Central Bank of the Republic of China (Taiwan)

Financial Stability Report

June 2008 | Issue No. 1

Table of contents

About the Financial Stability Report

Key points of the task to promote financial stability

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

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

Purpose of this report

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

Definition of financial stability

There is as yet no universally accepted definition of "financial stability." Defined positively, "financial stability" can be thought of in terms of the financial system's ability to: (1) facilitate an efficient allocation of economic resources both spatially and intertemporally; (2) assess and manage financial risks; and (3) withstand adverse shocks. From a negative approach, “financial instability” refers to the occurrence of currency, banking or foreign debt crises, or inability of the financial system to absorb adverse endogenous or exogenous shocks, and allocate resources efficiently, with the result that it cannot facilitate real economic performance in a sustained manner.

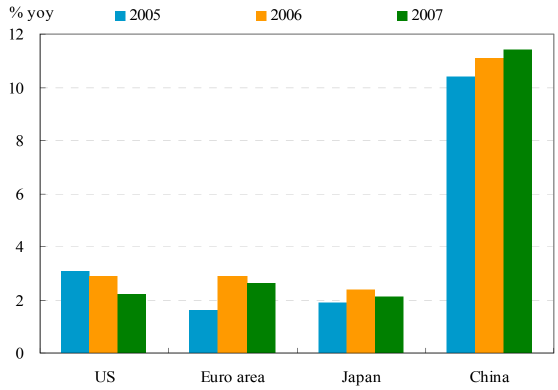
Note: Except as otherwise noted, all data and information cited in this report is current as of 31 March 2008.

I. Overview

Turbulence roiled international financial markets, economic growth declined in major economies

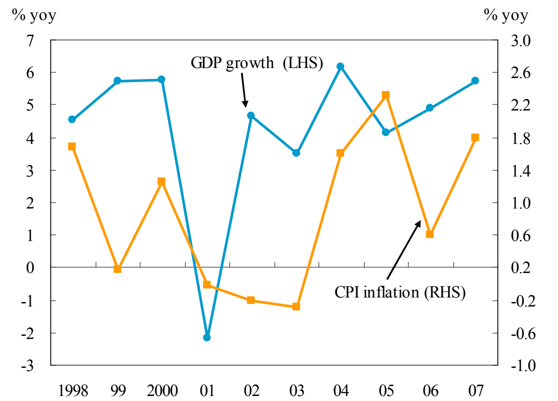
Global economic growth continued to be strong in the first half of 2007, but tailed off in the second half of the year due to the subprime mortgage crisis in the United States and rapidly rising oil prices. Fortunately, however, the underlying adverse impact was partially offset by continued strong growth in emerging markets and developing countries. The International Monetary Fund (IMF) estimates that the global economy grew by 4.9% in 2007, down slightly from 5.0% in 2006. It is expected that global financial and credit market turmoil arising from the US subprime mortgage crisis, ongoing global current account imbalances as well as skyrocketing oil and commodity prices could continue to threaten global financial stability and economic growth. The IMF forecasts global economic growth of 3.7% in 2008, lower than the 4.9% growth achieved in 2007.

Economic growth rates in selected economies or areas



Note: Same as chart 1.1.
Sources: CBC, BEA, Eurostat, Cabinet Office of Government of Japan and National Bureau of Statistics of China.

Economic growth and consumer price inflation rate in Taiwan



Note: Figure of 2007 GDP growth is preliminary statistics.
Source: DGBAS.

Taiwan economy grew steadily, while inflationary pressures stepped up

Statistics from the Directorate-General of Budget, Accounting & Statistics (DGBAS) indicate that Taiwan's economy grew 5.72% in 2007, up from 4.89% in 2006, primarily attributable to stable export growth and a rebound in domestic demand. In 2008, however, the DGBAS expects slowing growth in Europe and North America to pull Taiwan's economic growth back down to 4.78%. In addition, rising international commodity prices have pushed up domestic consumer prices. Reflecting this, the consumer price index (CPI) rose by 1.8% in 2007, up sharply from the 0.6% registered a year earlier. The DGBAS projects the CPI inflation rate to reach 3.29% year on year in 2008. Inflationary pressures are stepping up.

