III. Financial sectors

3. Financial markets

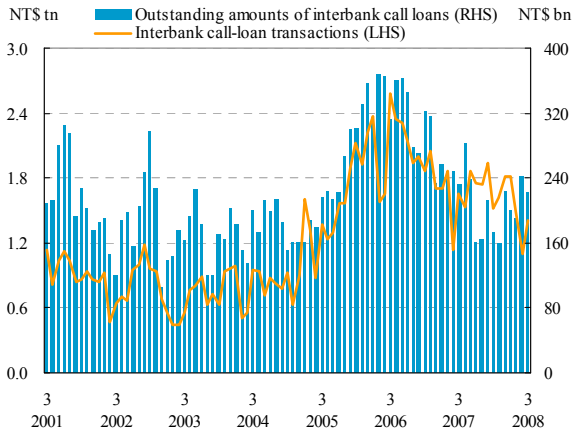
Trading volume in Taiwan's short-term bills and bonds markets continued to decline, while yield spreads remained tight. This situation is unfavorable to financial institutions which use short-term financing to fund long-term bond positions. Drastic fluctuations in the global stock market intensified stock market volatility here in Taiwan and upped the risks of stock investment positions. Large cross-border capital flows, moreover, increased the volatility of the NT dollar exchange rate against the US dollar. Appreciation of the NT dollar would cause large foreign exchange losses for financial institutions holding huge overseas investment positions, and could also be unfavorable to export industries.

3.1 Money and bond markets

Trading volume contracted for interbank call loans as well as bills and bonds

Trading volume and outstanding amounts of interbank call loans both picked up materially in 2005, and then peaked in mid-2006. In 2007, however, average monthly trading volume was down 15.10% year on year, while outstanding amounts of interbank call loans at the end of 2007 also fell by 21.74% from the year before. Interbank call-loan transactions consisted mainly of overnight call loans, which accounted for 54% of average interbank call-loan transactions in 2007, followed by one-week call loans with a share of 32%. Average monthly trading volume of interbank call loans in 2008 Q1 further dropped by 13.98% year on year, but the NT$222.6 billion figure for outstanding amounts at the end of March 2008 rose slightly by 4.18% over the previous year (Chart 3.1).

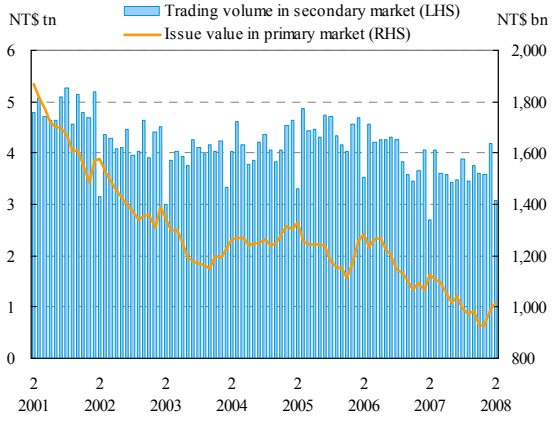
Chart 3.1 Interbank call-loan market



Source: CBC.

The primary bills market has contracted notably as enterprises have shown little interest in issuing bills, and bills houses have tightened the supply of credit to certain sectors of the economy in recent years. The outstanding amount of bills issuance as of 31 December 2007 had fallen to NT$925.3 billion, down 15.30% year on year, and roughly one-half the amount outstanding in early 2001. The figure for commercial paper has shown the steepest decline. The amount of bills issuance outstanding rose slightly in February 2008 due to funding needs connected with the Chinese New Year, but still declined by 9.63% year on year. Affected by the contraction in primary market issuances, the secondary market saw a similar decline with trading volume in 2007 off 11.03% from the year before. In January and February of 2008, however, trading volume increased by 7.28% year on year due to an abundance of funds in the market (Chart 3.2).

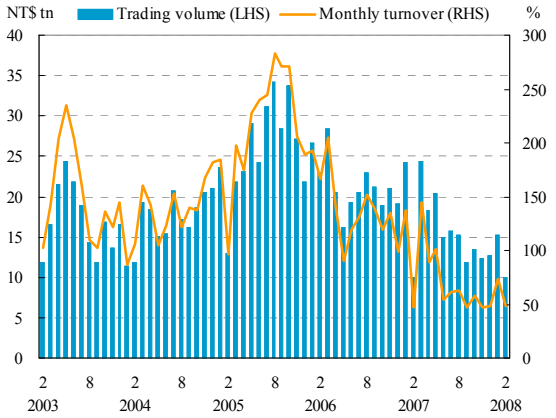
Chart 3.2 Primary and secondary bills markets



Source: CBC.

Trading volume in the bond market expanded sharply in the latter half of 2005, but began falling off notably in 2006 as the volume of hedge trading between traders plunged and the number of key market participants was reduced after some bills houses were merged by banks that are affiliates of domestic financial holding companies (such as Fubon Financial Holding and E.Sun Financial Holding). Reflecting this, bond trading amounts contracted appreciably, together with a declining turnover rate. In 2007, the bond trading amounts on a full-year basis plunged 25.03% due to rebounding bond yields and rotation of investor funds into the equity markets. The monthly turnover rate also fell to 47.64% by December 2007, the second lowest level over the past five years (Chart 3.3). The figure for government bonds was 73.02%, while it was 2.55% for corporate bonds (including bank debentures), reflecting insufficient market depth. As equity markets fell once again in January and February, funds rotated back into the

Chart 3.3 Bond market size and turnover



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

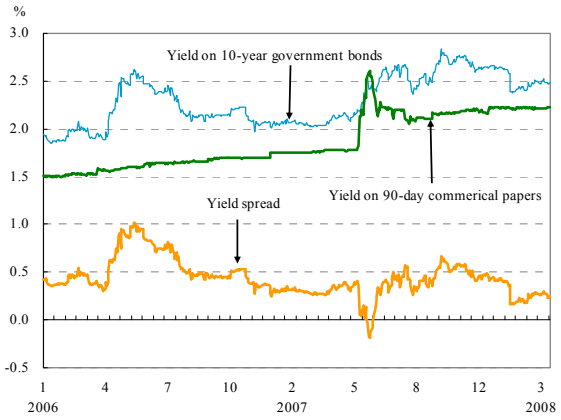
bond market, causing bond market trading volume and monthly turnover rates to rebound slightly, but they still remained at low levels.

Interest rates rose steadily, while yield spreads remained tight

NT dollar liquidity in domestic financial markets tightened slightly in early 2007 as local citizens continued to increase their overseas investments and banks took a more conservative attitude about funding management. Overnight interbank call-loan rates rose, peaking at 3.91% in late May, and then descended gradually in response to CBC open market operations, eventually falling back to an average of 2.08% in March 2008. Broadly tracking movements in overnight interbank call-loan rates, interest rates on bills rose and then fell, with the average rate on 1-30 day commercial paper at 2.03% in the secondary market in March 2008. As for long-term interest rates, the yield on 10-year government bonds began a gradual rise from 2.04% in March 2007 after the authorities raised the limit on the amount of overseas investment for domestic insurers and the CBC expanded open market operations to eliminate excess liquidity in the marketplace. The rate briefly dipped back down in August as funds flowed into the bond market due to global plunge in equities, but it then resumed its upward march (reaching as high as 2.84%) when the equity market rebounded and funds rotated back out of the bond market. However, yields trended downwards in 2008 Q1, and registered 2.47% at the end of March, as funds rotated back again into the safety of the bond market and US bond yields slid steeply.

The spread between 10-year government bonds and 90-day commercial papers began to shrink in June 2006. It actually turned to a negative 19 basis points in June 2007, but then rebounded to around 50 basis points. Due to declining bond yields, however, it contracted once again in 2008 Q1 and eventually reached an average of 27 basis points in March (Chart 3.4). Shrinking yield spreads will be unfavorable to financial institutions which use short-term financing to fund long-term bond positions.

Chart 3.4 Yield spreads



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

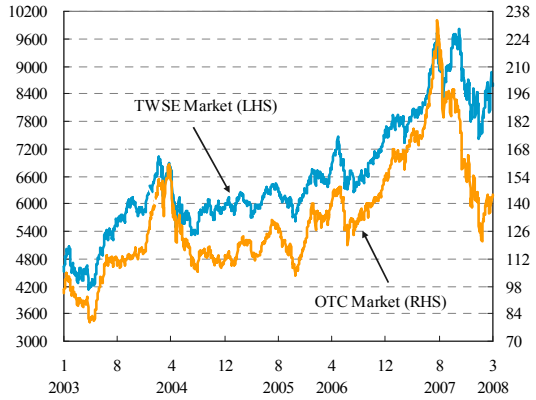
3.2 Equity markets

Stock indices trended higher amid increased volatility

Spurred on by buoyant stock markets around the globe, the Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan Stock Exchange (TWSE) market began to rise from about 6,200 in the second half of 2006, climbing to highs around 9,800 twice in July and October of 2007, but then fell back to 8,506 at the end of 2007 as the world's major stock markets reacted to the worsening US subprime mortgage crisis. The TAIEX declined further in early 2008, falling to a low of 7,408 before rebounding in late February on bullish sentiment prior to an election season and strong capital momentum. By the end of March, the TAIEX was back to 8,572, up 0.78% from the end of 2007. In the meantime, Taiwan's GTSM Index (the OTC index) basically tracked the movements of the TAIEX, falling sharply after hitting a peak of 233 in July 2007, and commencing a rebound in late February 2008 (Chart 3.5).

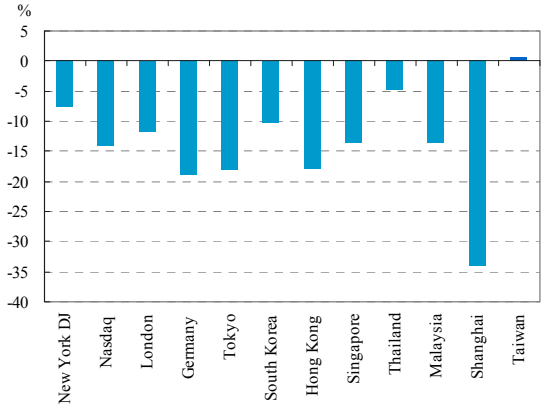
Broken down by sectors, the indices for the building material and construction sector and the tourism sector recorded the best performance in 2008 Q1, climbing 57.25% and 53.68%, respectively. However, most indices for electronics-related sectors declined, particularly the electronic parts & components sector and the optoelectronic sector. In addition, most major stock markets around the world declined in 2008 Q1, while Taiwan

Chart 3.5 Taiwan stock market indices



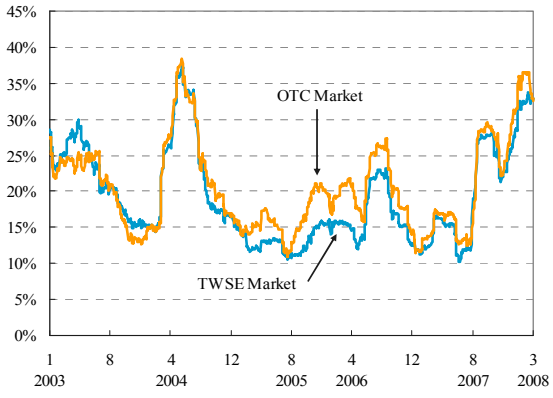
Sources: TWSE and GTSM.

Chart 3.6 Comparison of major stock market performances



Notes: 1. Figures are in 2008 Q1.
2. Taiwan's data is for TWSE market.
Sources: TWSE and Bloomberg.

Chart 3.7 Stock price volatility



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

alone bucked the trend by rising 0.78% (Chart 3.6).

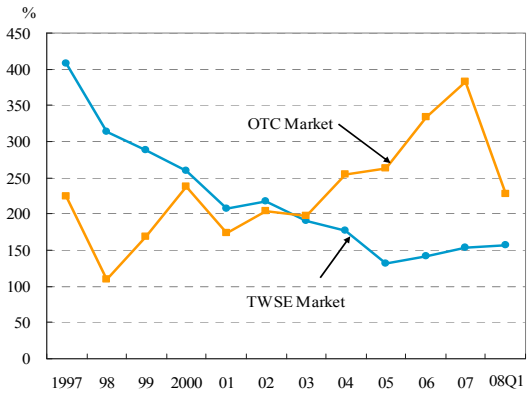
TAIEX volatility had been generally low since the latter half of 2004, but began to increase notably in August 2007, triggered by global stock market turbulence precipitated by the US subprime mortgage crisis. As the volatility on the TWSE market and the OTC market in March 2008 reached 32.66% and 32.56% (Chart 3.7), respectively, the risks in stock investments have risen significantly.

Slightly higher turnover in exchange-listed shares

Turnover ratio in terms of trading value on the TWSE posted a low of 131.36% in 2005, down from a peak of 407.32% in 1997. As the market turned bullish in 2006, the turnover ratio rose steadily and reached 153.28% in 2007. Trading remained active in 2008 Q1 as foreign capital inflows stimulated rising stock prices, causing the turnover ratio to increase slightly to 161.84%. Meanwhile, turnover ratio in the OTC market rose sharply amid heavy volume after the introduction of same day net settlement of margin purchases and short sales in 2005. As a result, its annual turnover ratio in 2007 reached 382.81% (Chart 3.8), far higher than on the TWSE, but plummeted to 227.72% in 2008 Q1 as the OTC market slumped and investors retreated to the sidelines.

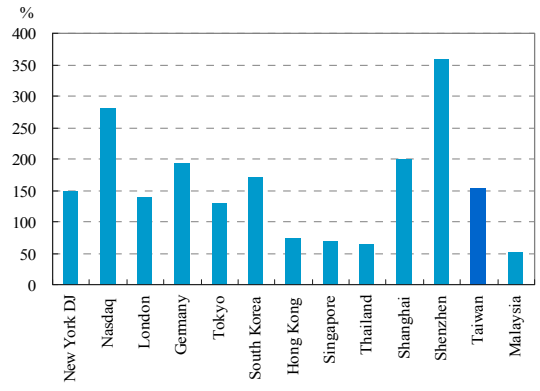
Compared with major stock markets around the world, the annual turnover ratio on the TWSE in 2007 was lower than on the US NASDAQ and in Germany, South Korea, Shanghai, and Shenzhen, but was still higher than in neighboring Tokyo, Hong Kong, Singapore, Thailand, and Kuala Lumpur (Chart 3.9).

