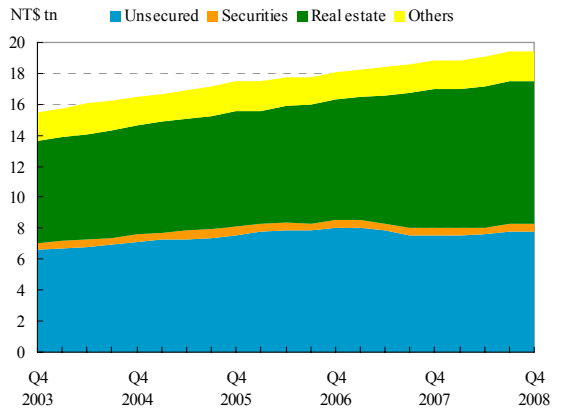
Customer loans[37] were the major type of credit exposure for domestic banks. The outstanding loans of the local business units of domestic banks at the end of 2008 stood at NT$16.57 trillion and accounted for 56.07% of total assets. The annual growth rate in loans continuously decreased to a mere 2.38% in December 2008, the lowest figure recorded since 2004, showing a marked slowdown (Chart 5.13). In 2009 Q1, the year-on-year loan growth rate declined further to only 0.02% in March, with annual growth rates of -0.24% and 0.75% for individual loans and corporate loans, respectively.

Chart 5.13 Outstanding loans and annual loan growth rate in domestic banks



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

Chart 5.14 Credit by type of collateral in domestic banks



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

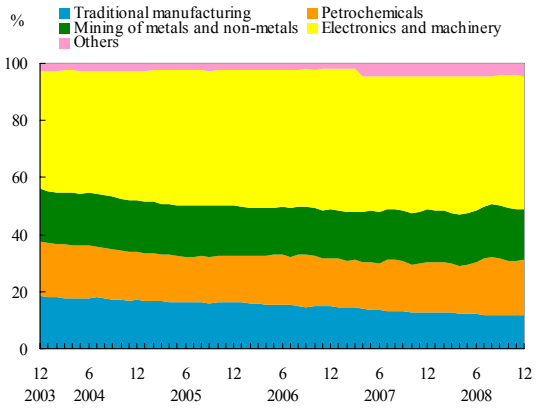
The concentration of credit exposure in the real estate market continued increasing

The concentration of credit exposure in the real estate market has trended upward in recent years, with the second half of 2008 being no exception. The outstanding real estate-related loans[38] of domestic banks reached NT$6.50 trillion and accounted for 39.21% of total loans as of the end of 2008. In addition, real estate secured credit granted by domestic banks amounted to NT$9.24 trillion or 47.50% of total credit at the end of 2008. This ratio was 4.97 percentage points higher than the figure five years ago (Chart 5.14) and trended upward further to 48.13% at the end of March 2009. Among individual banks, thirteen had ratios of real estate secured credit to total credit of over 60% as of the end of 2008.

[37] The term "customer loans" herein refers to amounts lent by local business units of domestic banks to their customers. It excludes interbank lending.
[38] The term "real estate-related loans" includes loans for construction, house purchases, and house refurbishments.

Currently, the non-performing loans (NPL) ratio of real estate-related loans was relatively low. However, the debt servicing capability of residential mortgage borrowers may be undermined in the face of rising unemployment rates, declining real incomes and shrinking personal wealth under the current sluggish economic environment. Together with a cooling off in the real estate market and downward pressures on housing prices, the credit risk of real estate-related loans could possibly increase.

Chart 5.15 Loans to the manufacturing sector by domestic banks

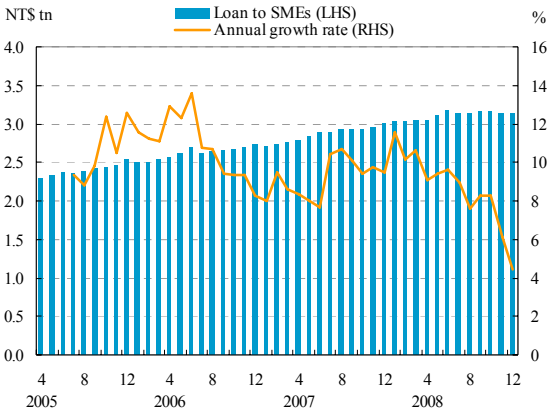


Note: End-of-period figures.
Source: CBC.

Credit risk of corporate loans continued to grow

Outstanding corporate loans of domestic banks stood at NT$7.50 trillion at the end of 2008, while loans to the manufacturing sector accounted for the largest share of 47.01% of the total. Within the manufacturing category[39], the largest proportion of loans were to electronics and machinery-related industries, which stood at NT$1.65 trillion and accounted for 46.71% of the total[40] (Chart 5.15). The ratio continued rising to 47.69% at the end of March 2009.

Chart 5.16 Outstanding loans to SMEs by domestic banks



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

In the second half of 2008, domestic banks became more conservative in extending credit to small and medium enterprises (SMEs)[41]. The total loans to SMEs stayed at NT$3.14 trillion as of the end of 2008, accounting for 41.84% of total corporate loans, while the annual growth rate declined dramatically to 4.42% in December 2008 (Chart 5.16) and turned to be negative with -0.82% reported in March 2009. Among loans to SMEs, the amount guaranteed

[39] Loans to the manufacturing sector are divided into four categories by industry, including electronics and machinery-related industries, mining of metals and non-metals related-industries, petrochemicals related-industries and traditional manufacturing industries. The remainders are classified as "others."

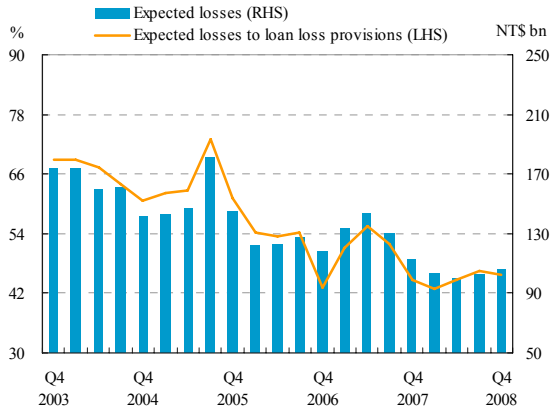
[40] The production value of electronics and machinery-related industries accounted for 39.86% of total manufacturing production value at the end of 2008, which is less than loans to electronics and machinery makers as a percentage of total loans to the manufacturing sector.

[41] Domestic banks' loans to SMEs were based on FSC data.

by the Small and Medium Enterprise Credit Guarantee Fund of Taiwan (SMEG) declined by 9.32% year on year and registered NT$478.5 billion, or 14.25% of the total SMEs loans at the end of 2008, while the guaranteed amount and guarantee coverage percentage stood at NT$310.8 billion and 64.96%, respectively.

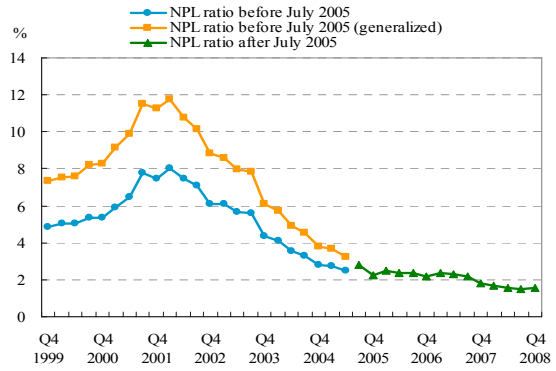
The prevailing global and local economic slowdowns caused a decrease in the profitability in the corporate sector and weakened companies' financial structures and short-term debt repayment capacities. As SMEs tend to be less transparent in financial disclosure and possess weaker loss absorption capacity to weather the current recession, their debt repayment and refinancing ability face far greater challenges. Credit risk of domestic banks relating to corporate loans is thus likely to witness gradual growth.