Financial system remained stable

The collapse of the China Rebar conglomerate triggered the runs on its subsidiary financial institutions and disrupted Taiwan's financial system in the first half of 2007. However, the government dealt with them appropriately and prevented the problems from triggering a systemic crisis.

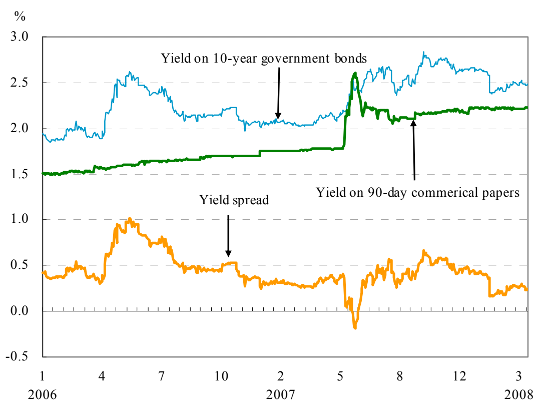
In the latter half of 2007, domestic financial markets continued to function normally, although their volatility increased due to the contagion effects of international market turmoil emanating from the US subprime mortgage crisis. Domestic financial institutions, in spite of some weaknesses, were sufficiently resilient to implement their intermediary function in the face of external and internal shocks. Payment and settlement systems also operated smoothly. Overall, the financial system in Taiwan has remained robust. However, the global financial turmoil and credit crunch caused by the US subprime mortgage crisis have not yet settled down. Close monitoring for any possible impacts upon the financial system and macroeconomic conditions in Taiwan is still needed.

Financial markets

Bills and bond markets contracted, while yield spreads remained tight

Issues outstanding and trading volume in the short-term bills market both declined in 2007, while trading volume in the bond market also fell sharply from the previous year due to rising yields and rotation of investor funds into the equity markets. Interest rates on both bills and bonds gradually trended higher, but yield spreads remained tight. Shrinking yield spreads

Yield spreads



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

are unfavorable to financial institutions which use short-term financing to fund long-term bond positions.

Stock indices on choppy upward trend

Sharp volatility in stock markets worldwide caused Taiwan's stock markets to fluctuate dramatically in 2007. However, stock indices trended upward in 2008 Q1, thanks to a buoyant mood spurred by elections and continued capital inflows. Rising stock price volatility, however, has increased the risks of investing in stocks.

Volatility in foreign exchange market increased

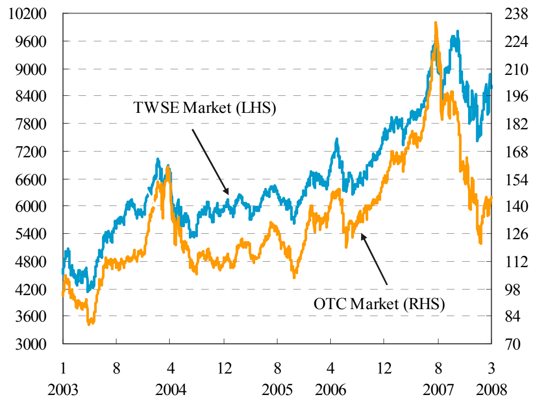
The New Taiwan dollar (NT dollar) generally traded in a tight range near 33 against the US dollar in the first three quarters of 2007, but appreciated slightly in Q4 as the latter weakened. Appreciation of the NT dollar continued in 2008 Q1, and was further strengthened due to large capital inflows. This would cause financial institutions holding large foreign currency assets to suffer considerable foreign exchange losses, and could also be unfavorable to export industries.

Financial institutions

Profitability improved and asset quality remained satisfactory at domestic banks

Profitability at domestic banks improved markedly from the previous year. Asset quality

Taiwan stock market indices

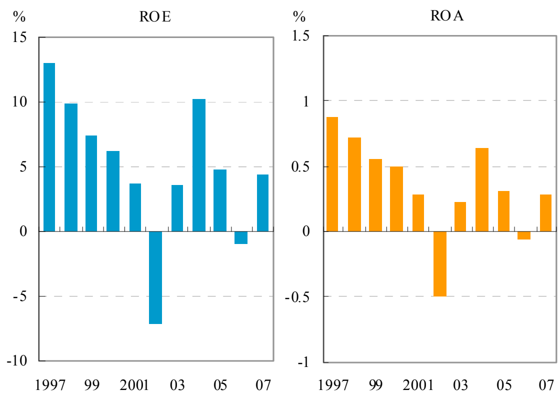


Sources: TWSE and GTSM.