Chart 3.8 Annual turnover ratios in Taiwan's stock markets



Note: 2008 Q1 figures are annualized results of the accumulative monthly turnover ratios.
Sources: TWSE and GTSM.

Chart 3.9 Comparison of turnover ratios in major stock markets



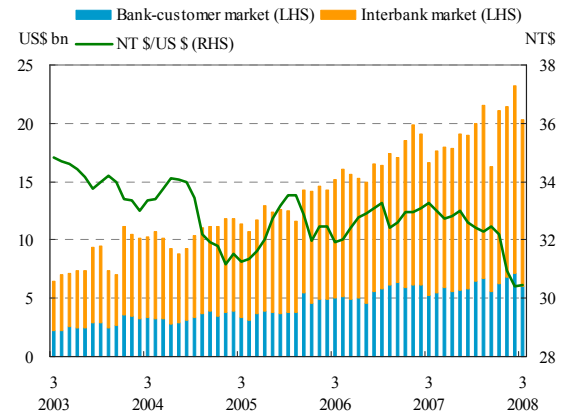
Note: Figures refer to turnover ratios of 2007. Taiwan's data is for TWSE market.
Source: TWSE.

3.3 Foreign exchange markets

Capital flows were sizable and trading volumes continued to expand

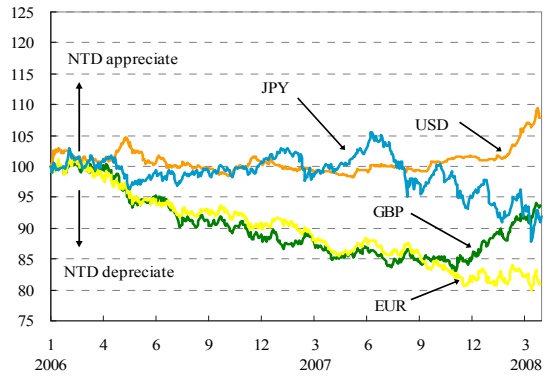
The NT dollar exchange rate generally moved in a narrow range around 33 against the US dollar during the first three quarters of 2007, but then appreciated slightly to 32.44 at the end of 2007 due to increasing concerns over the US economic slowdown, the worsening subprime mortgage crisis, and the expectation of interest rate cuts from the Federal Reserve. In 2008 Q1, the NT dollar appreciated further due to sizable capital inflows into Taiwan, and the exchange rate against the US dollar reached 30.41 by the end of March, a quarter-on-quarter appreciation of 6.70% (Chart 3.10). Meanwhile, the NT dollar trended downward against the euro and yen, depreciating by 1.43% and 4.88% quarter-on-quarter, respectively, in 2008 Q1, while against the GBP it appreciated by 6.73% over the same period (Chart 3.11). The sharp appreciation of the NT dollar against the US dollar and GBP has not only caused losses to financial institutions with large foreign assets denominated in these currencies, but has also adversely impacted export industries.

Chart 3.10 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 3.11 Movements of NT dollar exchange rates against key international currencies



Note: January 2006 = 100.
Source: CBC.

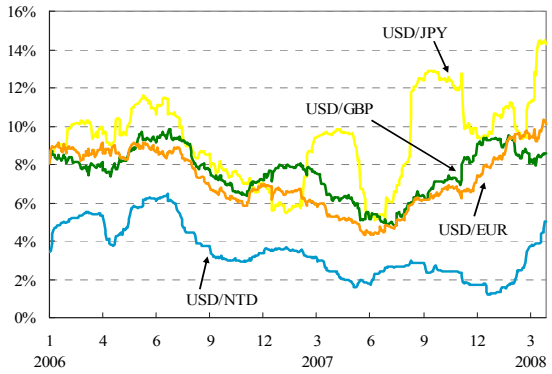
Taiwan's foreign exchange market has grown steadily over the past five years. Average daily trading volume reached US$18.6 billion in 2007, and rose further to US$21.9 billion in 2008 Q1. The interbank market accounted for a relatively large portion of the growth. A breakdown by counterparty showed that the average daily trading volume in the interbank market

accounted for 69.15% of total volume in 2008 Q1, while the bank-customer market made up a 30.85% share (Chart 3.10). As for types of transaction, spot trading accounted for 51.97% of total volume, followed by foreign exchange swaps with 30.20%.

Exchange rate volatility against US dollar increased

Volatility in the NT dollar exchange rate against the US dollar stayed under 4% throughout 2007, and finished the year at 1.30%. In 2008 Q1, however, sizable foreign capital inflows and outflows caused volatility to increase to 5.00% by the end of March. But compared with the volatility in the exchange rates of major currencies (e.g. GBP, EUR, and JPY) against the US dollar, the NT dollar exchange rate was relatively stable (Chart 3.12).

Chart 3.12 Exchange rate volatility of various currencies against US dollar



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

4. Financial institutions[23]

Domestic banks are steadily improving the soundness of operations, but still face considerable credit, market, and operational risks. Conditions at community financial institutions have also improved notably, but some institutions are still burdened with poor quality assets, and the average capital adequacy ratio of fishermen's association credit departments is below the statutory minimum of 8%. Life insurance companies are enjoying rapid asset growth, and their overall profitability has clearly improved, but negative interest rate spreads and foreign exchange losses on overseas investments may erode future profitability, while RBC ratios at some companies are below the statutory minimum. At bills finance companies, assets are contracting, profitability is waning, and capital adequacy ratios are slipping.

[23] Unless otherwise indicated, all data in the section on financial institutions is taken from call reports submitted by financial institutions to the competent authorities and has not been audited by a certified public accountant.

4.1 Deposit-taking institutions[24]

Size and market share

Deposit-taking institutions held a total of NT$37.24 trillion in assets at the end of 2007, climbing by 2.37% from the previous year and equivalent to 2.96 times of 2007 GDP. Total loans for the year amounted to NT$19.63 trillion, rising by 4.69% over the previous year, while total deposits stood at NT$28.40 trillion, an increase of 2.70% from the year earlier (Table 4.1).

Among deposit-taking institutions, domestic banks had a market share of over 70% in assets and deposits, and more than a 90% share of loans. Their market share of assets and loans dropped slightly from the previous year, while their share of deposits increased slightly. In each of these categories, the market share of the local branches of foreign banks, at between 3% and 8%, rose from the year before. The Remittances & Savings Department of Chunghwa Post Co. held a market share of 14.56% in deposits, decreasing slightly from the previous year. Community financial institutions commanded a small market share and stayed the same or declined in all categories, except for a slight increase in market share for loans at the credit departments of farmers' associations (Table 4.1).

On a comparison of performance among deposit-taking institutions, the local branches of

Table 4.1 Size and market share of deposit-taking institutions

Unit: %

Items	End of year	Balance (trillion)	Market Share					
			Domestic banks	Local branches of foreign banks	Chunghwa Post Co.	Credit departments of farmers' associations	Credit departments of fishermen's associations	Credit cooperatives
Assets	2004	32.91	76.77	6.00	10.79	4.28	0.11	2.05
	2005	34.81	76.99	5.85	11.03	4.16	0.11	1.86
	2006	36.38	76.20	6.36	11.57	4.00	0.11	1.76
	2007	R 37.24	R 75.76	R 7.13	R 11.57	3.88	0.10	R 1.56
Deposits	2004	24.61	74.66	3.80	13.57	5.28	0.14	2.55
	2005	26.30	74.78	3.73	13.99	5.07	0.14	2.29
	2006	27.66	74.23	4.05	14.62	4.84	0.13	2.13
	2007	28.40	74.41	4.37	14.56	4.65	0.13	1.88
Loans	2004	16.90	92.03	2.53	0.01	3.23	0.08	2.12
	2005	17.98	92.15	2.61	0.01	3.23	0.08	1.92
	2006	18.75	91.69	2.90	0.01	3.44	0.09	1.87
	2007	19.63	91.25	3.32	0.01	3.58	0.09	1.75

Note: "R" refers to data revised.
Sources: CBC and CDIC.

[24] The term "deposit-taking institution" as used in this report includes domestic banks (including small and medium business banks), the 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.

foreign banks turned in the best performance in 2007 with return on equity (ROE) of 42.90%, followed by the Remittances & Savings Department of Chunghwa Post Co. (17.27%), and the credit departments of fishermen's associations (7.45%). ROE for domestic banks was a mere 4.35%, but this was a marked improvement from the -0.94% posted in the previous year. At the end of 2007, all deposit-taking institutions were in basically sound financial conditions, except that continued improvement was needed at some credit departments of farmers' and fishermen's associations that were still troubled by poor asset quality and low capital adequacy.

4.1.1 Domestic banks

Domestic banks as a whole enjoyed better profitability and asset quality in 2007. The average capital adequacy ratio also steadily rose. Very few banks still had capital adequacy ratios below the statutory minimum. Average external credit ratings rose slightly on the whole. Domestic banks also held ample liquidity and had low liquidity risk.

Domestic bank credit exposures at the end of 2007 were relatively concentrated in the real estate market as well as the electronics and machinery manufacturing sectors. The potential losses from adverse market movements on their market exposures rose due to increased financial market volatility. In addition, domestic banks face increased competition from foreign banks, which greatly increased their presence in Taiwan in 2007 after a string of acquisitions targeting weak local banks.

Domestic banks overall returned to profitability

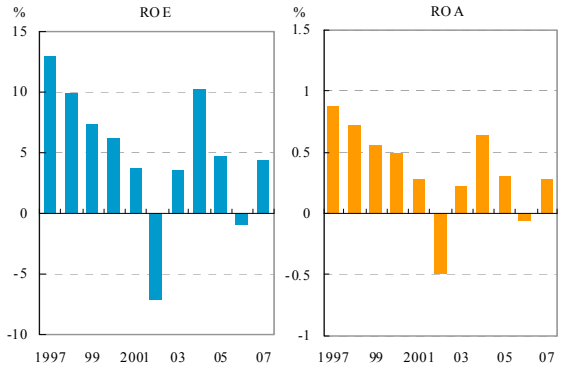
Domestic banks as a whole (excluding Chinese Bank and Bowa Bank[25]) turned a profit in 2007, posting net income before tax of NT$78.0 billion. This was mainly supported by a rapid increase in fees and commissions income due to rapid growth in wealth management business, as well as a sharp decrease in net charges to loss provisions due to an improvement in the asset quality of retail banking. Return on equity (ROE) and return on assets (ROA) came to 4.35% and 0.28% in 2007, respectively, reflecting a marked improvement in overall performance (Chart 4.1).

Among individual banks, 12 banks suffered losses and posted negative ROE in 2007, which was much lower than in the previous year, while the ROE of over half of the domestic banks

[25] The Chinese Bank and Bowa Bank suffered losses of NT$4.6 billion and NT$35.8 billion, respectively, in 2007, and were both taken into conservatorship in that year and exited the market in March and May 2008. In order to prevent their losses from affecting analyses of overall profitability at domestic banks, unless otherwise indicated, the data of Chinese Bank and Bowa Bank for 2006 and 2007 were excluded in this section.

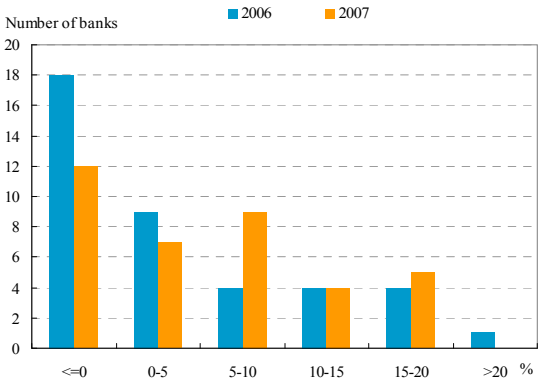
improved notably from the previous year. In addition, five especially strong performers achieved ROE of 15% or better (Chart 4.2).

Chart 4.1 ROE & ROA of domestic banks



Notes: 1. ROE (return on equity) = net income before income tax / average equity. ROA (return on assets) = net income before income tax / average total assets.
2. Figures for 2006 and 2007 exclude the Chinese Bank and Bowa Bank.
Source: CBC.

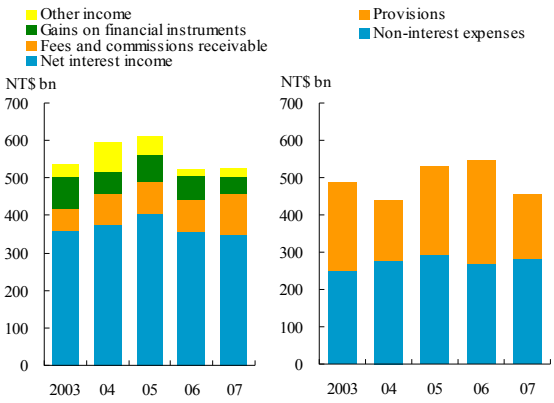
Chart 4.2 Distribution of ROE of domestic banks



Note: Excludes the banks set up during the year.
Source: CBC.

As for operating revenues and costs, net interest income was the primary source of operating revenues for domestic banks, contributing 65.78% of gross income in 2007, but it has been trending downward over the past two years due to a shrinking interest rate spread between deposits and loans. The second biggest source of gross income was net fees and commissions income, contributing 20.75% of gross income in 2007, up sharply by 32.30% year on year. Its growth was mainly underpinned by the rapid expansion in wealth management business over the past two years, but the accompanying operational, legal and reputational risks also rose (see Box 1). On the cost side, total costs fell by 16.32% year on year in 2007, thanks to a sharp decline in write-offs, while non-interest expenses[26] were slightly up from the previous year (Chart 4.3).

Chart 4.3 Composition of income and cost of domestic banks



Source: CBC.

The profitability of domestic banks in 2007 was also affected by the US subprime

[26] Non-interest expenses include personnel expenses as well as other expenses related to operations.

mortgage crisis. According to statistics from the Financial Supervisory Commission, at the end of 2007, 21 domestic banks reported an aggregate balance of NT$72.6 billion in outstanding investments associated with subprime mortgage-related products and structured investment vehicles (SIVs). The preliminary estimation of losses stood at NT$19.1 billion, part of which have been recognized and thus eroded profitability for the year. The estimated losses further rose to NT$25.9 billion by the end of February 2008. With a widened spillover effect from the US subprime mortgage crisis, whether such losses to domestic banks will be aggravated further and impact profitability should be closely monitored.