Chart 5.17 Expected losses on classified assets of domestic banks



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

Chart 5.18 Average NPL ratio of domestic banks



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

Asset quality remained sound despite potential deterioration

At the end of 2008, the outstanding classified assets[42] of domestic banks stood at NT$612.3 billion, and the average classified asset ratio was 2.07%, increasing by 5.61% and 0.02 percentage points, respectively, compared to the figures at the end of June 2008. Expected losses on classified assets were estimated at NT$106 billion,[43] increasing by 6.53% from the end of June 2008 (Chart 5.17). In 2009 Q1, banks' asset quality showed signs of deterioration, with the outstanding classified assets ratio elevating to 2.36% and their expected losses

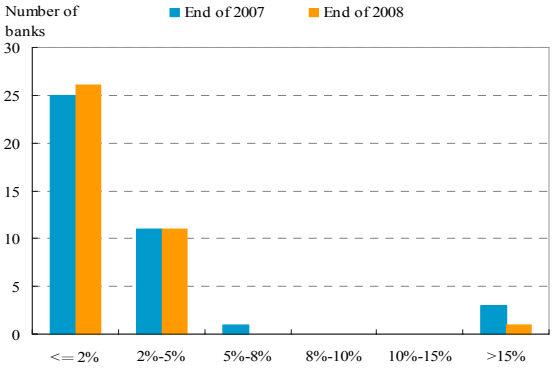
[42] The Regulations Governing the Procedures for Banking Institutions to Evaluate Assets and Deal with Non-performing/Non-accrual Loans break down credit assets into five different categories, as follows: category one – normal credit assets; category two – credit assets requiring special mention; category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

[43] Loss herein refers to the losses from loans, acceptances, guarantees, credit card revolving balances, and factoring without recourse.

increasing to NT$111.3 billion at the end of March. However, the provisions set aside by domestic banks were still sufficient to cover expected losses while the ratio of expected losses to loan loss provisions stood at 45.69% as of the end of 2008 (Chart 5.17).

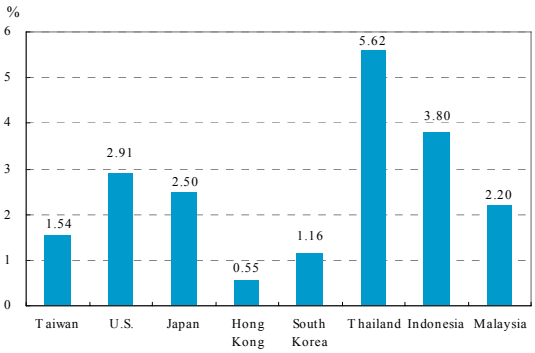
The outstanding NPLs of domestic banks stood at NT$285.9 billion as of the end of 2008, increasing by 1.67% from the end of June 2008. Although the average NPL ratio increased slightly to 1.54%, it remained at a low level (Chart 5.18), before rising further to 1.62% at the end of March 2009. Among individual banks, all had NPL ratios of less than 5%, except for one[44] with a ratio as high as 33.14%, while twenty-six had ratios of less than 2% (Chart 5.19). Compared to the US and other neighboring Asian countries, the NPL ratio of domestic banks was lower than in the US, Japan, Thailand, Indonesia, and Malaysia, but higher than in Hong Kong and South Korea (Chart 5.20).

Chart 5.19 Distribution of NPL ratios of domestic banks



Note: Excludes interbank loans.
Source: CBC.

Chart 5.20 NPL ratios of banks in selected countries



Note: Figures for Japan and Hong Kong are end-September 2008 data. The others are end-December 2008.
Sources: CBC, FDIC, FSA, HKMA, FSS, BOT, BI, and BNM.

The loan loss provisions of domestic banks were substantially enhanced in order to cope with the rise in NPLs in 2008 Q4. As a result, the NPL coverage ratio at the end of 2008 increased to 69.48%, while the loan loss reserve ratio rose to 1.07% (Chart 5.21), indicating that domestic banks started to set additional provisions aside to deal with possible future loan losses.

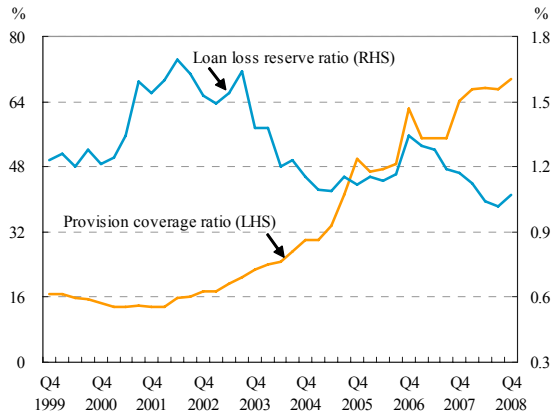
The asset quality of domestic banks remained sound but showed signs of deterioration. Together with potential weakness in the financial health and repayment capability of the corporate and household sectors caused by the economic recession, the credit risk of domestic banks could conceivably escalate.

[44] This bank was taken into conservatorship by the Central Deposit Insurance Corporation (CDIC) on 26 September 2008.

Market risk

Estimated Value-at-Risk dropped

Chart 5.21 Provision coverage ratio and loan loss reserve ratio of domestic banks



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

The capital requirements for market risks in domestic banks, based on Basel Ⅱ calculations, followed a decreasing trend and only accounted for 2.32% of eligible capital at the end of 2008. The decline was because banks continued to cut market risk positions from the second half of 2007 after the eruption of the US subprime crisis. The estimated Value-at-Risk (VaR)[45] for market exposure of domestic banks stood at NT$124 billion at the end of 2008, dropping by 4.62% from the end of June 2008. Among market risks, equity risk accounted for the largest share at 59.52% of the total VaR, followed by interest rate risk at 38.87%, while foreign exchange risk contributed a mere 1.61%. Compared to the end of June 2008, equity risk rose notably as a

Table 5.1 Market risks in domestic banks

Unit: NT$ bn

Types of risk	Items	End-June 2008	End-Dec. 2008	Changes	
				Amount	%
Foreign exchange	Net position	87.6	43.6	-44.0	-50.23
	VaR	3.1	2.0	-1.1	-35.48
	VaR / net postiton	3.54	4.59		1.05
Interest rate	Net position	3,058.9	3,191.6	132.7	4.34
	VaR	64.3	48.2	-16.1	-25.04
	VaR / net position	2.10	1.51		-0.59
Equity	Net position	525.4	451.9	-73.5	-13.99
	VaR	62.6	73.8	11.2	17.89
	VaR / net position	11.91	16.33		4.42
Total VaR		130.0	124.0	-6.0	-4.62

Source: CBC.