NT$/US$ exchange rate volatility

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

ROE and ROA of domestic banks



Note: Same as chart 4.1.
Source: CBC.

also remained satisfactory. Capital adequacy ratios resumed their gradual upward climb after dropping off abruptly following implementation of Basel II. Future profitability and asset quality at domestic banks may be affected by a number of factors, including shrinking interest rate spread between deposits and loans, implementation of the Consumer Debt Clearance Act, frequent disputes involving wealth management business, possible further losses on subprime mortgage related investments, as well as concentration risk from heavy lending to real estate, electronics and machinery sectors. In addition, domestic banks face stepped up competition from foreign banks, which have expanded their business units through cash acquisitions of local banks or tender acquisitions of problem banks that were cleaned up by the Financial Restructuring Fund after being taken into conservatorship.

Community financial institutions in gradually improving health

Profitability at community financial institutions is gradually improving, while NPL ratios are decreasing each year and capital adequacy ratios are slowly rising. Overall, the operations and financial conditions of these institutions have improved markedly. However, some credit departments of farmers' and fishermen's associations hold poor quality assets. The average capital adequacy ratio of credit departments of fishermen's associations is below the statutory minimum of 8%.

Rapidly growing assets at life insurance companies

Life insurance companies are enjoying rapid asset growth, and their overall profitability has clearly improved. Nevertheless, the risk-based capital (RBC) ratios at some companies are below the statutory minimum of 200%. Negative interest rate spreads and foreign exchange losses on overseas investments are expected to erode future profitability.

Continued contraction in assets and profitability at bills finance companies

Bills finance companies are facing the situation of contracting assets, declining profitability and falling capital adequacy ratios. Some companies with huge long-term bond holdings, moreover, could encounter the risk of insufficient liquidity.

Ongoing improvements in payment and settlement systems

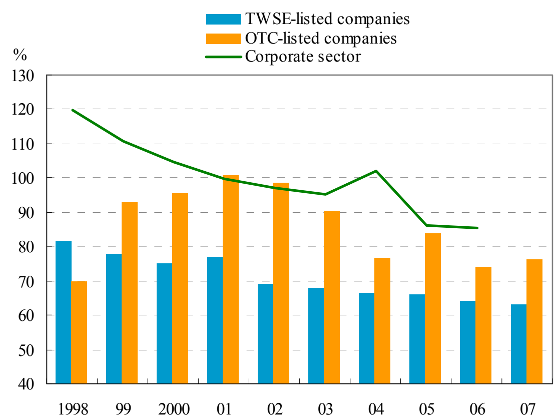
In recent years, Taiwan has undertaken a number of reform measures to improve the efficiency and safety of payment and settlement systems. Among these measures, the CBC

Interbank Funds-Transfer System has switched to a real-time gross settlement (RTGS) mechanism, and the securities settlement system and the book-entry central government securities system have adopted a simultaneous delivery versus payment (DVP) scheme. The CBC is also encouraging important domestic payment and settlement systems to establish business continuity plans, and is calling upon the operators of these systems to carry out self-assessments in order to improve system efficiency and maintain sound operations.

Financial conditions in the corporate sector improved

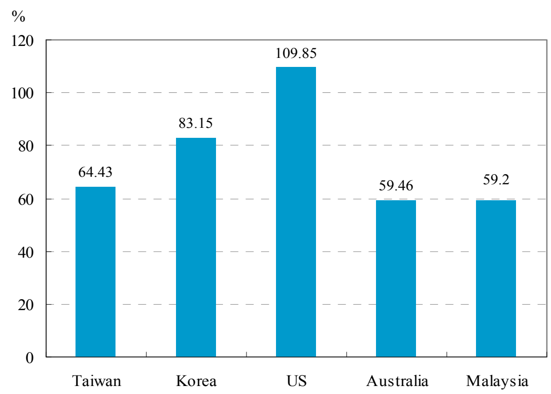
The corporate sector has achieved markedly improved profitability amidst strong economic conditions in recent years. Financial structure has also improved as leverage ratios have fallen, and interest servicing capacity has significantly strengthened over the same period. TWSE-listed companies, in particular, have on average outperformed the corporate sector as a whole. OTC-listed companies, in contrast, have been subject to wider swings in performance, and saw a weakening of financial ratios in 2007 due to the impact of lower earnings. Compared with other countries, the average leverage ratio of Taiwan's listed companies was lower than those in the United States and South Korea, but was still higher than in Australia and Malaysia.