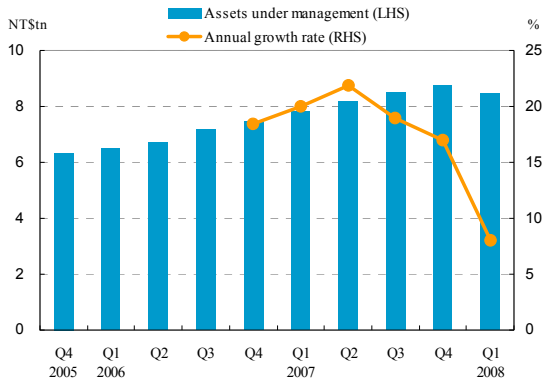
Box 1
Risks to banks engaging in wealth management business

Rapidly rising national income and a high savings rate are fueling continued accumulation of wealth in Taiwan and spurring increased demand for wealth management services. In addition, the credit card and cash card debt crisis of the past two years, which had a major impact on bank profitability, prompted many banks to expand their wealth management business in a bid to establish alternative stable sources of revenues. As a result, Taiwan's wealth management market is growing quickly, but fierce market competition has given rise to a spate of frauds and customer disputes. Banks thus face sharply increased risks.

1. Rapid growth in assets under management

The wealth management business in Taiwan's banking industry has been growing rapidly in recent years. The 36 banks that have received approval to offer wealth management services[1] had NT$8.75 trillion in assets under management at the end of 2007, equal to 70% of 2007 GDP. The annualized growth rate of assets under management peaked at 21.85% in June 2007 before falling back to 16.97% by the end of the year as turbulence in international financial markets decreased the investment willingness of investors. By 31 March 2008, assets under management had further fallen to NT$8.45

Chart B1.1 Assets under management at wealth management services



Source: FSC.

trillion, down 3.37% from the end of 2007 (Chart B1.1).

2. Risks related to the wealth management business

Banks earn service fees in the wealth management business by providing consulting and brokering services and do not take the credit and market risks associated with the investments. Hence, wealth management business has often been mistakenly thought to be low risk. In actuality, banks do face operational, legal, and reputational risks and the losses stemming there from are not easily quantified. If not properly managed, fraud and customer disputes could occur frequently, and potential losses could be enormous. For example, the use of predatory selling practices by wealth managers in the United States against high-net-worth individuals has caused a continuing string of lawsuits. There have already been two cases in which state governments have stepped in to work out settlements of class action suits that resulted in payouts of over a billion dollars by financial institutions.[2]

To develop wealth management services, banks in Taiwan have recruited large numbers of wealth managers. However, they have not all been well trained, and the turnover rate among them has been fairly high. Moreover, most banks have adopted remuneration programs heavily oriented toward performance, while failing to strengthen internal controls. The result has been a string of fraud and customer disputes. Since 2005, for example, there have been numerous instances of wealth managers embezzling customer funds or using customer accounts to make investments without authorization. Some of the cases have involved tens of millions of NT dollars. Also, many customer disputes have involved wealth managers improperly recommending investments in high-risk structured derivatives. The Consumers' Foundation received 51 complaints from 2005 to mid-2007 related to mutual funds, insurance, foreign exchange deposits, and trading in foreign stocks. Among cases arising in 2006, there were seven complaints in which wealth managers allegedly misled customers. After the US subprime mortgage crisis erupted, many holders of structured notes[3] suffered big losses after the underlying assets fell far enough in value to invalidate principal protection guarantees. A rash of disputes followed in which customers charged that wealth managers had failed to clearly inform them of the risks associated with their investments.

The Banking Bureau of the Financial Supervisory Commission (FSC) reports that most of the complaints it receives fall into one of four basic categories, all of which generally relate to inadequate internal controls at banks: (1) the wealth manager did not fully

understand the product; (2) the wealth manager intentionally downplayed risks; (3) the wealth manager did not recommend a suitable product to the customer; or (4) the wealth manager embezzled customer's funds.

3. Banks need to strengthen risk management and regulatory compliance

To strengthen risk management in the wealth management business, the FSC issued the Directions for Banks Engaging in Wealth Management Business in February 2005, which require banks to establish and implement appropriate internal control and risk management systems. The Bankers Association in September of that same year adopted the Operational Rules for Banks Engaging in Wealth Management Business to ensure that wealth managers possess certain minimum qualifications. Despite these measures, however, customer disputes have continued to occur, so there is clearly still room for improvement.

To further safeguard customer interests and comply with regulations issued by the competent authorities, the Bankers Association issued the Self-regulatory Rules for the Conduct of Wealth Management Business and Sale of Financial Products by Banks, which call on banks to strengthen internal controls in order to prevent improper selling, avoid moral hazard, and improve disclosure in publicity and advertising. More recently, in light of the fact that structured derivatives investments account for many disputes that have occurred in recent years in the wealth management business, the Banking Bureau of the FSC recommended that the Bankers Association draft control measures based on the self-regulatory rules on the sale of structured products issued by the US National Association of Securities Dealer. In response, the Bankers Association amended the aforementioned Self-regulatory Rules in April 2008 by adding a Chapter 5, "Strengthened control over the sale of structured products," aimed at improving internal control over the processes employed in selling structured notes. Measures set out therein include evaluation of the reasonableness of products prior to their launch, review of customer suitability, control of marketing processes, and qualifications and training of employees. In the future, banks will have to implement all applicable laws, regulations, and self-regulatory rules, and do a thorough job of improving risk management in order to safeguard customer interests and reduce the risks associated with wealth management services.

Additionally, the Interagency Statement on Sound Practices Concerning Elevated Risk Complex Structured Finance Activities[4] issued by the US government in January 2007 is

a good reference for Taiwan's banks as well. The document calls upon banks to properly implement the following risk management processes in order to reduce legal and reputational of risks:

- Establishing and implementing processes to identify elevated risk complex structured finance transactions (CSFTs);
- Adopting and implementing policies and processes for review, approval, and documentation of elevated risk CSFTs so as to ensure that the legal and reputational risks arising from elevated risk CSFT activities have been thoroughly reviewed by bank personnel at the proper level of authority;
- Establishing a "tone at the top" through both actions and formalized policies that sends a strong message throughout the financial institution about the importance of compliance with the law and overall good business ethics; and
- Other measures, such as: establishment of a risk monitoring and reporting system; periodic independent reviews to verify that policies and controls are being implemented effectively; strengthened internal audits of CSFT activities; and better training of personnel involved in marketing and monitoring of CSFT activities.

Notes: 1. Of the 36 banks, 30 are domestic and 6 are the local branches of foreign banks.
2. Economic Daily News, 20 June 2007.
3. Statistics released by the Trust Association of R.O.C. indicate that domestic investors in 2007 used non-discretionary money trusts to invest a total of NT$908.9 billion in foreign structured notes and NT$900 million in structured products offered by domestic securities firms.
4. "Interagency Statement on Sound Practices Concerning Elevated Risk Complex Structured Finance Activities," the Office of the Comptroller of the Currency, the Office of Thrift Supervision, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and the Securities and Exchange Commission, January 2007.

Asset quality continued to improve

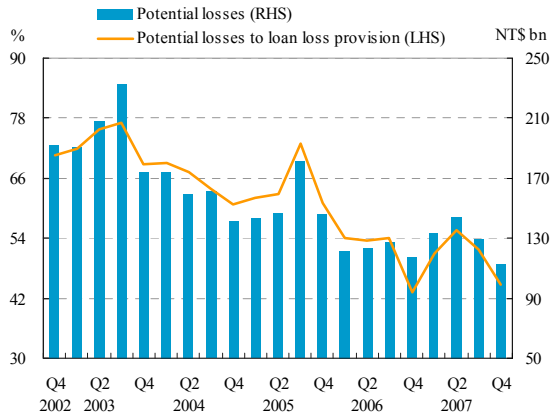
At the end of 2007, the outstanding non-performing assets[27] of domestic banks as a whole stood at NT$656.6 billion and the average non-performing asset ratio was 2.32%, down year on year by 15.54% and 0.75 percentage points, respectively. Potential losses on non-performing assets were estimated at NT$112.7 billion, also off from the previous year by 4.21%. The overall asset quality of domestic banks continued to improve. Expected losses of non-performing assets were equal to 44.71% of loan loss provisions and other reserves,

[27] 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 to four different categories, as follows: Category one for normal assets, while Category Two, Category Four, and Category Five are for special mentioned, doubtful and loss assets, respectively. The term "non-performing assets" includes all classified assets other than those in Category One.

reflecting that the total reserves were sufficient to cover expected losses (Chart 4.4).

The average non-performing loan (NPL) ratio of domestic banks at the end of 2007 was 1.83%, 0.32 percentage points lower than at the end of the previous year (Chart 4.5). The drop was due primarily to ongoing writedowns and sales of non-performing loans. Among all domestic banks, 25 had NPL ratios of less than 2%, while four had ratios above 5%, well off from the seven posted in the previous year (Chart 4.6).

Chart 4.4 Potential non-performing asset losses of domestic banks

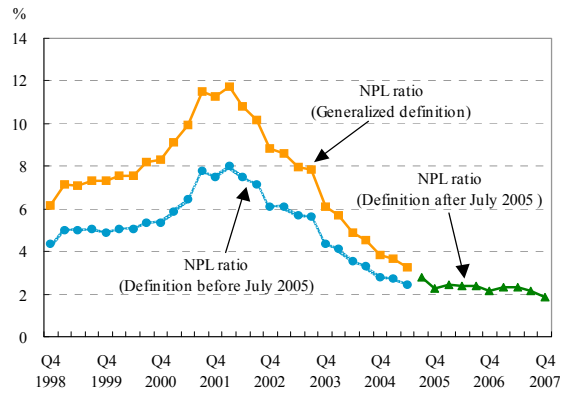


Notes: 1. End of period figures.
2. Excludes interbank loans.
Source: CBC.

The NPL coverage ratio at the end of 2007 was 64.07%, advancing 1.81 percentage points from a year earlier, primarily due to a drop in non-performing loans. The loan loss reserve ratio fell from 1.34% to 1.17% year on year as loan loss provisions decreased and loans outstanding continued to grow (Chart 4.7).

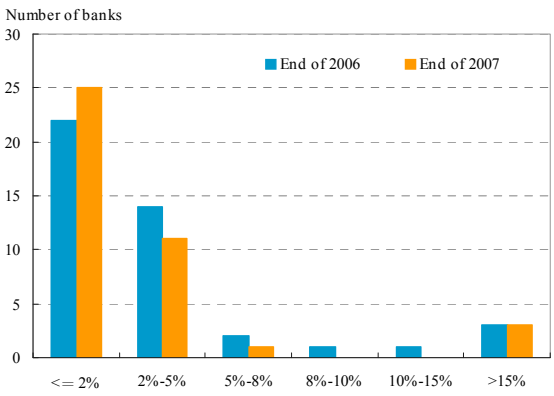
Although asset quality has been thus steadily improving at domestic banks, the amount due on properly performing modified payment plans for delinquent credit card and cash card lendings was still at NT$56.5 billion at the end of 2007. The cumulative repayment rate for these lendings has continued to fall, reaching 54.91% at the end of 2007 (Chart 4.8), which gives increased reason for uncertainty about the prospects for future repayment. In addition,

Chart 4.5 Average NPL ratios of domestic banks



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

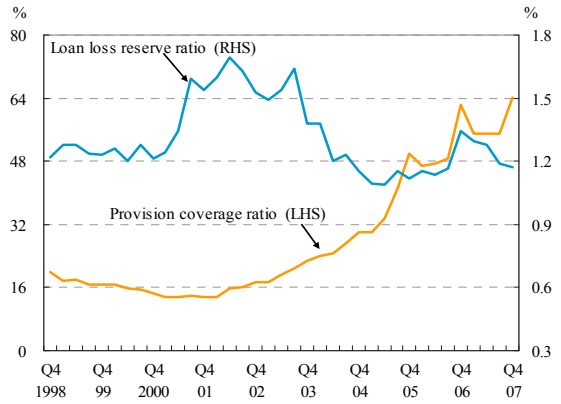
Chart 4.6 Distribution of NPL ratios of domestic banks



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

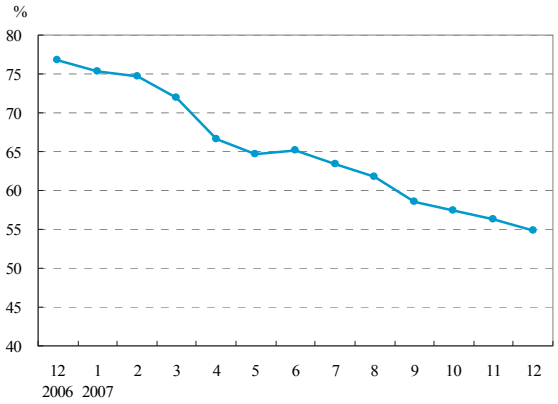
the implementation on 11 April 2008 of the Consumer Debt Clearance Act could trigger a new round of defaults, so the situation needs to be watched closely (Box 2).

Chart 4.7 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.

Chart 4.8 Repayment rate on modified debts of domestic banks



Notes: 1. Modified debts refer to the debts generated from credit card and cash card credits and unsecured consumer loans that were currently in the workout process.
2. Repayment rate = monthly repayment cases / total modified debt cases.
Source: CBC.