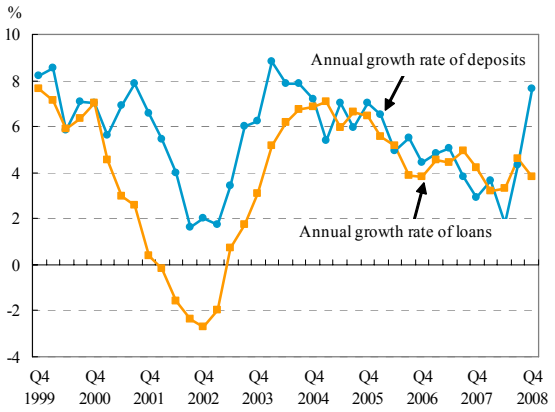
[45] The VaR (Value at Risk) with each category of risk for the test period is estimated by a multivariate historical simulation model for foreign exchange risk, a constant correlation generalized autoregressive conditional heteroscedasticity model for interest rate risk, and a quantile autoregression model for equity risk in this report. The confidence level is 99%, a holding period of ten trading days is used and exposure positions are assumed unchanged. The models are estimated using 250 foreign exchange rate, interest rate, and stock price samples.

result of increasing volatility in the stock market, even with declining equity positions, while interest rate risk and foreign exchange risk diminished due to a reduction in the volatility of long-term interest rates and net foreign exchange positions, respectively (Table 5.1).

The effects of market risks on capital adequacy ratios were limited

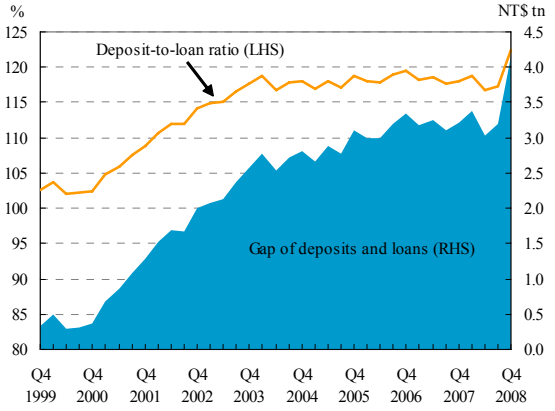
As of the end of 2008, the effects of VaR for foreign exchange rates, interest rates, and stock prices upon the capital adequacy ratios of domestic banks were 0.002, 0.15, and 0.52 percentage points,[46] respectively. Assuming that the above-mentioned risks were mutually independent and occurred simultaneously, market risk would cause a decrease of 0.65 percentage points in the average capital adequacy ratio, and induce the current ratio of 10.91%[47] to fall to 10.26%.

Chart 5.22 Annual growth rate of deposits and loans of domestic banks



Source: CBC.

Chart 5.23 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.

Liquidity risk

Liquidity remained ample in the banking system

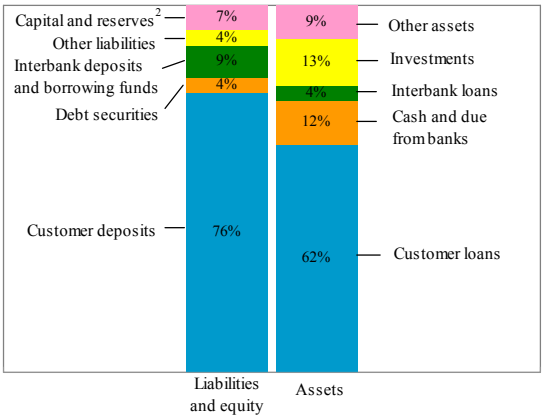
The deposits in domestic banks rose markedly in the second half of 2008 and grew by 7.66% year on year in December owing to a large amount of overseas funds flowing back into bank deposits. In contrast, the annual growth rate of loans dropped to 3.83% in December due to banks' more conservative credit policies (Chart 5.22). As a result, the average deposit-to-loan ratio of domestic banks increased dramatically and reached 122.34% at the end of 2008. The funding surplus (i.e. deposits exceeding lending demand) registered NT$4.16 trillion,

[46] To avoid double counting, the regulatory capital required for market risks is deducted from the effects of VaR on the capital adequacy ratio.
[47] The term "capital adequacy ratio" used herein is based on regulatory capital which has deducted unamortized deferred losses on the sale of NPLs.

reflecting abundant liquidity in domestic banks (Chart 5.23). This situation continued in 2009 Q1, as the deposit-to-loan ratio rose to 127.31% as of the end of March.

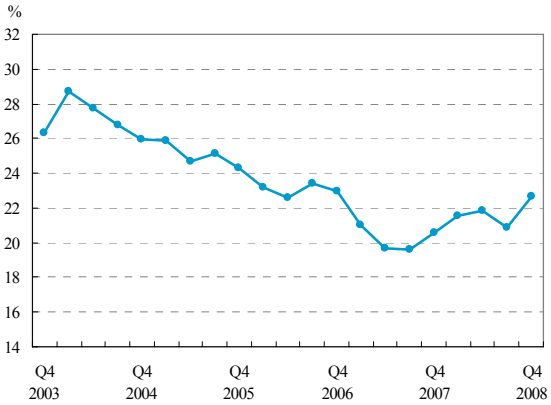
As for the sources of funds, relatively stable customer deposits accounted for 76%, the largest share, of the total in domestic banks, followed by interbank deposits and borrowings at 9%, while debt securities issues contributed a mere 4% at the end of 2008. Regarding the uses of funds, customer loans accounted for the biggest share of 62% but declined by two percentage points from the end of June 2008 due to stricter credit policies, while cash and due from banks accounted for an increasing ratio of 12% of the total (Chart 5.24).

Chart 5.24 Sources and uses of funds in domestic banks



Notes: 1. Figures are end-December 2008.
2. Includes provisions.
Source: CBC.

Chart 5.25 Liquid reserve ratio of domestic banks



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

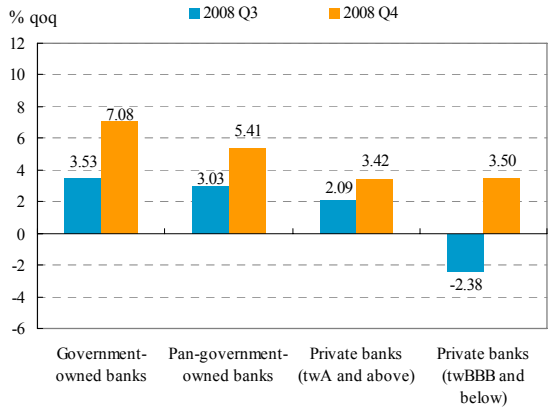
Overall liquidity risk was moderate

The average NT dollar liquid reserve ratio of domestic banks escalated to 22.70% in December 2008, well above the statutory minimum of 7% (Chart 5.25), and rose further to 25.43% in March 2009. The reserve ratio of each domestic bank in December 2008 was higher than 12%. Tier 1 liquid reserve,[48] mainly consisting of certificates of deposit issued by the CBC, accounted for 92.72% of total liquid reserves in December 2008, while Tier 2 and Tier 3 reserves accounted for 6.61% and 0.67%, respectively. This reveals that the quality of liquid assets held by domestic banks remained satisfactory and overall liquidity risks were moderate.

[48] 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.