Leverage ratios in corporate sector



Note: Same as chart 6.2.
Sources: JCIC and TEJ.

Corporate sector leverage ratios in selected countries



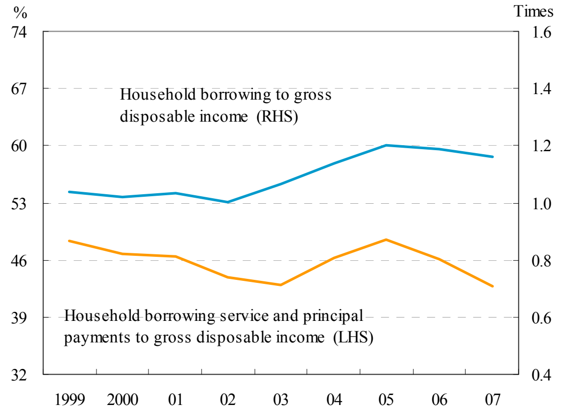
Note: Same as chart 6.3.
Sources: TEJ, BOK, Fed, ABS and BNM.

Although its overall financial conditions have improved, the corporate sector still faces the problem of slowing global economic growth, continued appreciation of the NT dollar and rising international commodity prices, which may impact the revenues and financial conditions of domestic companies. Close monitoring is therefore needed. In addition, enterprises with investments in China also face increasing risk due to the adverse effects arising from the implementation of the Employment Contract Law and tax reforms in China.

Household debt burden remained heavy

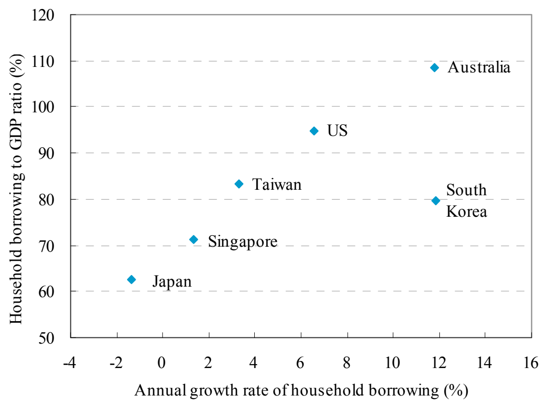
Growth in household borrowing has slowed since credit card and cash card defaults emerged as a major problem in 2005. Principal and interest payments therefore have become less burdensome, and debt servicing capacity has strengthened. However, household borrowing remains higher in Taiwan than in neighboring countries such as South Korea, Singapore, and Japan. Household borrowing to gross disposable income ratios have fallen, but remain high, reflecting considerable debt burdens. Rising domestic inflationary pressures and successive expiration of interest-only periods on high loan-to-value (LTV) mortgage loans may undermine the real income and debt servicing capacity of households.

Household debt servicing ratios



Note: Figure for gross disposable income of 2007 is CBC estimate.
Sources: CBC, JCIC and DGBAS.

Household indebtedness in selected countries

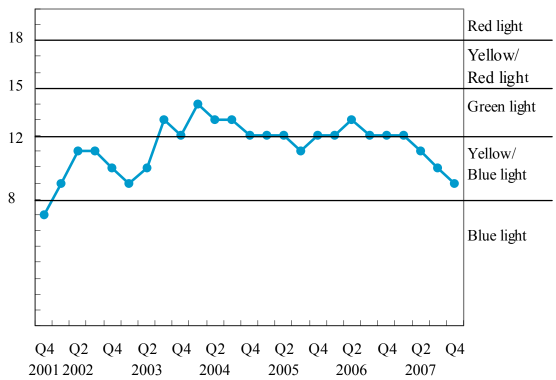


Note: Same as chart 7.3.
Sources: Fed, BEA, BOJ, Cabinet Office of Japan, BOK, ABS, DGBAS, CBC and JCIC.