Box 2

Potential impact of Consumer Debt Clearance Act on banks

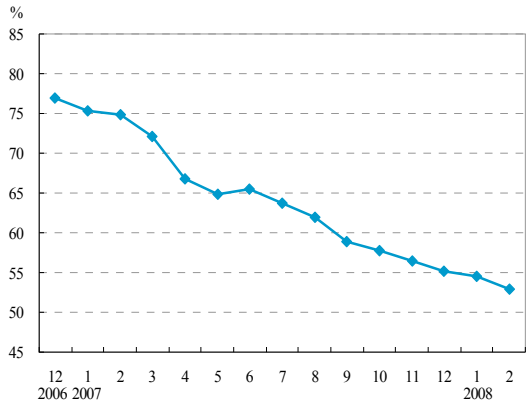
The Consumer Debt Clearance Act, which was promulgated on 11 July 2007 and entered into force on 11 April 2008, is intended to enable debtors who are unable to repay their debts to clear up their debts by opting for either credit rehabilitation or debt liquidation, provided that certain statutory requirements are met. However, in order to avoid encouraging abuse of the mechanism and to safeguard the right of creditors to repayment on fair terms, there are restrictions on who is eligible for relief under the Act. Before applying for credit rehabilitation or debt liquidation under the Act, a debtor must first go through a pre-negotiation process with the biggest financial creditor. Debtors who are approved to apply for rehabilitation or liquidation are also subject to certain restrictions on their rights. Implementation of the Consumer Debt Clearance Act could affect financial institutions in the following ways:

1. Possibility of moral hazard

Under the previously existing Individual Debt Restructuring Program, principal could

not be forgiven for a debtor who went through a workout process for unsecured debt with a member of the Bankers Association. Since implementation of the Consumer Debt Clearance Act, however, a debtor who applies successfully for credit rehabilitation or debt liquidation can have principal forgiven. In addition, businesses have sprung up promising to arrange for rehabilitation or liquidation on behalf of debtors, and in the process have pushed inflated expectations that could lead to moral hazard. Statistics compiled from data reported by card issuers[1] indicate that the repayment rate at the end of 2006 under the existing Individual Debt Restructuring Program was over 70%, but it has steadily dropped since then to 52.97% as of 29 February 2008 (Chart B2.1), and part of the decline is attributable to debtors' undue expectations about how they might benefit from the Consumer Debt Clearance Act.

Chart B2.1 Repayment rate on modified debts of all card issuers



Notes: 1. Definitions of modified debts and repayment rate are same as chart 4.8.
2. Card issuers include domestic banks and local branches of foreign banks.

Source: CBC.

2. Arrears mounted, bank profits declined

Card issuers had NT$15.1 billion in non-performing credit related to their credit card and cash card businesses on the books as of 29 February 2008. On that same day, the banks were also owed another NT$45.6 billion on consumer loans (which include credit card and cash card credits and unsecured consumer loans) that were currently in the workout process but did not have to be reported as non-performing credit. Assuming a default rate of 70% on the latter, total non-performing credit would increase to NT$47.6 billion. Given the fact that the aggregate loan loss provisions of all card issuers currently stands at NT$22.9 billion, a 70% default rate also means that banks would have to set aside another NT$24.7 billion in loan loss provisions to maintain a coverage ratio of 100%. This in turn would result in a decline in profitability.

3. Bottleneck at the pre-negotiation stage

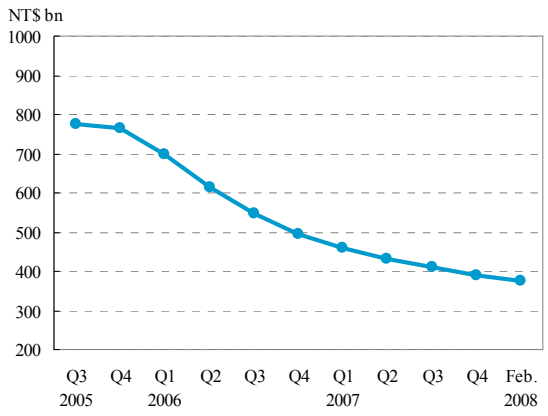
Now that the Consumer Debt Clearance Act has entered into force, applications for credit rehabilitation or debt liquidation must be preceded by a pre-negotiation process with

financial institutions, which should cause a spike in the number of applications for pre-negotiation. In particular, those banks that make relatively large numbers of mortgage loans often tend to be the biggest creditors and have to deal with more pre-negotiation cases. They have to assign more specialists who are intimately familiar with the procedures called for under the Consumer Debt Clearance Act to carry out pre-negotiation with debtors. During the early stages of implementation, banks are expected to have problems in training and staffing sufficient personnel.

4. Consumer credit squeeze could spur black market lending

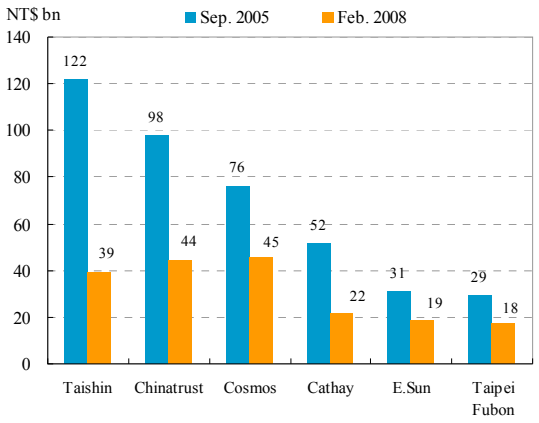
Problems with payment on card debt first came to the fore in September 2005. The aggregate outstanding card debt loans owed to card issuers (including both domestic banks and the local branches of foreign banks) eventually peaked at NT$776.7 billion before dropping by 51.4% to NT$377.1 billion in February 2008 (Chart B2.2). Outstanding card debt receivables have fallen especially dramatically for leading card issuers like Taishin International Bank (68.0%), Cathay United Bank (58.5%), Chinatrust Commercial Bank (54.6%), Cosmos Bank (40.6%), Taipei Fubon Commercial Bank (40.5%), and E.Sun Commercial Bank (39.7%) (Chart B2.3). Moral hazard arising from implementation of the Consumer Debt Clearance Act may continue to expand, and prompt risk-conscious banks to rein in on their card businesses and unsecured consumer loans. This in turn could push debtors who are in relatively shaky financial conditions to turn to black market lenders for credit.

Chart B2.2 Outstanding credit card and cash card debts of all issuers



Notes: 1. End of period figures.
2. Includes credit cards revolving credits and cash card loans.
Source: CBC.

Chart B2.3 Outstanding credit card and cash card debts owed to principal issuers



Note: End of period figures.
Source: CBC.

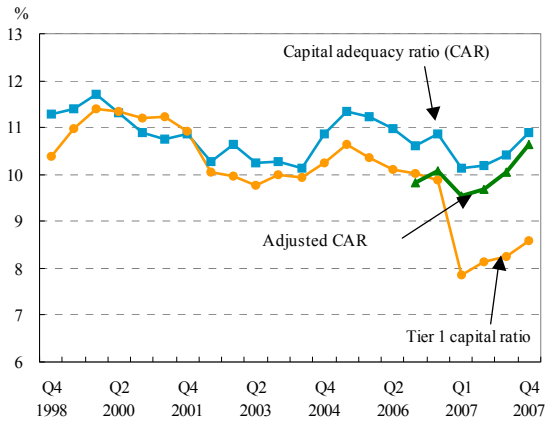
To lower the impact of implementation of the Consumer Debt Clearance Act, banks could take the bull by the horns by actively working with delinquent debtors on repayment plans, encouraging them to continue performing their obligations, and enhancing their pre-negotiation mechanisms in order to reduce the percentage of debtors who end up applying for credit rehabilitation or debt liquidation proceedings. In the meantime, in order to decrease the likelihood of debt workout talks falling through on account of failure to conclude within the mandated time period, the FSC Banking Bureau has consulted with related parties to streamline the procedural and data requirements for investigation, so as to cut down on the length of time it takes for a primary creditor involved in debt workout discussions to contact other parties to get needed information regarding the debtor's property, income, business, and credit status.

Note 1: The term "card issuers" includes both domestic banks and the local branches of foreign banks.

Capital adequacy ratios increased gradually

The capital adequacy ratios of domestic banks fell markedly upon implementation of the Basel II Accord in early 2007 (Box 3), but recovered gradually since then due to improving profitability and foreign capital infusions into some weak banks. By the end of 2007, the

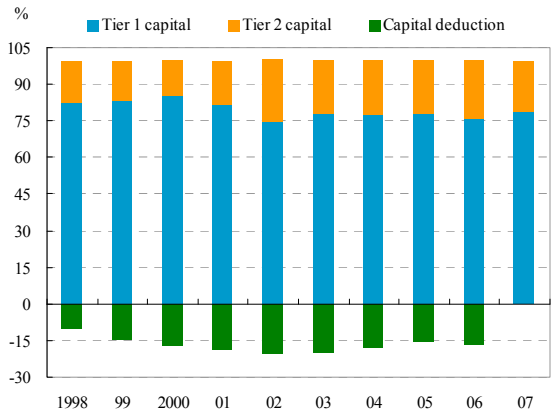
Chart 4.9 Capital adequacy ratios of domestic banks



Notes: 1. End of period figures.
2. The data are on semiannual basis before June 2006 and on quarterly basis after September 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.

Chart 4.10 Structure of Eligible regulatory capital of domestic banks



Notes: 1. End of period figures.
2. Capital deductions are deducted directly from Tier 1 and Tier 2 capital from the beginning of 2007 when implementing Basel II, and are not showed herein after then. Tier 3 capital is not showed herein as it is less than 1% of total capital.

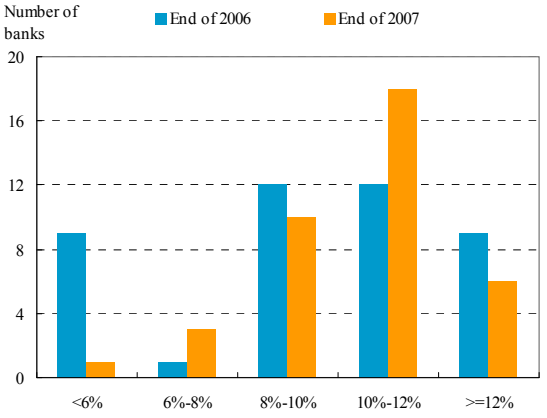
Source: CBC.

average capital adequacy ratio[28] stood at 10.88%, slightly higher than the 10.87% registered a year earlier. The average ratio of Tier 1 capital to risk-weighted assets was 8.59%, down from the 9.88% posted in the previous year primarily because the Basel II Accord introduced several new deductions from Tier 1 capital. When unamortized deferred assets arising from losses recorded on the sale of non-performing assets[29] were deducted from regulatory capital, the adjusted capital adequacy ratio at the end of 2007 came to 10.65%, up from the 10.06% figure of one year earlier (Chart 4.9). The rise in the ratio was due primarily to a significant drop in unamortized deferred assets.

Further breaking down the structure of regulatory capital, Tier 1 capital, which features the best risk bearing capacity, accounted for 78.99% of eligible capital at the end of 2007, followed by Tier 2 capital, with a weaker risk bearing capacity, at 20.73%, while Tier 3 capital, which can only support market risks, contributed a mere 0.29% (Chart 4.10).

Excluding Chinese Bank and Bowa Bank, which were taken into conservatorship, there was only one bank with a capital adequacy ratio under the statutory minimum (8%) at the end of 2007. As for adjusted capital adequacy ratios, four banks,[30] with combined assets accounting for only 6.36% of all domestic bank assets, had ratios below the statutory minimum. This number was well down from the 10 banks in the same position a year earlier. In addition, there were 24 banks with ratios above 10%, slightly up from the figure of 21 banks one year before (Chart 4.11). The capital adequacy status of most banks thus continued to improve.

Chart 4.11 Distribution of adjusted capital adequacy ratios of domestic banks



Note: Excludes the data of the Chinese Bank and Bowa Bank.
Source: CBC.

[28] Capital adequacy ratio herein does not include data for Chinese Bank or Bowa Bank. The Regulations Governing the Capital Adequacy of Banks as amended on 6 September 2007 by the FSC provide that when the capital adequacy ratio of a bank under conservatorship is of no reference value for supervisory purposes and there is no benefit in reporting it, the provisions of Article 10 requiring the reporting of such data to the competent authority do not apply. Therefore, the capital adequacy ratio figures from June 2007 forward do not include data for those two banks.

[29] 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, but this requirement does not apply to sales made on or before 31 December 2006.

[30] If calculating by the CPA audited data, the figures for adjusted capital adequacy ratios as of 31 December 2007 show that there were only three banks below the statutory minimum.

Box 3
Implementation of Basel II in Taiwan

After numerous revisions and quantified impact studies, the Basel Committee on Banking Supervision (Basel Committee) formally issued the International Convergence of Capital Measurement and Capital Standards: A Revised Framework (Basel II) in June 2004. Taiwan, like most countries around the world, responded by implementing Basel II from the beginning of 2007 in order to keep in synch with international trends and strengthen risk management practices in the domestic banking industry.

1. Timetable for phased implementation of Basel II

In compliance with directives issued by the Financial Supervisory Commission (FSC), Taiwan's banks commenced a phased implementation of Basel II in 2007. The key implementation phases are as follows:

- First Pillar (minimum capital requirements): Taiwan's banks began to calculate their regulatory capital requirements in accordance with the Basel II rules from 2007 Q1;
- Second Pillar (supervisory review): As of April 2008, Taiwan's banks are required to file internal capital adequacy assessment results and risk indicators self-assessment reports with the FSC on an annual basis; and
- Third Pillar (market discipline): As of April 2008, banks are required to establish a special section on their websites to disclose information on capital adequacy and risk management.

2. All banks opt for simple approaches in the first year of implementation

Taiwan's regulations on Basel II allow banks to choose among several different approaches to calculating minimum capital requirements. For credit risk, there are the standardized approach, the foundation internal ratings-based approach, and the advanced internal ratings-based approach. For market risk, there are the standardized approach and the internal model. And for operational risk, there are the basic indicator approach, the standardized approach, and the advanced measurement approaches. A bank must obtain approval from the FSC prior to adopting the internal ratings-based approaches to credit risk, the internal model to market risk, and either the standardized approach or the advanced measurement approaches to operational risk. In 2007, all banks in Taiwan used the standardized approach for both credit and market risk, and either the basic indicator approach or the standardized approach for operational risk when calculating minimum

capital requirements.