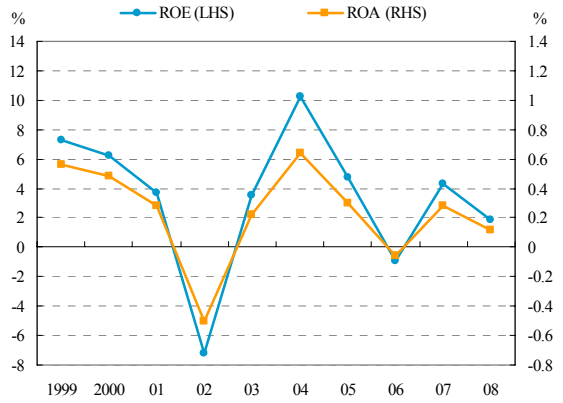
In September 2008, domestic depositors' confidence in some banks was affected as financial institutions in the US and other countries successively became mired in financial difficulties. As a result, a few private banks temporarily experienced a large number of withdrawals and suffered funding difficulties. To cope with this emergent situation, the CBC decreased discount rates and reserve ratios, expanded the scope of Repo facility operations, and provided foreign-currency loans to meet the foreign exchange liquidity demands of domestic banks. In addition, the government provided a blanket guarantee for deposits in all insured institutions (banks and community financial institutions). The above measures effectively eased the deposit drainages and liquidity tensions suffered by private banks (Chart 5.26).

Chart 5.26 Changes in the balances of deposits in domestic banks



Notes: 1. Figures are the percentage change on a quarter-on-quarter basis.
2. There are two government-owned banks and five pan-government-owned banks.
Sources: CBC and credit rating agencies.

Chart 5.27 ROE & ROA of domestic banks



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

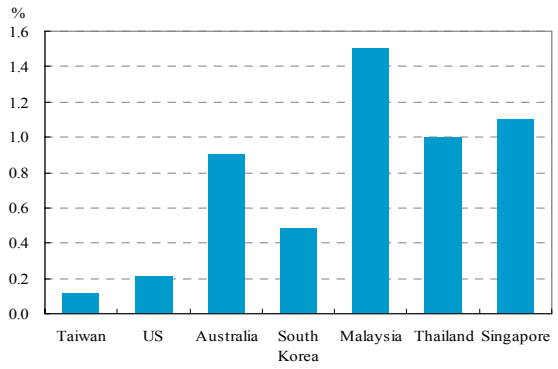
Profitability

Profitability contracted significantly in 2008

Due to huge investment losses, domestic banks as a whole posted a net income before tax of NT$34.4 billion in 2008, a decrease of 55.68% year on year. The average return on equity (ROE) and return on assets (ROA) slid to 1.86% and 0.12%, respectively (Chart 5.27). In 2009 Q1, the net income before tax of domestic banks stood at NT$19.2 billion, 21.79% lower than the same period of 2008. Compared to the US and other Asia-Pacific neighboring countries, the profitability of domestic banks was relatively low (Chart 5.28).

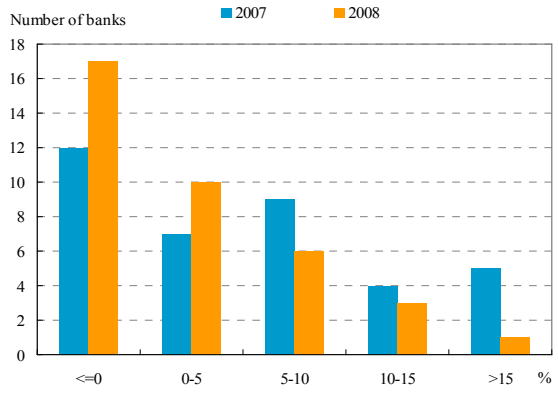
Among twenty-four banks with declining profitability in 2008, seventeen banks suffered losses and posted negative ROEs, mainly because of shrinking revenues or losses on investments. Moreover, the number of banks achieving a profitable ROE of 15% or more decreased from five in 2007 to only one in 2008 (Chart 5.29).

Chart 5.28 Comparison of ROA in selected countries



Note: Data for Singapore is for end-September 2008, while the others are for end-December 2008.
Sources: CBC, FDIC, APRA, FSS, BNM, BOT, and MAS.

Chart 5.29 Distribution of ROE of domestic banks



Source: CBC.

As for operating revenues and costs, total operating revenues of domestic banks declined by 13.15% year on year. This was mainly because : (1) net gains on financial instruments and other net revenues fell dramatically due to the weakened stock market and increasing provisions for potential losses associated with US subprime mortgage-related products; (2) net fees and commission income decreased materially under the influence of a sharp contraction in wealth management businesses such as structured notes and mutual funds; and (3) the increase in net interest income, the primary source of operating revenues, was limited by shrinking interest rate spreads between deposits and loans.[49] On the cost side, operating costs fell by 7.30% year on year as a result of a sharp decline in loan loss provisions, although non-interest expenses leveled off (Chart 5.30).

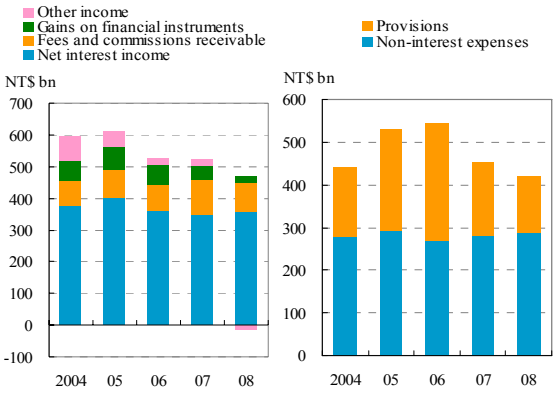
Future profitability might be undermined

Domestic banks reported decreasing investment exposures to US subprime mortgage-related products[50] and set loss provisions to cover most of the related investment losses. Thus, there will be limited influence on banks' future profitability. However, as the global financial crisis has shown little improvement and the domestic and foreign economies have entered severe

[49] The average interest rate spread between deposits and loans was 1.61 percentage points in 2008 Q4, shrinking from 1.69 percentage points in Q2.
[50] Outstanding exposures included US subprime mortgage-related stocks and bonds, and the securitized shares of subprime mortgages.

downturns, the future profitability of domestic banks faces several uncertainties, as follows: (1) escalating corporate and individual credit risks might increase the need for loan loss provisions; (2) narrowed interest rate spreads between deposits and loans will limit the growth of net interest income; and (3) increasing costs of reputational risk could arise from resolving disputes on the sale of structured notes.

Chart 5.30 Composition of incomes and costs of domestic banks



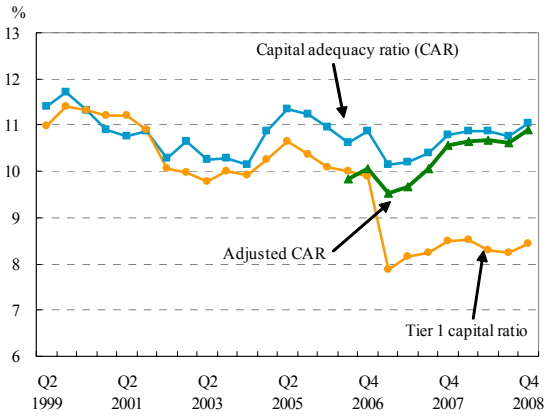
Source: CBC.