Real estate market cooled off

Real estate prices continued to rise and rental rates also trended gently upward. Market growth, however, turned moderate due to a slowdown in real estate market transactions. Moreover, rising housing vacancy rates and tightening real estate lending standards are likely to put downward pressure on the market.

Real estate cycle indicators



Source: "Quarterly Report of Taiwan Real Estate Cycle Indicators," Architecture and Building Research Institute, MOI.

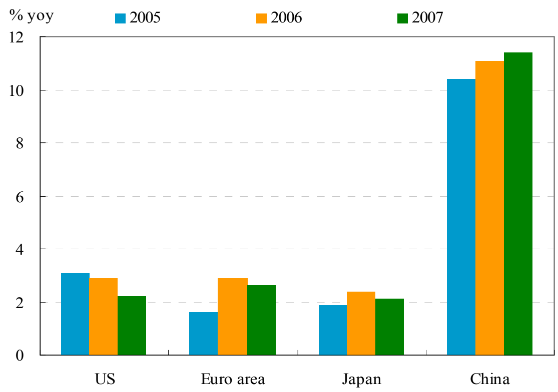
II. International and domestic economic and financial conditions

1. International economic and financial conditions

Slowdown in global economic growth

Following three consecutive years of stable growth, the global economy continued to expand vigorously during the first three quarters of 2007. In the fourth quarter of 2007, however, the expansion slowed dramatically in the advanced economies, particularly in the United States, amid global financial market turmoil emanating from the US subprime mortgage crisis and increasing concern about rising international commodity prices. Nevertheless, strong momentum from continued rapid growth in emerging markets and developing economies partially offset the adverse impact, so the global economic turndown was not very pronounced. The IMF estimates the global economy grew by 4.9%[1] in 2007, declining by 0.1 percentage point from 5.0% in 2006. Growth in the advanced economies, which have been the most affected by global financial market distress, is expected to fall in 2008 as a result of the spillover effect from the subprime mortgage crisis. Meanwhile, growth among emerging and developing economies is also projected to slow due to negative financial shocks. The IMF projects that global growth could decline to 3.7% in 2008[2], 1.2 percentage points lower than in 2007.

Chart 1.1 Economic growth rates in selected economies or areas



Note: Figures for Japan and the US are seasonally adjusted and annualized rates of change from the previous quarter. Those for the Euro area and China are year-on-year growth rates.
Sources: CBC, BEA, Eurostat, Cabinet Office of Government of Japan, and National Bureau of Statistics of China.

Among major economies, economic performance in the United States remained strong in the second and third quarter of 2007, despite sluggish demand in the housing market. This was mainly supported by the combination of expanding domestic investment and government expenditure as

[1] See the IMF World Economic Outlook, April 2008.
[2] Same as Note 1.

well as rising exports. Nevertheless, economic activity slowed substantially in the fourth quarter of 2007, as the fallout from the subprime mortgage crisis broadened, growth in consumer spending and exports decelerated, and private investment declined. GDP growth dropped to 2.2% year on year in 2007 from 2.9% in 2006 (Chart 1.1).

Economic growth in the euro area ranged between 2.4% and 3.1% during the first three quarters of 2007. In the fourth quarter, however, continuing appreciation of the euro and the negative effect of the US subprime mortgage crisis caused fixed capital formation and export growth to moderate and household consumption to contract. Reflecting this, economic growth for the year as a whole came in at 2.6%, down from 2.9% in 2006 (Chart 1.1).

In Japan, although private housing investment fell in 2007 due to the adoption of more stringent building codes, GDP posted stronger than expected growth beginning in Q3, supported by rising manufacturing investment and exports. However, the annual economic growth rate nevertheless fell to 2.1%, down by 0.3 percentage points from the 2.4% of 2006 (Chart 1.1).

Emerging markets and developing countries achieved strong economic expansion throughout 2007, mainly driven by China and India. Despite implementation of tighter macroeconomic control policies, the annual economic growth rate in China remained firm at 11.4% in 2007, higher than the 11.1% registered in 2006, largely due to ongoing robust investment in fixed assets and the sizable trade surplus (Chart 1.1).