3. Impact of Basel II implementation on domestic bank capital adequacy ratios

According to the results of Fifth Quantitative Impact Study (QIS 5) undertaken by the Basel Committee, the change in average minimum required capital under the Basel II standardized approach for different groups of participating countries relative to Basel I ranged from -3.0% to 38.2%[1]. In Taiwan, the average capital adequacy ratio[2] of domestic banks as of 31 March 2007 as calculated in accordance with Basel II rules was 10.14%, down 0.73 percentage points from the ratio of 10.87% as of 31 December 2006 using Basel I rules, and the average Tier 1 capital ratio declined by 2.02 percentage points from 9.88% to 7.86% during the same period. The primary reasons for the decreases include the following: (1) several capital deductions that used to be made from total capital under Basel I are now made directly from Tier 1 capital under Basel II; (2) investments in affiliated financial institutions and the amount of total expected losses exceeding eligible provisions are both required to be deducted from capital; and (3) Basel II requires additional capital charges for operational risk.

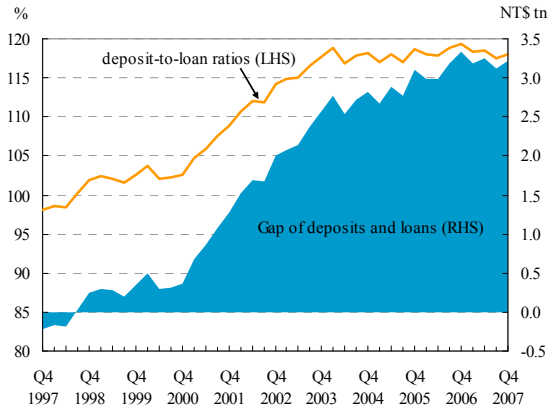
Notes: 1. The Basel Committee on Banking Supervision, "Results of the Fifth Quantitative Impact Study (QIS 5)," June 2006.
2. This capital adequacy ratio figure is based on a regulatory capital amount from which the unamortized deferred assets arising from losses recorded on the sale of non-performing assets have not been deducted.

Funding remained in good supply, liquidity risk was low

The deposit-to-loan ratio of domestic banks as a whole rose markedly between 2001 and 2004, driven by the fact that the annual growth in deposits significantly outpaced that of loans. As a result, the ratio of deposits to loans escalated to 117.98% at the end of 2007, while the funding surplus (i.e. deposits exceeding lending demand), stood at NT$3.22 trillion, reflecting ample liquidity in domestic banks (Chart 4.12).

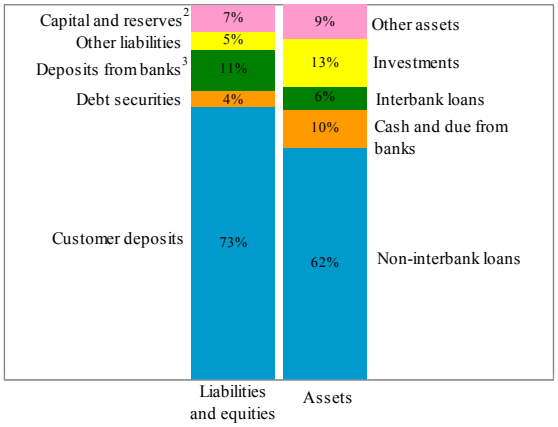
The sources and uses of funds in domestic banks at the end of 2007 remained broadly unchanged, compared with that of one year earlier. On the sources side, customer deposits accounted for the largest share (73%), followed by interbank deposits and borrowings at 11%, while debt securities in issue contributed a mere 4%. On the uses side, customer loans accounted for the biggest share (62%), followed by investments in debt securities and equities at 13% and cash and due from banks at 10% (Chart 4.13).

Chart 4.12 Deposit-to-loan ratios in domestic banks



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

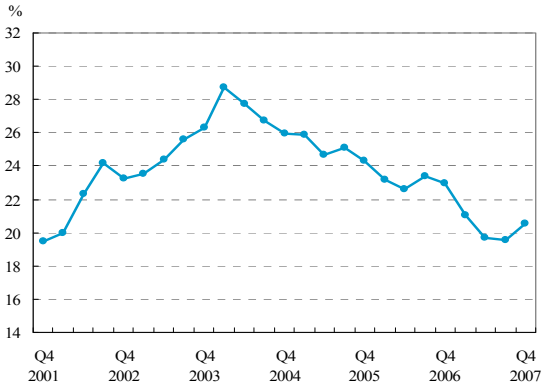
Chart 4.13 Sources and uses of funds in domestic banks



Notes: 1. End of 2007 figures.
2. Include loan loss provision.
3. Include "due to central bank" and "borrowing funds."
Source: CBC.

Since 2001, there has been a clear rise in the average NT dollar liquid reserve ratio of domestic banks due to the availability of ample funding. Despite a decline in 2004, the ratio stood at 20.56% in December 2007, still well above the statutory minimum of 7% (Chart 4.14). Tier 1 liquid reserves[31], mainly consisting of certificates of deposit issued by the CBC, accounted for 85.50% of total liquid reserves in December 2007, while Tier 2 and 3 reserves accounted for 2.51% and 11.99%, respectively. This indicated that the quality of liquid assets remained satisfactory and overall liquidity risk was low.

Chart 4.14 Liquid reserve ratios of domestic banks



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

[31] Tier 1 liquid reserves include excess reserves, treasury bills, certificates of deposit issued by the CBC, government bonds, bank debentures, and deposits at designated banks with term to maturity of no more than one year. Tier 2 liquid reserves include net due from bank in the call-loan market, negotiable certificates of deposit, and banker's acceptances. Tier 3 liquid reserves include commercial paper, trade acceptances, corporate bonds, and other liquid assets as approved by the CBC.

Average credit ratings steadily improved

Table 4.2 Systemic risk indicators for 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**	**D/1**
Thailand	6	D/1
China	7	D/1
Indonesia	8	D/1
Philippines	8	D/1

Sources: Standard and Poor's and Fitch Ratings.

The rankings of Taiwan's banking system in the Standard & Poor's Banking Industry Country Risk Assessment[32] and the Fitch Ratings Banking System Indicator/Macro-Prudential Indicator (BSI/MPI)[33] at the end of 2007 were unchanged from the previous year (Group 4 and D/1, respectively[34]) (Table 4.2). The ranking showed that the outlook for economic development is still strong and the supervisory system is sound in Taiwan. Comparing to other Asian economies, risks in Taiwan's banking industry are higher than in Hong Kong, Singapore, and Japan, about the same as those in South Korea, but much lower than in Thailand, China, Indonesia, and the Philippines.

Calculated on the basis of statistics from the rating agencies[35], the credit rating index[36] for rated banks in Taiwan rose steadily in 2007 (Chart 4.15). This was mainly due to the withdrawal of ratings on three poorly rated banks (Enterprise Bank of Hualien, Taitung Business Bank, and Chinese Bank) after they were taken into conservatorship and auctioned off, together with the fact that three banks (China Development Industrial Bank, Shin Kong Bank, and Yuanta Commercial Bank) received rating upgrades due to improved risk structure and strong parent company support. These positive developments were more than sufficient to offset the negative impact resulting from three banks which received rating downgrades due to weakening capitalization (Cosmos Bank and Chinfon Bank) and failure to make bond

[32] The classification scheme used by the Banking Industry Country Risk Assessment (BICRA) is a synthetic assessment developed by Standard & Poor's Corporation which bases 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).

[33] 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 of stress on above-trends level of private sector credit, bubble in real asset prices and/or major currency appreciation, measuring the vulnerability of macro environment on a scale from 1 (low) to 3 (high) in terms of banking system vulnerability.

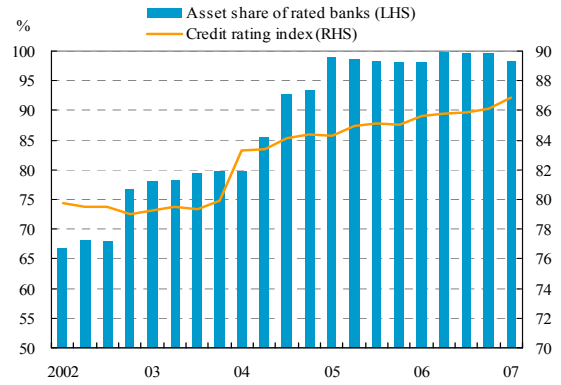
[34] For details, please refer to "Banking Industry Risk Analysis: Asian Banking Systems" (Standard & Poor's) and "Banking Systemic Risk Report" (Fitch).

[35] As of the end of 2007, the majority of Taiwan's domestic banks (31) received long-term issuer ratings from Taiwan Ratings Corporation, followed by those with national long-term ratings from Fitch Ratings. Therefore, this section is based primarily on the Taiwan Ratings Corporation ratings (tw~), and secondarily on Fitch ratings (~(twn)). Domestic banks without a long-term issuer rating are excluded from discussions in this section.

[36] 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 the Fitch Ratings.

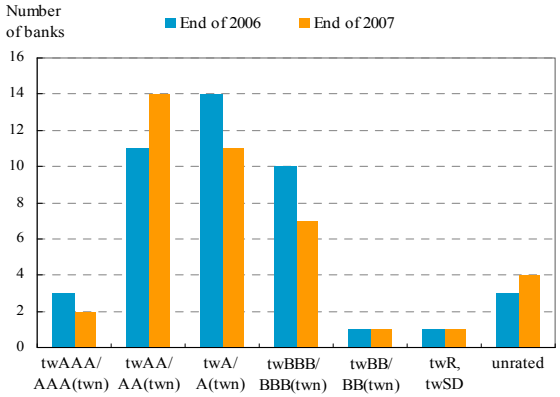
interest payments on schedule (Bowa Bank).

Chart 4.15 Credit rating indices of rated domestic banks



Note: End of period figures.
Sources: Taiwan Ratings Corporation, Fitch Ratings, CBC.

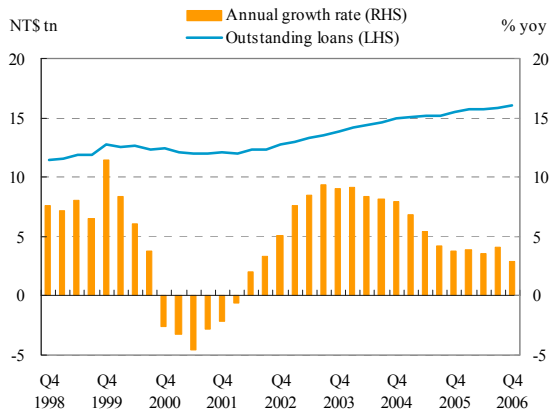
Chart 4.16 Distribution of credit ratings of rated domestic banks



Notes: 1. Credit ratings herein refer to long-term issuer ratings.
2. Credit rating "twR" refers to under regulatory supervision, and "twSD" refers to selective default.
Sources: Taiwan Ratings Corporation and Fitch Ratings.

Most rated banks received credit ratings of twAA/AA(twn) or twA/A(twn) in 2007, while two banks (Chinfon and Bowa) were rated below twBBB- (twBB and twSD, respectively) (Chart 4.16).[37] All banks but two had a rating outlook or credit watch of either stable or positive, the lone exceptions being Sunny Bank and Chinfon, both of which had a negative rating outlook or credit watch due to undercapitalization or poor profitability. In addition, no long-term issuer credit ratings were available at the end of 2007 for four banks: Citi (Taiwan) Commercial Bank[38], the Export-Import Bank, First Capital Commercial Bank, and Chinese Bank.

Chart 4.17 Outstanding loans of domestic banks and annual growth rate



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

Credit exposures concentrated in real estate market as well as electronics and machinery industries

Customer loans[39] were the major credit exposures for the local business units of domestic banks, equaling 58.06% of total assets at the end of 2007. The largest share of

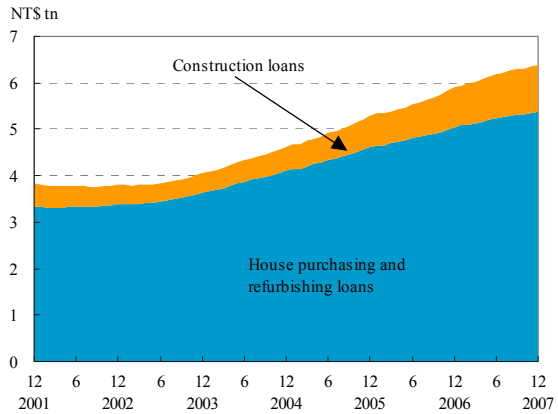
[37] Bowa Bank was auctioned off on 1 February 2008 to DBS Singapore.
[38] Citi (Taiwan) Commercial Bank merged the Bank of Overseas Chinese on 1 December 2007, and then received a national long-term rating of AAA(twn) in May 2008.
[39] The term "loan" herein refers to amounts lent by local business units of domestic banks to their customers. It excludes interbank lending.

customer loans went to the corporate and household sectors, each of which took over 40% of total loans. The annual rate of growth in total outstanding loans turned negative during 2001 and 2002 as domestic banks took a more cautious attitude toward lending activity due to concern over deteriorating asset quality. From then on, with a gradual improvement in asset quality and more sufficient funds in the banking system, the annual rate of growth in total outstanding loans shot upward, peaking at 9.36% before a slowdown in loan growth amid the credit card and cash card debts crisis in 2006. The annual rate of growth in loans at the end of 2007 further fell to 2.89% (Chart 4.17).

Concentration of credit exposure to the real estate market remained high

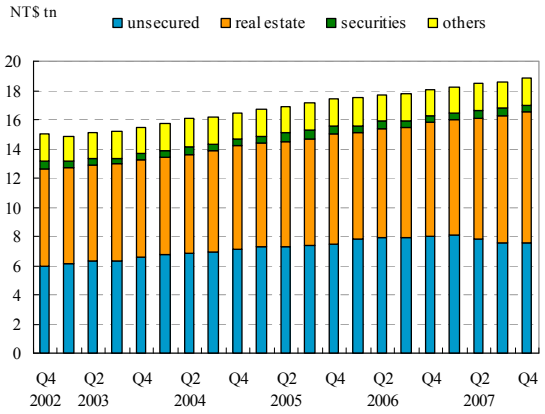
The real estate-related loans (including loans for construction, house purchases, and house refurbishments) of the local business units of domestic banks began to surge in 2004, generally growing at annual rates of 10% to 15%. Construction loans grew most quickly, topping 20% in most years from 2005 onward. By the end of 2007, outstanding real estate-related loans had reached NT$6.39 trillion (Chart 4.18) and accounted for 35.68% of total loans, reflecting a high concentration of credit exposure in the real estate market. In addition, of the NT$18.8 trillion in total credit[40] in December 2007, 47.51% was secured by real estate, up by 4.49 percentage points over the previous year, showing strong growth in real estate-secured credits (Chart 4.19). Among individual banks, there were 11 banks whose ratios of real estate secured credits to total credits were over 60%. With this lopsided

Chart 4.18 Real estate related lending of domestic banks



Note: End of period figures.
Source: CBC.