Capital adequacy

Capital adequacy ratios increased slightly

Though several banks suffered operating losses and eroded capital in the second half of 2008, the average capital adequacy ratio and Tier 1 capital ratio [51] of domestic banks continued increasing to 11.04% and 8.43%, respectively, at the end of 2008 (Chart 5.31). This was mainly because some banks raised capital by equity offerings or issuing subordinated bonds, or reduced the amount of their capital deductions. Given that unamortized deferred assets of NT$22.4 billion[52] arising from losses recorded on the sale of classified assets were deducted from regulatory capital, the adjusted capital adequacy ratio came to 10.91%, up by 0.23 percentage points from the end of June 2008. It reflected that the capital adequacy of domestic banks improved slightly. However, compared to the US and some Asia-Pacific neighboring countries, the average capital adequacy ratio of domestic banks is lower (Chart 5.32).

Chart 5.31 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.

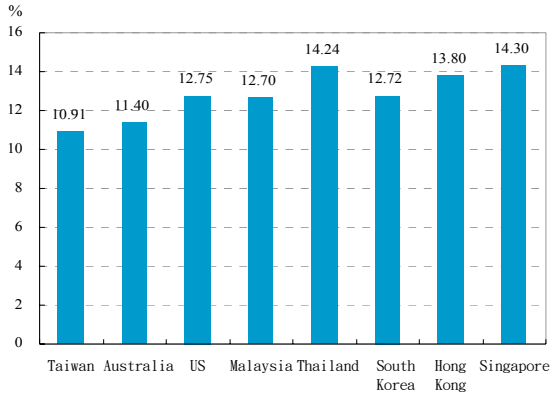
[51] The capital adequacy ratios and the Tier I capital ratios at the end of 2008 herein are according to audited financial statements.
[52] Article 4 of the Regulations Governing the Capital Adequacy of Banks as amended on 5 January 2007 requires that unamortized losses recorded on the sale of non-performing assets in 2007 or later should be deducted from Tier 1 capital. This requirement does not apply to sales made on or before 31 December 2006.

Further breaking down the components of regulatory capital, Tier 1 capital, which features the best risk bearing capacity, accounted for 76.32% of eligible capital, while Tier 2 capital registered 23.40% and Tier 3 capital contributed a mere 0.28% at the end of 2008. The ratio of Tier 1 capital moderately increased, while those of Tier 2 and Tier 3 capital slightly decreased.

Very few banks held insufficient capital, with limited impact on the banking system

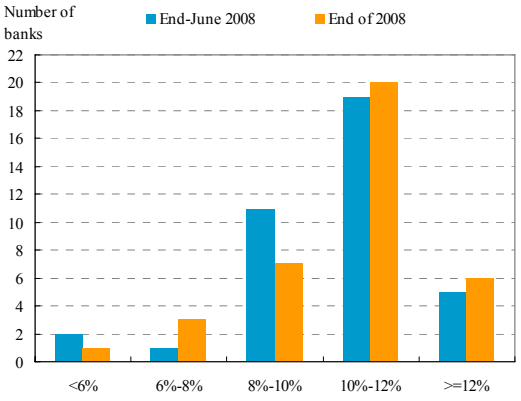
There were two banks with capital adequacy ratios under the statutory minimum (8%) at the end of 2008. As for adjusted capital adequacy ratios, four banks, with combined assets accounting for only 3.85% of the total, had ratios below the statutory minimum with limited impact on the banking system. In addition, there were twenty-six banks with ratios above 10%, two banks more compared with the end of June 2008 (Chart 5.33).

Chart 5.32 Comparison of capital adequacy ratios in selected countries



Notes: 1. Figures for Hong Kong and Singapore are end-September 2008 data, while the others are end-December 2008 data.
2. The figure for Taiwan is adjusted capital adequacy ratio.
Sources: CBC, APRA, FDIC, BNM, BOT, FSS, HKMA, and MAS.

Chart 5.33 Distribution of adjusted capital adequacy ratios of domestic banks



Source: CBC.

Credit ratings

Average credit ratings remained satisfactory

The rankings of Taiwan's banking system in the Standard & Poor's "Banking Industry Country Risk Assessment (BICRA)"[53] remained unchanged in Group 4 in the second half of 2008. In October 2008, Fitch Ratings upgraded Taiwan's ranking on its "Banking System

[53] 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).

Indicator / Macro-Prudential Indicator (BSI/MPI)."[54] The BSI was upgraded from D to C, reflecting an improvement in both capital and loss reserves held by Taiwan's banking industry, while the MPI remained unchanged at level one (Table 5.2). Compared to other Asian economies, the risks in Taiwan's banking industry were higher than in Hong Kong, Singapore, and Japan, about the same as those in South Korea and Thailand, but much lower than in China, Indonesia, and the Philippines.

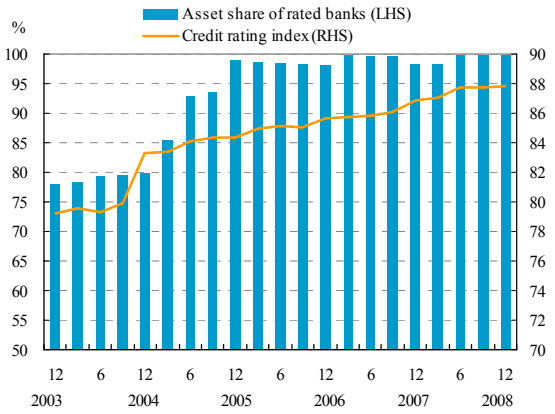
Table 5.2 Systemic risk indicators for the banking system

Banking System	Standard and Poor's	Fitch
	BICRA	BSI/MPI
Hong Kong	2	B/1
Singapore	2	B/1
Japan	3	B/1
South Korea	4	B/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-December 2008 data.
Sources: Standard and Poor's and Fitch Ratings.

Although there were three banks with downgraded credit ratings in the second half of 2008, the credit rating index[55] continued to rise due to the increasing asset share of highly rated banks (Chart 5.34), reflecting the improvement in the overall credit rating level of domestic banks. In 2009 Q1, the overall credit rating level remained satisfactory, although one bank was downgraded, resulting in a slight decrease in the credit rating index.

Chart 5.34 Credit rating index of rated domestic banks



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

Uncertainties over future credit ratings were high

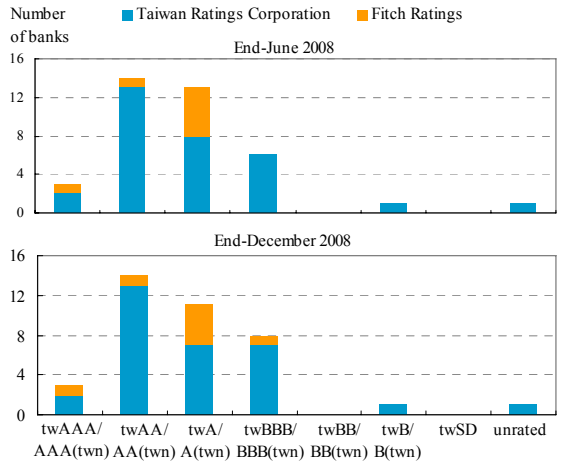
Most rated banks received credit ratings of twAA/twA (Taiwan Ratings) or AA(twn)/A(twn) (Fitch Ratings) at the end of 2008, while there was only one bank with a credit rating of twB- (Chart 5.35). It showed that the credit ratings of domestic banks generally remained unchanged in the second half of 2008, even under unfavorable economic conditions.

[54] 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.

[55] 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.