US subprime mortgage crisis drove global financial turmoil

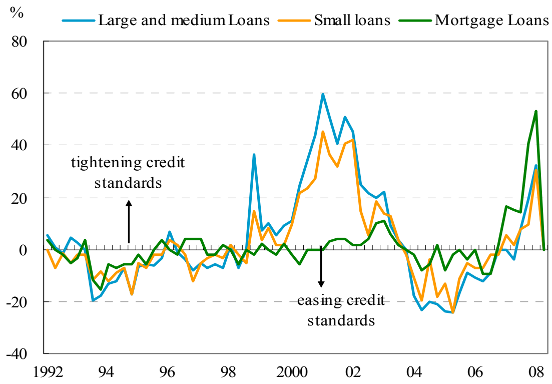
The financial crisis sparked by the US subprime mortgage market in the latter half of 2007 has triggered disturbances in the global financial market. Increasing defaults on US subprime mortgages caused prices to plummet in securities backed by such mortgages and resulted in considerable losses for financial institutions worldwide[3]. Some financial institutions that are highly reliant on short-term funding also faced liquidity pressures due to a spike in short-term lending rates in the interbank market. In addition, lending capabilities of financial institutions were restrained due to enormous losses. They also adopted a more cautious attitude and imposed tighter credit standards in the face of an increase in defaults on loans such as credit card and mortgage loans that had formerly been performing normally. Credit markets were under stress (Chart 1.2). Rattled investors around the world have dumped their equities or

[3] The IMF estimates that the global financial sector as of March 2008 faced potential losses from the US subprime mortgage crisis totaling US$1.17 trillion, including US$225 billion in potential losses on unsecuritized US loans, and US$945 billion on mark-to-market losses on related securities. See the IMF Global Financial Stability Report, Table 1.1, April 8, 2008.

rushed to redeem their fund holdings due to a loss of confidence in the financial markets, and concerns about a global economic slowdown have heightened, spurring a big slump in global equity prices (Chart 1.3).

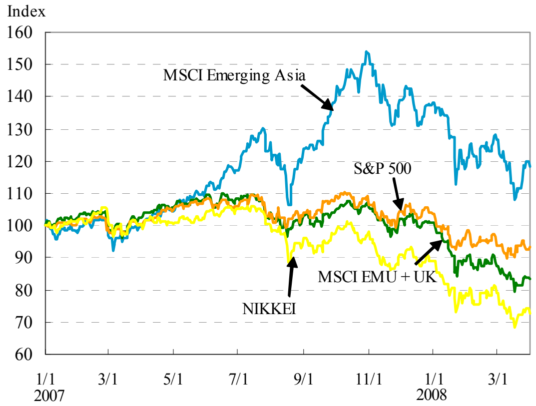
To prevent further contagion of the subprime mortgage crisis and mitigate its adverse impact, leading economies employed a series of contingency measures, including continual easing of interest rates by the US Federal Reserve and a succession of coordinated liquidity injections carried out by several central banks. The US government implemented further support measures, such as a tax break and a freeze on subprime interest-rate resets, to provide assistance to lenders coping with financial distress and to keep the US economy from turning down. The US subprime mortgage crisis is expected to linger over a longer timeframe, but it has already revealed some weaknesses in risk management and financial supervision. Financial authorities and financial institutions around the world should take remedy measures to strengthen the resilience of financial systems to respond to future unexpected impacts.

Chart 1.2 Senior loan officer opinion survey on the US bank lending practices



Notes: 1. Figure of 2008 is for 2008 Q1. The ratios show the difference between the banks tightening credit standards and those easing standards divided by total number of large banks under survey.
2. Mortgage loans refer to prime mortgage loans after 2007 Q2.
Source: Fed.

Chart 1.3 Performance of key international stock indexes



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

Prices of crude oil and commodities soared

Growing demand and tight supply for international oil, grains and other commodities, as well as the continued depreciation of the US dollar, caused commodity prices to surge. In March 2008, the spot price of West Texas Intermediate crude oil climbed past US$100 a barrel[4], while the commodity (crude oil excluded) index[5] also rose above 3,000 points, setting a