Chart 4.19 Credits by type of collaterals of domestic banks



Note: End of period figures.
Source: CBC.

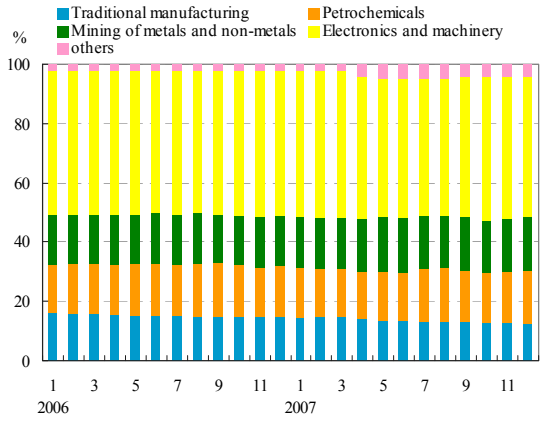
[40] The term "total credit" includes loans, exchange bills negotiated, receivables purchased under non-recourse factoring agreements, guarantees, and acceptances receivable.

exposure to the real estate market, a downturn in the market would have an adverse impact upon the asset quality and profitability of domestic banks.

Loans to manufacturers concentrated in electronics and machinery related industries

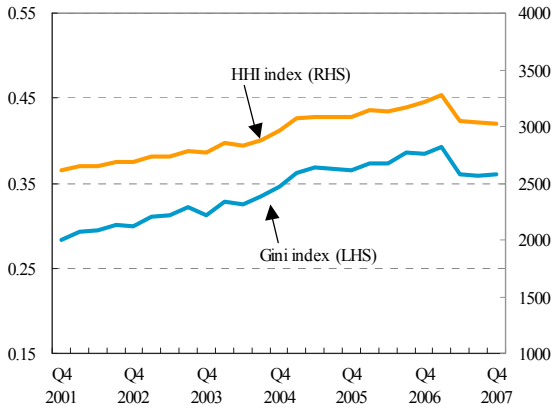
Loans to the manufacturing sector accounted for the largest share (43.32% as of 31 December 2007) of corporate lending by the local business units of domestic banks. Within the manufacturing category[41], loans to electronics and machinery-related industries accounted for the biggest proportion (NT$1.4 trillion, or 46.77%[42]) of the total, and the percentage was on the way up (Chart 4.20). A look at the concentration of the manufacturing sector in terms of its concentration indices shows that the Gini and HHI indices[43] have generally trended upward since 2002 in spite of the sole exception of a slight downward movement in 2007 Q2, and remained high at the end of 2007 (Chart 4.21). It appeared that loans to the manufacturing sector were highly concentrated in electronics and machinery-related industries. As the subprime mortgage crisis has slowed the pace of economic growth in the United States and other major economies, it bears close watching whether this will undermine the operating revenues and profitability in Taiwan's electronics and machinery-related industries and increase credit risk at domestic banks.

Chart 4.20 Domestic bank loans to the manufacturing sectors



Note: End of period figures.
Source: CBC.

Chart 4.21 Concentration indices of the manufacturing sector



Source: CBC.

[41] Loans to manufacturing sector are divided into five categories by industries, including electronics and machinery-related industries, mining of metals and non-metals related-industries, petrochemicals related-industries, traditional manufacturing industries and others.
[42] Production value of electronics and machinery-related industries accounts for 41.67% of total manufacturing production value, which is less than loans to electronics and machinery makers as a percentage of total loans to the manufacturing sector.
[43] In General, a Gini index greater than 0.4 indicates uneven distribution, and an HHI index greater than 1800 indicates a high degree of concentration.

Market risk on the rise

Global financial turmoil stemming from the US subprime mortgage crisis has triggered increased volatility in Taiwan's markets. The estimated value-at-risk (VaR) for market exposures[44] of domestic banks stood at NT$250.2 billion at the end of 2007, higher than the figure registered in June 2007 before the crisis broke out. Interest rate risk has climbed most sharply (Table 4.3).

Table 4.3 Market risk in domestic banks

Units: NT$ bn; %

Types of market risk	Items	End of June 2007	End of Dec. 2007	Changes	
				Amount	%
Foreign exchange	Net position	65.6	90.9	25.3	38.57
	VaR	1.4	6.5	5.1	364.29
	VaR / net postiton	2.13	7.15		5.02
Interest rate	Net position	2997.0	2833.8	-163.2	-5.45
	VaR	70.1	184.6	114.5	163.34
	VaR / net position	2.34	6.51		4.18
Equity	Net position	599.6	559.1	-40.5	-6.75
	VaR	52.4	59.1	6.7	12.79
	VaR / net position	8.74	10.57		1.83
Total VaR		123.9	250.2	126.3	101.94

Source: CBC.

The effects of VaR for exchange rates, interest rates, and stock prices upon capital adequacy ratios are 0.04, 1.07, and 0.34 percentage points, respectively. Assuming that the above-mentioned risks are mutually independent and occur simultaneously, market risk would cause a change of 1.46 percentage points in the capital adequacy ratio of the domestic banks as a whole, and the current ratio of 10.65%[45] would fall to 9.19%.

Competition from foreign banks heated up

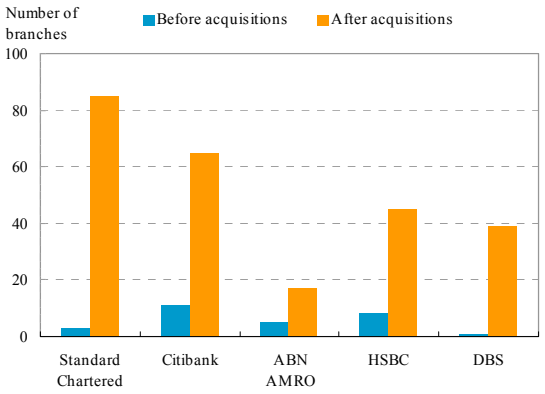
Foreign banks have greatly expanded their business presence in Taiwan since 2007 through a series of cash acquisitions of local banks or tender acquisitions of problem banks that were

[44] The VaRs (Value at Risk) with each category of risks for the test period as estimated by multivariate historical simulation model for exchange rates risk, constant correlation generalized autoregressive conditional heteroscedasticity model for interest rates risk, and quantile autoregression model for stock prices risk are presented in this report, given that a confidence level is 99% using a holding period of 10 trading days and exposure positions are assumed unchanged. The models are estimated using 250 exchange rate, interest rate, and stock price samples (with sampling periods of 30 Jan 2007 - 25 Feb 2008 for exchange rates, 6 Feb 2007 - 25 Feb 2008 for interest rates, and 9 Feb 2007 - 25 Feb 2008 for stock prices).

[45] The term "capital adequacy ratio" as referred to in this section is based on a figure for capital from which is excluded unamortized deferred losses on the sale of NPLs.

cleaned up by the Financial Restructuring Fund after being taken into conservatorship[46]. Standard Chartered Bank, Citibank, ABN AMRO, HSBC Hong Kong, and DBS Singapore have increased the number of their business locations in Taiwan from 28 to 251 (Chart 4.22), and now enjoy economies of scale in their operations. These factors, coupled with the many strengths the foreign banks already have (including capacity for financial innovation, global information systems and locations, emphasis on risk management, and capable employees who can transfer or replicate their expertise), mean that foreign banks have increased the intensity of competition facing Taiwan's domestic banks.

Chart 4.22 Business locations of foreign banks before and after acquisitions



Source: CBC.

4.1.2 Community financial institutions

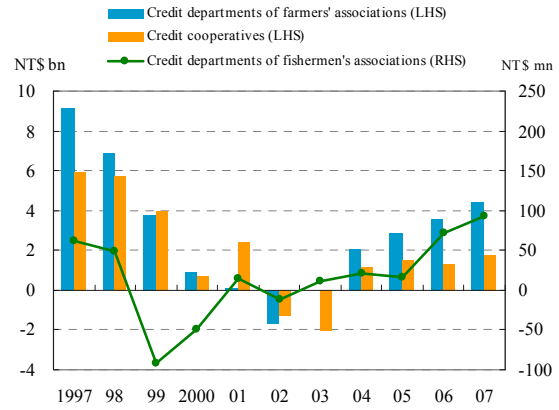
Profitability at community financial institutions (which include credit cooperatives, credit departments of farmers' associations and credit departments of fishermen's associations) has been steadily improving in recent years, as NPL ratios have been falling and capital adequacy ratios have been slowly increasing. Overall, the operational and financial health of community financial institutions has improved notably. However, an analysis of individual institutions shows that there is still a need for further improvement at some institutions.

Profitability strengthened

Community financial institutions not only posted positive earnings in 2007, but also outdid their performance of the year before. Net income before tax in 2007 was NT$1.8 billion at credit cooperatives, NT$4.4 billion at the credit departments of farmers' associations, and NT$90 million at the credit departments of fishermen's associations (Chart 4.23). The credit departments of fishermen's associations, which have a small net worth, had the highest ROE (7.45%), followed by the credit departments of farmers' associations (5.22%) and credit cooperatives (4.26%) (Chart 4.24).

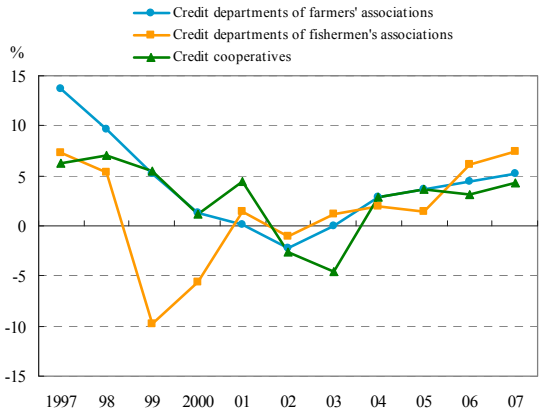
[46] Standard Chartered Bank merged Hsinchu International Bank (effective in July 2007), Citibank acquired Bank of Overseas Chinese (December 2007), ABN AMRO purchased Taitung Business Bank from RTC (September 2007), HSBC Hong Kong purchased Chinese Bank from RTC (March 2008), and DBS Singapore purchased Bowa Bank from RTC (May 2008).

Chart 4.23 Pre-tax income of community financial institutions



Sources: CBC and CDIC.

Chart 4.24 ROE of community financial institutions



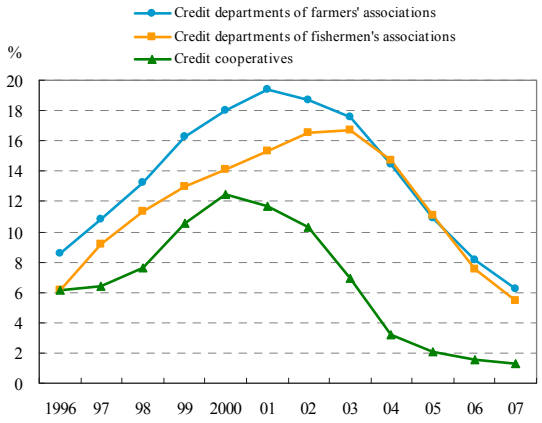
Sources: CBC and CDIC.

Overall asset quality improved

NPL ratios at community financial institutions have declined steadily over the past five years. The average NPL ratio at credit cooperatives dropped to 1.29% at the end of 2007, reflecting satisfactory asset quality. Nevertheless, the average figures for the credit departments of farmers' and fishermen's associations were still high at 6.27% and 5.45%, respectively (Chart 4.25). An analysis of individual institutions showed that NPL ratios remained high at some of these credit departments and may need to be brought down.

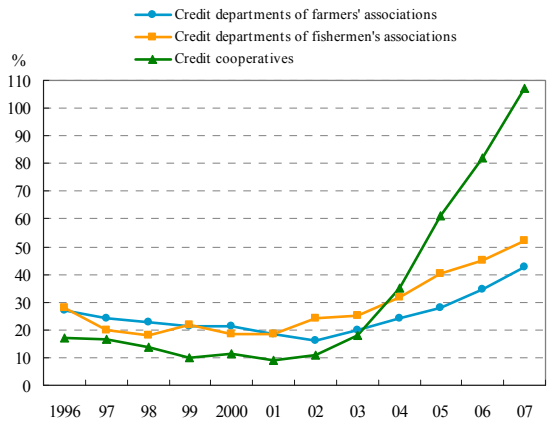
NPL coverage ratios at community financial institutions have gradually improved. The figure at credit cooperatives reached 107.08%, reflecting sufficient reserve provisions. However,

Chart 4.25 NPL ratios of community financial institutions



Note: End of period figures.
Sources: CBC and CDIC.

Chart 4.26 NPL coverage ratios of community financial institutions



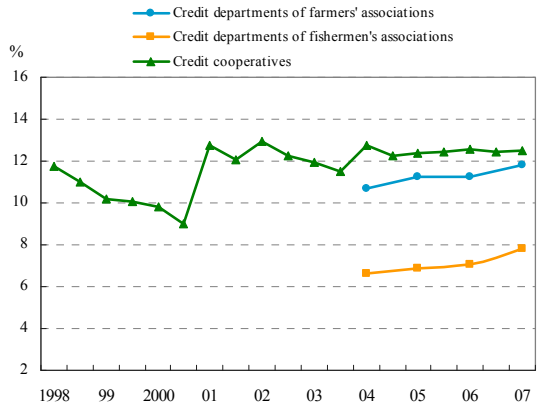
Note: End of period figures.
Sources: CBC and CDIC.

there is still a need for further improvement at the credit departments of farmers' and fishermen's associations, where the ratios were 42.63% and 52.06%, respectively (Chart 4.26).

Capital adequacy ratios steadily increased

Capital adequacy ratios[47] have steadily risen in recent years at community financial institutions, supported by a solid increase in earnings. By the end of 2007, the average capital adequacy ratios at credit cooperatives and the credit departments of farmers' associations stood at 12.50% and 11.82%, respectively, in both cases well above the statutory minimum of 8%. By contrast, the figure was only 7.84% for the credit departments of fishermen's associations, indicating insufficient capacity to withstand future losses (Chart 4.27).