However, there were five banks with a negative rating outlook at the end of 2008 due to increasing uncertainties regarding asset quality, low provisions, or the high pressure of maintaining adequate capital, and two banks with a "developing" rating outlook at the end of 2008. In 2009 Q1, there were four more banks with negative rating outlooks or CreditWatch owing to poor profitability or weakened capital adequacy. Uncertainties over future credit ratings of domestic banks remain high.

Chart 5.35 Distribution of credit ratings of rated domestic banks



Note: Credit rating "twSD" refers to selective default.
Sources: Taiwan Ratings Corporation and Fitch Ratings.

5.2.2 Life insurance companies

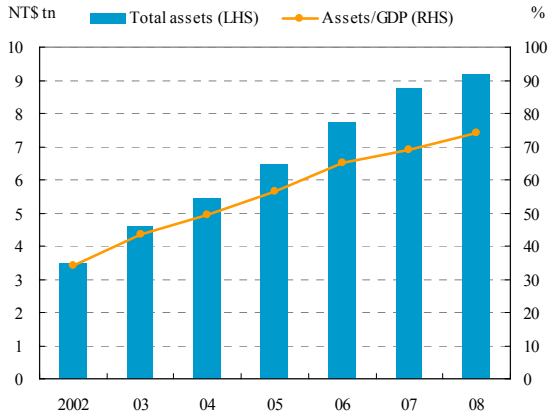
The asset growth of life insurance companies slowed down in 2008. They registered a huge combined net loss before tax of NT$144.2 billion for the year, resulting in a sharp erosion of their net worth, and remained under great pressure from potential losses driven by negative interest rate spreads. As a result of temporarily adjusting the risk-based capital system and capital injections to support some companies, the average risk-based capital (RBC) ratio increased but still remained below the statutory minimum. As for credit ratings, some companies were downgraded or listed on negative rating outlooks or CreditWatch.

Asset growth slowed down

The total assets of life insurance companies increased slowly to NT$9.16 trillion at the end of 2008, equivalent to 74.20% of annual GDP, while its annual growth rate decreased from 12.79% at the end of 2007 to 4.94% (Chart 5.36). The increase in assets was mainly supported by a surge of securities investments and deposits along with a certain degree of growth in loans. However, insurance products held in segregated custody accounts, the major component of other assets, shrank markedly owing to the continued decrease of investment-linked insurance policies resulting from the financial crisis and customer disputes regarding structured products.

The structure of the life insurance market in 2008 changed slightly. As of the end of 2008, twenty-three domestic life insurance companies held a 98.94% market share by assets, while seven foreign life insurance companies[56] commanded a share of only 1.06%. The top three companies held a combined market share of 56.40% and 44.50% in terms of assets and premium income, respectively. These ratios represented a high market concentration in the life insurance industry even though they decreased slightly compared to 2007.

Chart 5.36 Total assets of life insurance companies

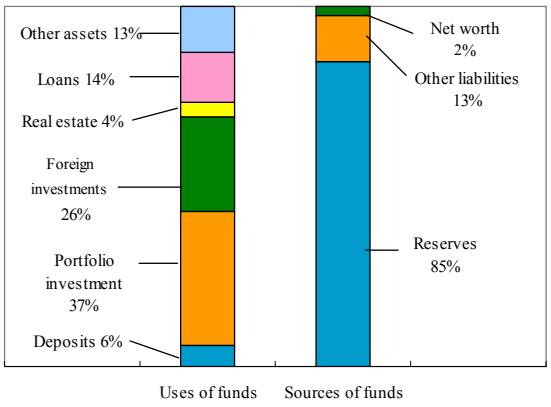


Note: End-of-period figures.
Source: FSC.

Funds invested in deposits increased while securities investments grew slowly

The funds of life insurance companies at the end of 2008 were mainly invested in domestic and foreign securities, accounting for 63% of funds, while 14% of funds were in loans and only 4% in real estate. As for the sources of funds, various policy reserves constituted 85%, while net worth accounted for only 2% of funds (Chart 5.37). Usable funds of life insurance companies in 2008 continued growing while deposits registered a marked increase of 25.97% owing to limited investment opportunities caused by the sluggish investment environment. Securities investments continued increasing but at a much slower pace of growth, whereas real estate investment growth remained steady.

Chart 5.37 Sources and uses of funds in life insurance companies



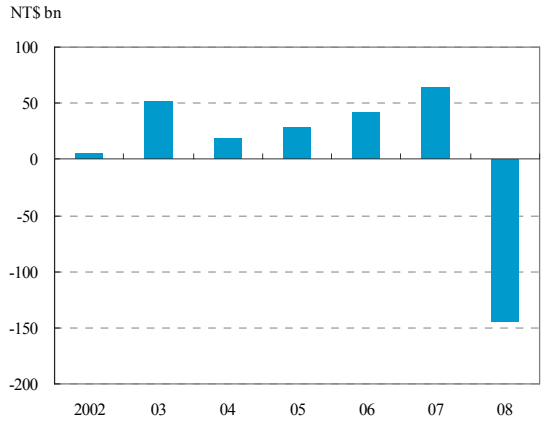
Note: Figures are end-December 2008 data.
Source: FSC.

[56] Including foreign affiliates.

Registering losses in 2008

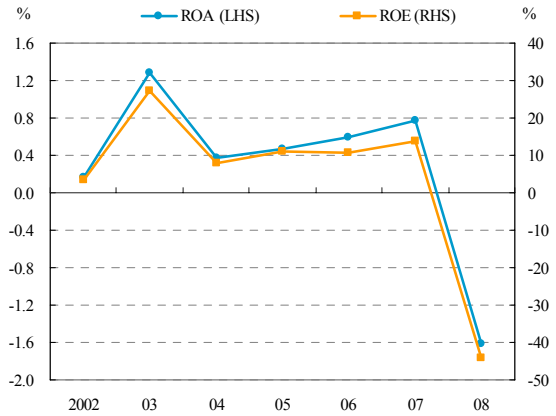
Life insurance companies as a whole registered a net loss before tax of NT$77 billion in the first half of 2008, mainly led by the appreciation of the NT dollar as well as the enormous losses resulting from foreign investments. Although there was a sizable recovery of foreign exchange losses owing to the depreciation of the NT dollar in the second half of 2008, investment losses increased further due to the deepening international financial crisis, and policy reserves increased enormously on account of business expansion. As a result, total net losses before tax registered NT$144.2 billion in 2008 (chart 5.38). Average ROE and ROA also declined substantially and stood at -44.03% and -1.61%, respectively (Chart 5.39). This shows that life insurance companies were the sector of the financial industry most affected by the financial crisis.

Chart 5.38 Net income before tax of life insurance companies



Source: FSC.

Chart 5.39 ROE & ROA of life insurance companies



Note: ROA = net income before tax / average assets.
ROE = net income before tax / average equity.
Source: FSC.