Chart 4.27 Capital adequacy ratios of community financial institutions



Notes: 1. End of period figures.
2. Figures for credit cooperatives are on a semiannual basis, while those for credit departments of farmers' and fishermen's associations are on an annual basis.
Sources: CBC and CDIC.

4.2 Non-deposit taking financial institutions

4.2.1 Life insurance companies

The asset size of Taiwan's life insurance companies has continued to grow rapidly, and the top three companies account for 57% of the total. Overall profitability showed marked improvement in 2007, but potential losses driven by negative interest rate spread and expected foreign exchange losses on overseas investments due to appreciation of the NT dollar may undermine future profitability. The average risk-based capital (RBC) ratio was above the statutory minimum requirement, but certain companies where the ratio was below the required level may need to improve their financial strength. In the meantime, only eleven of 29 life insurers were rated by credit rating agencies; the top three insurers (Cathay Life, Nan Shan Life, and Shin Kong Life) were rated at twAAA or twAA, which signified extremely strong or very strong capacity to

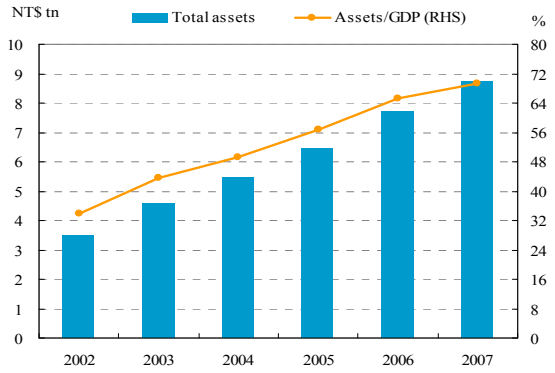
[47] The credit cooperatives began reporting capital adequacy ratios on a semiannual basis in 1998, while credit departments of farmers' and fishermen's associations began doing it annually from the end of 2004.

meet their financial commitments.

Total assets continued to grow rapidly

The total assets of life insurers have grown significantly in the past five years, and registered NT$8.73 trillion at the end of 2007, or 69.32% of annual GDP, growing by 12.79% year on year (Chart 4.28). This was primarily underpinned by continued accumulation of policy reserves that were invested in domestic and overseas securities, and a surge in insurance products held in segregated custody accounts[48].

Chart 4.28 Total assets of life insurance companies



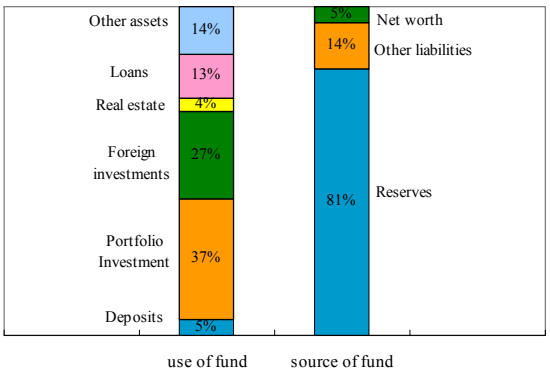
Note: End of period figures.
Source: FSC.

The life insurance market in Taiwan is dominated by domestic life insurers. As of the end of 2007, 22 domestic life insurers held a 98.93% market share by assets, while seven foreign life insurers commanded a share of only 1.07%. The top three life insurers held a combined market share of 57.31% and 48.81% in terms of assets and premium income respectively, reflecting a high market concentration.

High concentration of funds invested in securities

Securities investments and loans constituted the two main uses of funds by life insurers at the end of 2007, with 37% of funds invested in domestic securities, 27% invested in foreign securities and 13% used to provide loans. In the meantime, various policy reserves constituted the main sources of funds (81%), while net worth accounted for an additional 5% (Chart 4.29). In comparison with 2006, the amount of investment in foreign securities

Chart 4.29 Sources and uses of funds at life insurance companies



Note: End of 2007.
Source: FSC.

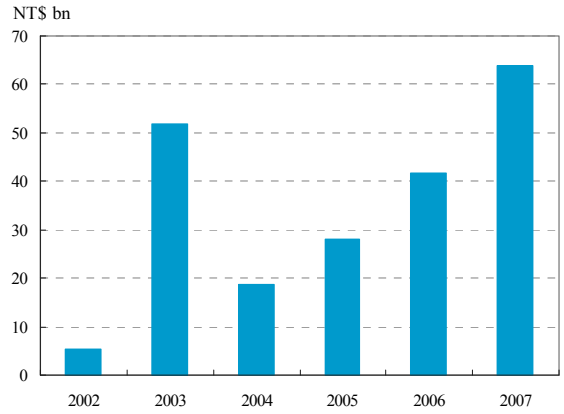
[48] When a life insurer sells a product held in segregated custody accounts, it means that the amount of insurance coverage offered under the policy is booked both under "segregated custody account insurance product assets" and "segregated custody account insurance product liabilities."

increased substantially, while other assets and other liabilities also continued to account for a growing share of insurer balance sheets due to the rapid growth of insurance products that are held in segregated custody accounts.

Overall profitability improved, but negative interest rate spread and expected foreign exchange losses may erode profitability of some companies

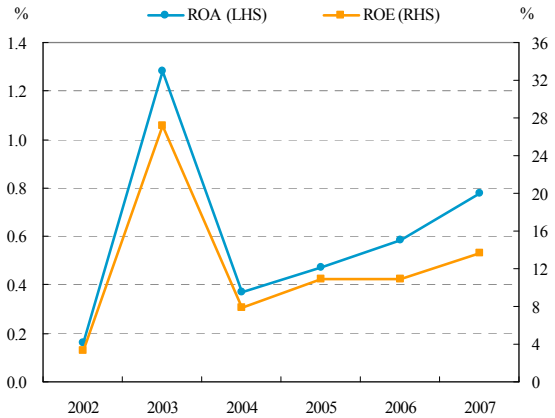
Profitability for life insurers as a whole has been improving annually since 2005. Net income before tax registered NT$64.0 billion in 2007, still well above the NT$37.2 billion of 2006, despite losses on both domestic and foreign investments in 2007 Q4 amid the global financial market turmoil (Chart 4.30). This increase was mainly supported by rising gains on securities investments and increasing income from insurance products held in segregated custody accounts. Average ROE and ROA were 13.70% and 0.78%, respectively, also up from 2006 (Chart 4.31), indicating that the overall profitability of life insurers improved. In addition, average return on investment was 3.78% in 2007, slightly higher than the 3.71% registered for the previous year. However, for some life insurers that early on issued a number of policies with high tabular interest rates, the current return was still lower than the interest rates that they committed to pay. The negative interest rate spread continues to erode their profitability. Investments in foreign securities for all life insurers, in the meantime, exceeded NT$2.3 trillion at the end of 2007. This means that appreciation of the NT dollar could generate foreign exchange losses and cut into profitability.

Chart 4.30 Pre-tax net income of life insurance companies



Source: FSC.

Chart 4.31 ROE & ROA of life insurance companies

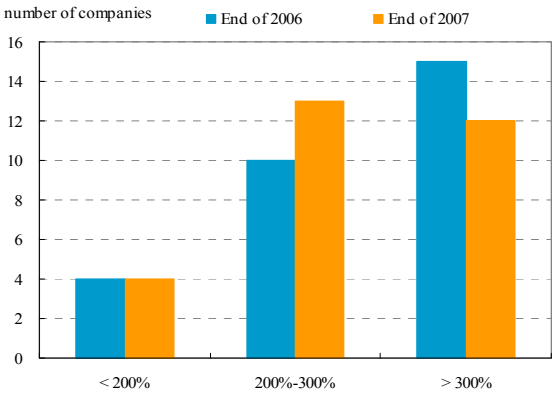


Note: ROA = net income before tax / average asset. ROE = net income before tax / average equity.
Source: FSC.

Average RBC ratio above statutory minimum requirement

The average RBC ratio for life insurers[49] was 263.29% at the end of 2007, a drop of 33.44 percentage points year on year. There were twelve companies with a ratio of over 300% and four under the statutory minimum of 200% (Chart 4.32). However, the total assets of these latter four firms only accounted for 4.27% of the total assets of all life insurers.

Chart 4.32 RBC ratios of life insurance companies



Source: FSC.

Credit ratings for top three life insurers were stable

Of Taiwan's 22 domestic life insurers, only eleven[50] are rated by credit rating agencies. The top three of these were rated at twAAA, AAA(twn), and twAA[51] at the end of 2007, respectively, which signified extremely strong or very strong ability to meet their financial commitments. The rating outlook for all domestic life insurers were either stable or positive, except that Taiwan Life's was negative due to some concerns about whether it has the ability to continue developing profitable new policies.

4.2.2 Bills finance companies

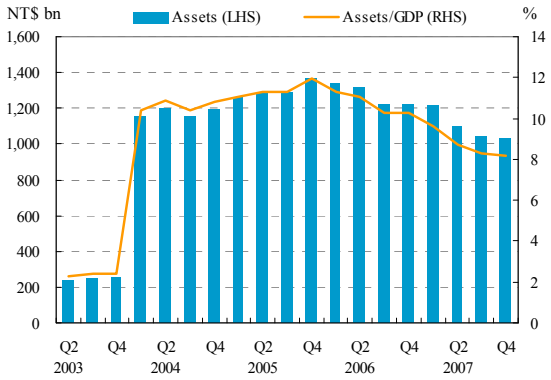
The total assets of bills finance companies continued to contract in 2007, while profitability and capital adequacy ratios also declined. Business operations also became more difficult in the face of sustained maturity mismatch between long-term assets and short-term liabilities, the shrinking of core businesses, as well as the erosion of potential profits on bond holdings.

Assets continued to contract

The assets of bills finance companies soared in 2004 after a modification of accounting methods to treat repo transactions as financing transactions instead of outright purchases/sales. The assets began declining in 2006, however, and stood at NT$1.03 trillion at the end of 2007, or 8.19% of annual GDP (Chart 4.33). The three largest bills finance

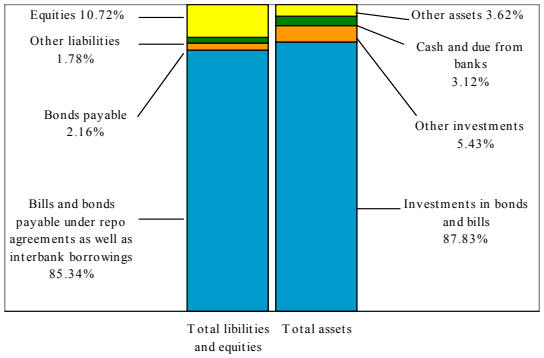
[49] Risk-Based Capital (RBC) ratio for life insurers = regulatory capital/risk-based capital. Under Article 143-4 of the Insurance Act, this ratio must be at least 200%.
[50] Life insurance companies rated by credit rating agencies include Taiwan Life, Cathay Life, China Life, Nan Shan Life, Shin Kong Life, Fubon Life, Allianz Taiwan Life, Prudential Life, Aegon Life, Metlife Taiwan, and Antai Life.
[51] Ratings prefixed with "tw" are from the Taiwan Ratings Corporation, while ratings suffixed with "(twn)" are from Fitch Ratings.

Chart 4.33 Total assets of bills finance companies



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

Chart 4.34 Asset/liability structure of bills finance companies



Note: Based on the end of 2007.
Source: FSC.

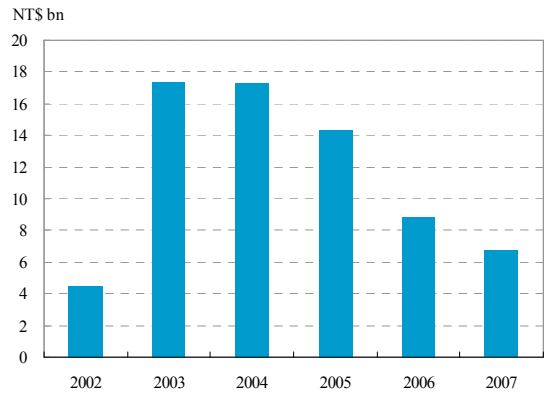
companies (Mega Bills Finance, International Bills Finance, and China Bills Finance) commanded market shares by assets of 26.20%, 21.91% and 16.94%, respectively, for a combined market share of 65.05%. No other firm has a market share as high as 10%.

As for asset/liability structure, investments in bonds and bills accounted for 87.83% of total assets, which showed a considerable concentration in the uses of funds, while bills and bonds payable under repo agreements as well as interbank borrowings accounted for 85.34% of liabilities, an indication that sources of funds were mostly short-term (Chart 4.34).

Overall profitability continued to deteriorate

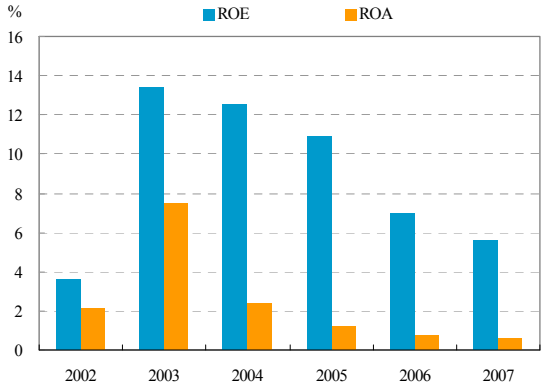
The profitability of bills finance companies began to deteriorate in 2005, and they posted net

Chart 4.35 Pre-tax net income of bills finance companies



Source: CBC.

Chart 4.36 ROE & ROA of bills finance companies



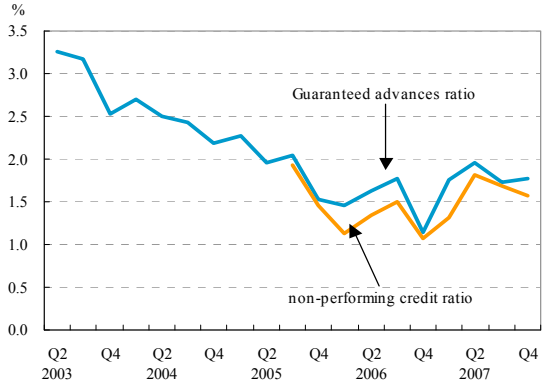
Note: ROA = net income before tax / average assets. ROE = net income before tax / average equity.
Source: CBC.

income before tax of NT$6.7 billion in 2007, down considerably from a peak of NT$17.4 billion in 2003 (Chart 4.35). ROE and ROA have also fallen steadily year by year, reaching 5.59% and 0.59%, respectively, in 2007 (Chart 4.36).

Asset quality remained acceptable

Asset quality at bills finance companies began to improve steadily from 2003. The guaranteed advances ratio and non-performing credit ratio[52] for the guarantee business were down to 1.15% and 1.08%, respectively, at the end of 2006. Both ratios spiked upward in 2007 after the collapse of the China Rebar conglomerate, but then settled back down to 1.77% and 1.58% by the end of 2007. Overall, the quality of credit assets at bills finance companies remained acceptable (Chart 4.37). In the meantime, the coverage ratio of loan loss reserves at the end of 2007 was 51.81% and 58.32% versus overdue guarantee advances and non-performing credit respectively, suggesting that the loss reserves of bills finance companies may need to be raised.

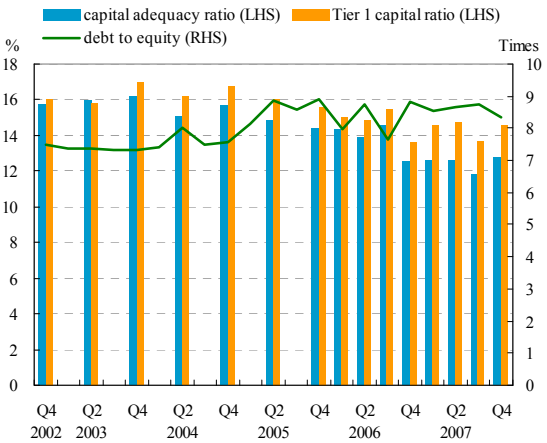
Chart 4.37 Guaranteed advances ratios of bills finance companies



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

Source: CBC.

Chart 4.38 Capital adequacy ratios of bills finance companies



Note: From the beginning of 2006, bills finance companies reported capital adequacy ratios quarterly instead of semiannually. The debt figures before 2003 included the securities sold under repo agreements.

Source: CBC.

Capital adequacy ratios in gradual decline

The average capital adequacy ratio of bills finance companies fell from 15.73% at the end of 2002 to 12.76% as of the end of 2007, but all companies were still above 10%. Over the same time period, the average Tier 1 capital ratio also slid from 16.03% to 14.58%. Additionally, the average ratio of debt to equity rose from 7.45 times to 8.33 times

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

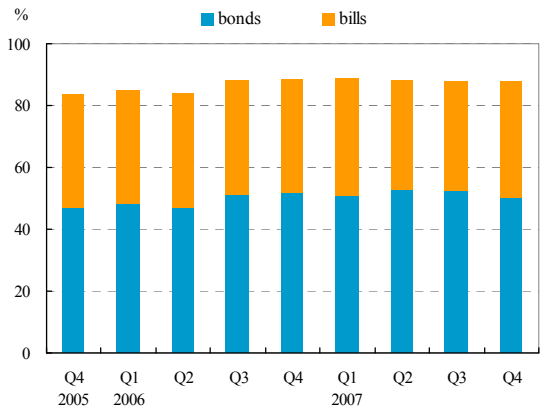
(Chart 4.38), reflecting increasing leverage.

Risks faced by bills finance companies

Maturity mismatch between long-term assets and short-term liabilities persisted, liquidity risk remained high

Bonds and bills constituted 80% or more of the assets of bills finance companies for the past two years, with the figure reaching 86.70% by the end of 2007. Bonds, in particular, accounted for a steadily growing share, coming to 49.66% as of 31 December 2007 (Chart 4.39). The heavy weighting toward bonds, which have average duration greater than one year, coupled with the fact that over 80% of funding comes from short-term interbank loans and repos, made for a considerable asset-liability maturity mismatch. Despite the fact that the Financial Supervisory Commission allows bills finance companies to issue corporate bonds and commercial paper to increase their long-dated funding, bills finance companies seldom do it because they generally have lower credit ratings than banks and would thus be forced to offer higher yields that exceed the return rate on investments. As a result, the maturity mismatch between long-term assets and short-term liabilities continues to be a problem.

Chart 4.39 Bond & bill positions as percentage of assets at bills finance companies

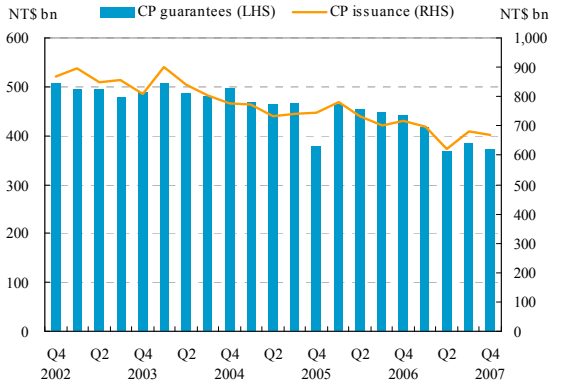


Note: End of period figures.
Source: CBC.

Shrinking balance of guarantees and commercial paper issues eroded profitability

With the diversification of capital raising options at domestic corporations in recent years, the outstanding amount of commercial paper (CP) issuance has steadily shrunk. The

Chart 4.40 Outstanding of CP guarantees and issuances



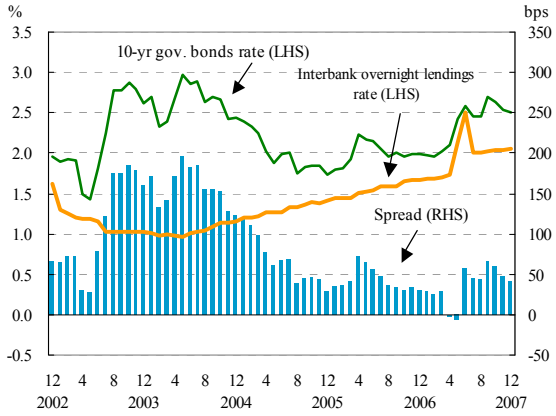
Note: End of period figures.
Source: CBC.

outstanding amount of commercial paper guarantees provided by bills finance companies has also continued to decline, sinking to NT$373.1 billion at the end of 2007, off 15.78% from the previous year (Chart 4.40). As the fee income from guarantees and underwriting services are a major source of revenues for bills finance companies, the ongoing decline of guarantee business may continue to undermine their future profitability.

Rising short-term interest rates undermined the potential benefit of bond holdings

As the domestic yield curve has turned flatter in recent years and short-term interest rates have gone steadily up in response to the rate hikes by the CBC, the spread between 10-year government bond yields and interbank overnight lending rates continued to shrink and even posted negative figures in May and June of 2007. Shrinking interest rate spread will substantially erode potential benefit of bond holdings. Meanwhile, with the rising bond yields since the beginning of 2007, bills finance companies may be at risk of increasing valuation losses on their bond holdings (Chart 4.41).

Chart 4.41 Yield spread between 10-yr gov. bonds and interbank loans



Source: CBC.

5. Financial infrastructure–payment and settlement systems

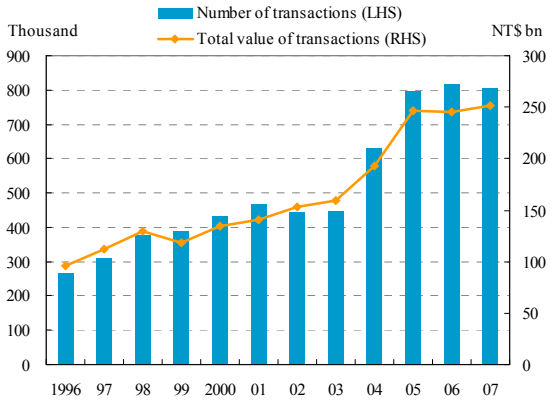
5.1 Measures to improve payment and settlement systems and raise efficiency and safety

The BIS Committee on Payment and Settlement Systems in January 2001 issued the Core Principles for Systemically Important Payment Systems,[53] and then in November of the same year, in cooperation with the Technical Committee of the International Organization of Securities Commissions (IOSCO), jointly released the Recommendations for Securities

[53] "Core Principles for Systemically Important Payment Systems", Committee on Payment and Settlement Systems (CPSS), Bank for International Settlements, Jan. 2001. A full-text Chinese translation was completed by the CBC Department of Banking in February 2002.

Settlement Systems.[54] The purpose of these two documents is to simultaneously ensure both the safety and efficiency of payment and settlement systems. In particular, with regard to the need to strengthen risk management for large-value payment systems,[55] the Core Principles and the Recommendations call for the use of central bank money for final settlement in order to ensure the safety of settlement assets,[56] and they also call for use of the Real-Time Gross Settlement (RTGS) mechanism to keep settlement risks from spreading and affecting other systems and markets.

Chart 5.1 Transactions via the CBC Interbank Funds Transfer and Settlement System



Source: CBC.

CBC Interbank Funds-Transfer and Settlement System switched to RTGS

The CBC Interbank Funds-Transfer System (CIFS), an online system for handling large-value electronic payments, lies at the heart of the interbank funds transfer mechanism. It first went into operation in May 1995 and is primarily used to handle interbank funds transfers, reserve account balance adjustments, settlement of interbank loans, NT dollar settlement of foreign exchange transactions, and payments for bond and bills transactions. In 2007, 810,000 transactions worth a total of NT$252 trillion were processed through the system, making for an average transaction size of NT$300 million (Chart 5.1).

In the early years, the CIFS employed net settlement at day end. To better control settlement risks, the CBC adopted RTGS in September 2002, whereby transactions are settled individually as they occur. When paying off individual transactions, financial institutions must have sufficient account balance to cover payment amounts; otherwise the transactions are not processed. This keeps insufficient funds transactions from getting into the system and prevents the occurrence of systemic risk. Additionally, to ensure that financial institutions

[54] "Recommendations for securities settlement systems", Committee on Payment and Settlement Systems & International Organization of Securities Commissions (IOSCO), Nov. 2001.

[55] There are two types of payment transactions – "large value" and "retail". A large-value payment system is designed to handle payments in connection with financial market transactions (e.g. trading in bonds, bills, stocks, or foreign exchange) or interbank payment transactions that are both large and time-sensitive and if not handled effectively could give rise to systemic risk, thereby affecting the stability of the entire financial system. The system used to process this type of payment is considered extremely important.

[56] The term "settlement assets" refers to funds that are deposited by participants with a settlement institution, and are transferred among participants to settle interbank payments. The CBC and commercial banks can all act as settlement institutions, therefore central bank money and commercial bank money can both be used as settlement assets. However, international regulatory bodies recommend the use of central bank money as settlement assets because it is safe, efficient, competitively neutral, and can be used for final settlement.

have sufficient funds in their accounts with the CBC, the CBC provides intraday overdraft support to ease intraday liquidity pressure.

In January 2007, the collapse of China Rebar triggered a run on its subsidiary Chinese Bank. However, a systemic crisis was avoided thanks to a well functioning RTGS system, together with the appropriate measures of the CBC, which monitored interbank transactions in real time via the system and injected liquidity as needed.

In addition, in order to promote sound operations by the private system operator, the CBC has provided the Financial Information Service Co. (FISC) with central bank money for final settlements since its establishment, to ensure that FISC keeps its interbank remittance and ATM funds transfers operations functioning smoothly.

Securities[57] settlement through delivery versus payment

In the early days of the system, settlement of bills market transactions was carried out through either physical delivery or entry in a passbook ("custodial slips"). The system was not only inefficient but also showed several weaknesses, such as lack of professional custodian institutions, difficulty in identifying fake bills, as well as potential settlement default risk arising from the separation between bills settlement and funds settlement.

In order to better control risk, the authorities and the bills finance industry jointly launched a new Bills Central Depository and Clearing System in April 2004. The new system employed centralized custody and book-entry transfer in order to make the settlement of bills transactions safer and more efficient. Also, in order to eliminate settlement default risk, a delivery versus payment (DVP) mechanism was implemented by linking up the Bills Central Depository and Clearing System with the CIFS.

Thereafter, with a view to enabling more efficient clearing and settlement of other fixed income products and providing market participants with one-stop services, the authority for the securities industry merged the Taiwan Securities Central Depository Co. and the Debt Instruments Depository and Clearing Co. in March 2006, renaming it the Taiwan Depository & Clearing Corporation (TDCC). The purposes of the merger were to have a single organization providing depository, clearing, and book-entry transfer services for bonds, bills, and other fixed income products, and to allow market participants to engage in simultaneous DVP via the linkage of the CIFS with the Debt Instruments Depository and Clearing System.

[57] The term "securities" as used in this report includes bills, bonds, and stocks.

As for central government bonds, the government switched in September 1997 to issuing them in book-entry form[58] instead of printing physical bond certificates and began using the book-entry Central Government Securities-Settlement System to handle the sale and transfer of bonds as well as interest and redemption payments. In April 2008, the CBC further linked this system to the CIFS and implemented simultaneous DVP mechanism for interbank central government bonds transactions.

Establishing a business continuity plan

In order to ensure business continuity, the authorities have required the main operators of Taiwan's payment and settlement system to set up disaster recovery mechanism and contingency plans, and to carry out regularly scheduled drills. In 2005, the CBC and the competent authorities invited the FISC, the TDCC and other principal operators of the payment and settlement system to take part in a conference to discuss possible measures to promote a sound payment and settlement system. During the conference, system operators were called on to study ways to ensure operational continuity, to formulate risk management measures to address how to respond when a serious accident impedes normal operations, and how to prevent human error in major operations.

5.2 Future plans

To spur operators of settlement and payment systems, especially those of systemic importance to the financial system, to make a strong self-directed effort to ensure sound operations, the CBC required system operators to implement self-assessments in accordance with the aforementioned Core Principles and Recommendations. System operators are expected to study the areas where they do not measure up to international standards and adopt a timetable for improvements that will bring about effective operations and serve as an important tool for the management and assessment of risk in the future.

[58] "Book-entry form" here means "uncertificated".