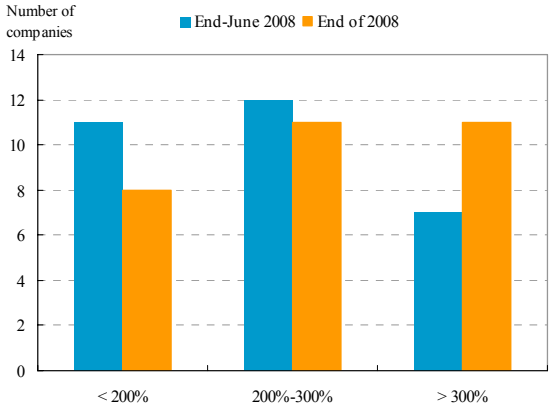
As a consequence of the poor performance of domestic and foreign financial markets, the average return on investment of life insurance companies was only 1.87% in 2008. This was much lower than the 3.78% registered in 2007, showing the deterioration in investment income resulting in the negative interest rate spread. As the depressed investment market and the massive decrease in interest rates after the CBC's seven consecutive discount rate cuts may continue to erode future investment returns, the negative interest rate spread might not improve in the near future and investment losses may take time to recover.

Average RBC ratio fell below the statutory minimum

The net worth of life insurance companies registered NT$ 222.1 billion at the end of 2008, a substantial decrease of 48.70% year on year due to huge losses during the year. In response to

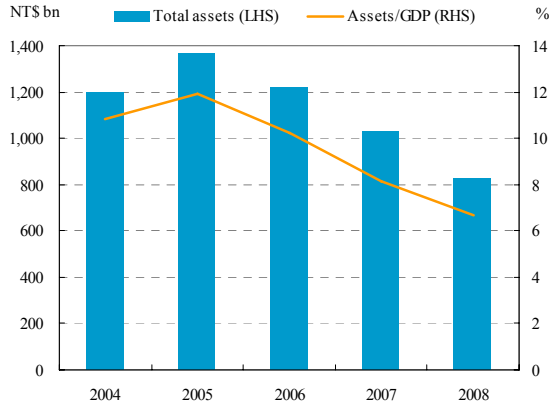
the global financial crisis, however, the FSC temporarily adjusted the risk-based capital system[57] of the insurance industry, and some companies raised capital of over NT$140 billion in total in 2008. As a result, the average RBC ratio [58] for life insurance companies increased considerably from 162.37% at the end of June 2008 to 190.37% at the end of the year, but was still below the statutory minimum of 200%. There were eleven companies with ratios of over 300%. However, eight companies had ratios below the statutory minimum, the combined assets of which accounted for 15.58% of the total (Chart 5.40). The financial structure of these companies needed to be improved.

Chart 5.40 RBC ratio of life insurance companies



Source: FSC.

Chart 5.41 Total assets of bills finance companies



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

Credit ratings for the top three companies remained above twAA or AA (twn)

Of the twelve domestic life insurance companies rated by credit rating agencies, six companies were downgraded or listed on negative rating outlooks or CreditWatch during the period from July 2008 to January 2009, reflecting their weakness in profitability and capital. Nevertheless, the top three companies were rated above twAA or AA(twn), respectively, signifying their strong ability to meet all financial commitments.

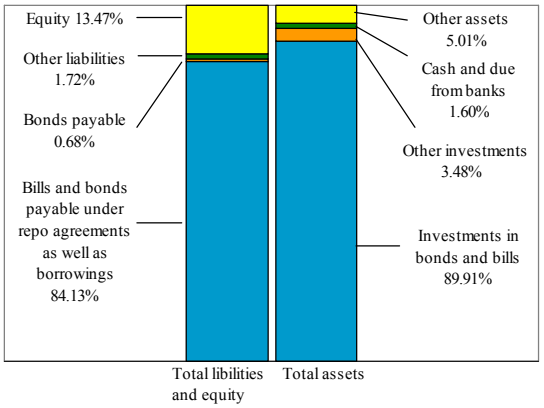
5.2.3 Bills finance companies

The total assets of bills finance companies continued to decrease in 2008. At the same time, profitability deteriorated but asset quality was satisfactory and capital adequacy improved.

[57] See the section "Measures to stabilize the financial system" of chapter six "Taiwan's policy measures to cope with the global financial crisis" in this report.
[58] Risk-Based Capital (RBC) ratio for life insurance companies = regulatory capital/risk-based capital. Under Article 143-4 of the Insurance Act, this ratio must be at least 200%.

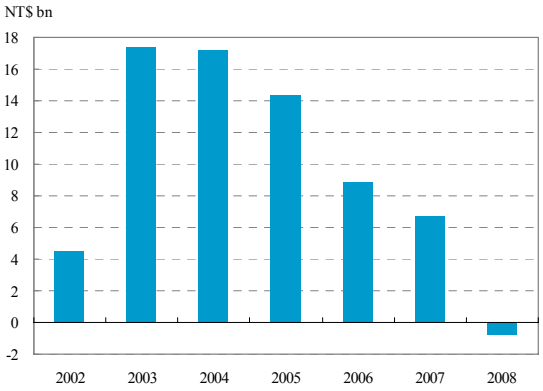
The bills finance companies faced a maturity mismatch between assets and liabilities and a contraction in the commercial paper guarantee business, while liquidity risk temporarily rose in September 2008 but then mitigated.

Chart 5.42 Asset/liability structure of bills finance companies



Note: Figures are end-December 2008 data.
Source: CBC.

Chart 5.43 Net income before tax of bills finance companies



Source: CBC.

Total assets continued to contract

The total assets of bills finance companies continued to decline and stood at NT$823.1 billion, or 6.67% of annual GDP, as of the end of 2008, with a decrease of 20.12% year on year (Chart 5.41). The main reasons behind this were that two bills finance companies were merged by their affiliated banks and that some bills finance companies reduced their investments in bonds and bills. The three largest bills finance companies commanded a market share by assets of 72.66% in total. For other firms, each of them had a market share below 7%.

As for asset/liability structure at the end of 2008, investments in bonds and bills on the asset side accounted for 89.91% of total assets, an increase of 0.64 percentage points compared to June 2008, while bills and bonds payable under repo agreements as well as borrowings on the liability side accounted for 84.13%, a decrease of 1.84 percentage points compared to June 2008 (Chart 5.42).

Profitability deteriorated but saw an improvement in early 2009

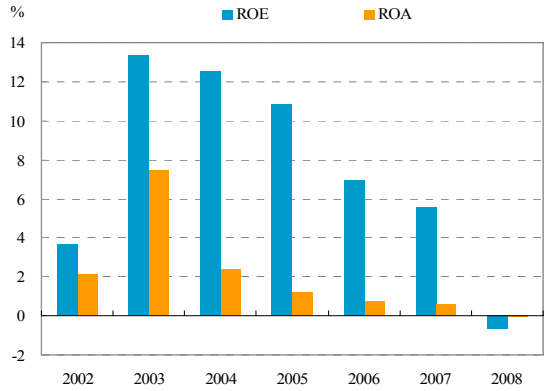
The profitability of bills finance companies deteriorated deeply as they posted a combined net loss before tax of NT$0.78 billion in 2008, a big decrease compared to a gain of NT$6.68 billion in 2007 (Chart 5.43). At the same time, ROE and ROA dropped dramatically to -0.71% and -0.08%, respectively (Chart 5.44). The deterioration in profitability was mainly the result of the narrowing spread between short-term and long-term interest rates as well as the losses of asset-backed commercial paper investments which were linked to defaulted

foreign underlying assets. Because the interest spread widened in early 2009, the profitability of bills finance companies improved and posted a combined net income before tax of NT$3.51 billion in 2009 Q1.

Both the average capital adequacy ratio and financial leverage improved

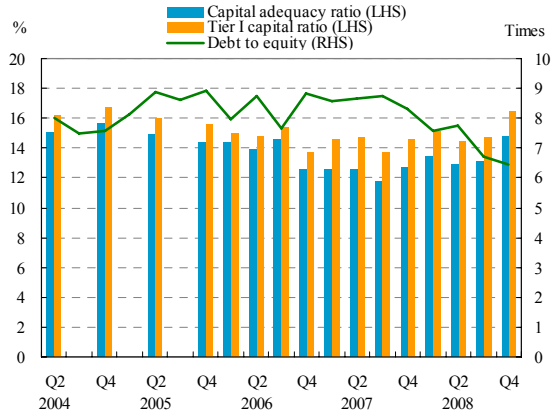
The average capital adequacy ratio of bills finance companies increased and reached 14.96% as of the end of 2008. For individual companies, only one had a ratio slightly below 8% due to losses in 2008, while the others had ratios above 13%. The average Tier 1 capital ratio also rose and stood at 16.63% as of the end of 2008. Owing to a contraction in debt and an increase in equity, the average debt to equity ratio slid markedly to 6.43 times as of the end of 2008 (Chart 5.45). These improvements showed that the financial structure of bills finance companies was continually enhanced during the year.

Chart 5.44 ROE & ROA of bills finance companies



Notes: 1. ROA = net income before tax / average assets.
2. ROE = net income before tax / average equity.
3. ROA in 2008 is merely 0.08%.
Source: CBC.

Chart 5.45 Capital adequacy ratio of bills finance companies

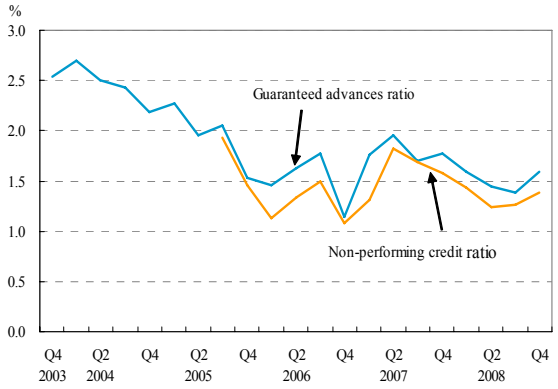


Note: The debt figures before 2003 included securities sold under repo agreements.
Source: CBC.

Credit quality remained satisfactory

The guaranteed advances ratio and non-performing credit ratio [59] for the guarantee business increased and stood at 1.59% and 1.38%, respectively, at the end of 2008, mainly driven by the contraction of outstanding guarantees. However, the quality of credit assets at bills finance companies remained satisfactory (Chart 5.46). The outstanding amount of stock-secured credit registered NT$54.2 billion or 16.92% of total credit at the end of 2008, lower than the figure at the end of June 2008. In spite of the mild rebound in the stock market in 2009 Q1, the risk of stock-secured credit remained high.

Chart 5.46 Guaranteed advances ratio of bills finance companies

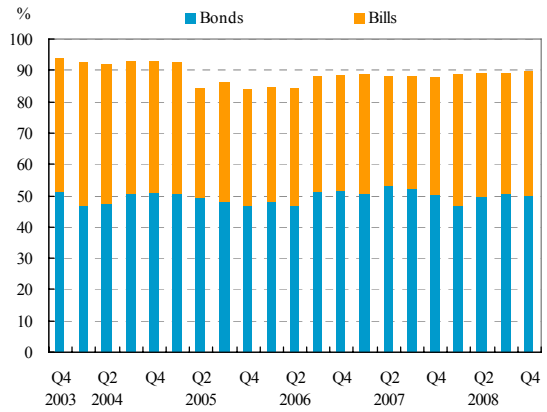


Notes: 1. Guaranteed advances ratio = overdue guarantee advances / (overdue guarantee advances + guarantees). Non-performing credit ratio = non-performing credit / (overdue guarantee advances + guarantees).
2. The data of non-performing credit ratios are compiled from September 2005 onwards.
Source: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

Liquidity risk was mitigated

Investments in bonds and bills constituted 89.91% of the assets of bills finance companies as of the end of 2008. Long-term bonds, in particular, accounted for about 50% (Chart 5.47). As short-term borrowings and repos made up 84.13% of total assets, an apparent mismatch in asset-liability maturity persisted. Bills finance companies were exposed to high liquidity risk from September 2008 when funding from the call-loan market dramatically decreased. This mainly resulted from waning confidence in the domestic financial market alongside the fact that the call loans which bills finance companies borrowed from banks were not covered by the interim blanket deposit insurance scheme. However, the liquidity risk of bills finance companies mitigated in early 2009 as their operations improved due to widening interest rate spreads and ample liquidity in the financial market.

Chart 5.47 Bond & bill positions as percentage of assets at bills finance companies

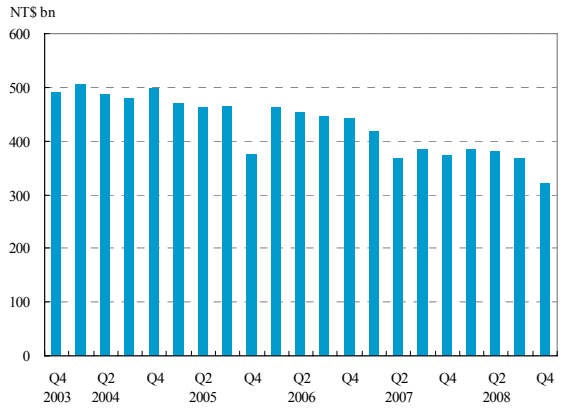


Note: End-of-period figures.
Source: CBC.

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

The guarantee business shrank

Chart 5.48 Outstanding commercial paper guarantees



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

The outstanding balance of commercial paper guaranteed by bills finance companies continued to decline in the second half of 2008. This figure dropped further to NT$320.3 billion as of the end of 2008, down 15.60% from the end of June 2008. The main reason was that bills finance companies appeared to reduce customers' credit lines in response to the difficulty in obtaining financing from the call-loan market from September 2008 (Chart 5.48). In 2009 Q1, the outstanding balance continued dropping in January and began to increase slightly in February, but the figure at the end of March was still lower than that at the end of 2008.

5.3 Financial infrastructure

5.3.1 Payment and settlement systems

Transactions of major systems

In 2008, the average daily transactions of the three major payment and settlement systems, the CBC Interbank Funds-Transfer System (CIFS), the Interbank Remittance System (IRS) and the Check Clearing House System (CCHS)[60], reached 2.26 million transactions in volume or NT$1.67 trillion in value, increasing by 0.95% or 5.61% year on year, respectively (Table 5.3). The transaction value of the IRS system decreased for the first time, contracting by 2.45% year on year in 2008. The main reason behind this was the average daily value for wire deposits[61] declined owing to the contraction in mutual funds and securities transactions caused by the global financial crisis and economic sluggishness.

[60] The CBC Interbank Funds Transfer System (CIFS) is operated by the CBC, handling interbank fund transfers and payment settlements. The Interbank Remittance System (IRS) is operated by the Financial Information Service Co., Ltd (FISC), providing remittance services, including interbank remittances, ATM withdrawals, fund transfers, financial EDI and internet payments. The Check Clearing House System (CCHS) is supervised by the CBC and handles clearing and settlements of checks, promissory notes, and drafts among banks.

[61] Remittance services provided by the IRS include: (1) wire deposits; (2) treasury remittances; (3) interbank remittances; (4) securities settlement payments; and (5) bills settlement payments.