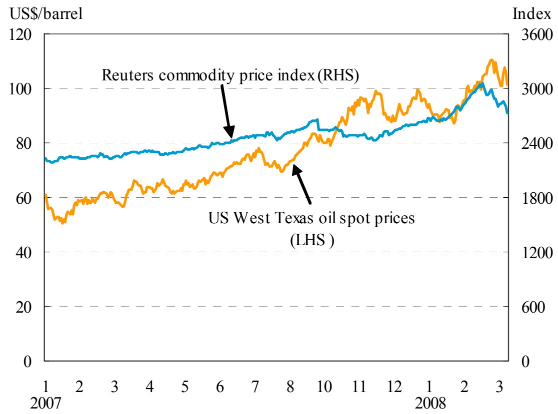
[4] The spot price of West Texas crude oil rose above US$110 per barrel in April 2008.
[5] Commodities (ex-crude oil) includes the following 17 items: wheat, pork, corn, copper, sugar, rapeseeds, rapeseed oil, coffee, soy meal, zinc, rubber, lead, cocoa, wool, rice, tin, and cotton.

record high (Chart 1.4). Soaring international oil and commodity prices have exacerbated global inflationary pressures, while downturn pressure has emerged in the global economy as a result of the US subprime mortgage crisis. This will be a dilemma for central bankers in the implementation of monetary policy.

Global current accounts remained imbalanced

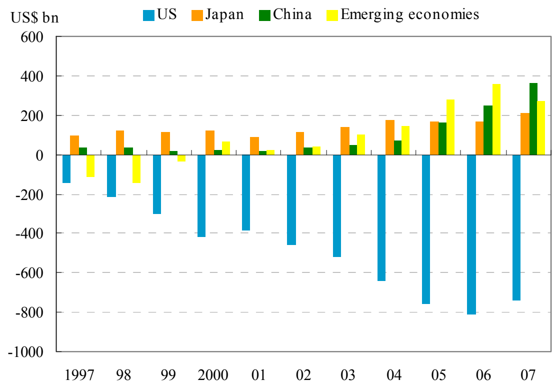
In 2007, the US current account deficit declined to US$735.6 billion after reaching a record US$811.5 billion in the previous year. This was mainly brought about by rising export growth due to the depreciation of the US dollar in the latter half of 2007. Contrary to the US, the sizable current account surplus continued to grow in Japan, China and other emerging markets and developing countries. Among them, Japan's current account surplus in 2007 reached US$212.8 billion, while China's exceeded US$360 billion (Chart 1.5). The continued global current account imbalances could undermine global economic and financial stability.

Chart 1.4 International oil and key commodity price trends



Sources: Bloomberg and Reuters.

Chart 1.5 Current account balances at selected economies



Note: The figures for China and emerging economies from 2006, and for the US and Japan from 2007 are estimated by IMF. Emerging economies include emerging market and developing countries, but exclude China.
Source: World Economic Outlook Database, IMF, April 2008.

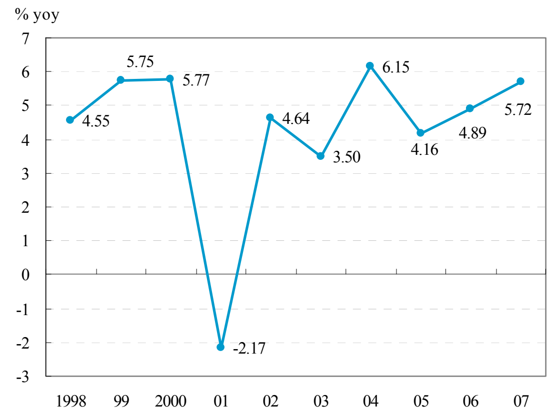
2. Domestic economic and financial conditions

Taiwan's economy sustained moderate growth throughout 2007, while consumer and wholesale prices both rose. External debt servicing capacity remained strong, thanks to ample foreign exchange reserves, an ongoing current account surplus and modest external debts.

Economy sustained solid growth in 2007

Economic growth remained solid in 2007, underpinned mainly by stable export growth against the backdrop of continued global economic expansion, and a rebound in growth in private consumption expenditure and private investment. Statistics from the DGBAS indicate economic growth of 5.72% for 2007, up from 4.89% in 2006 (Chart 2.1). Although the global economic slowdown is expected to moderate Taiwan's export growth, domestic demand is projected to remain stable. The DGBAS predicts economic growth will decline to 4.78% in 2008.[6]

Chart 2.1 Economic growth in Taiwan

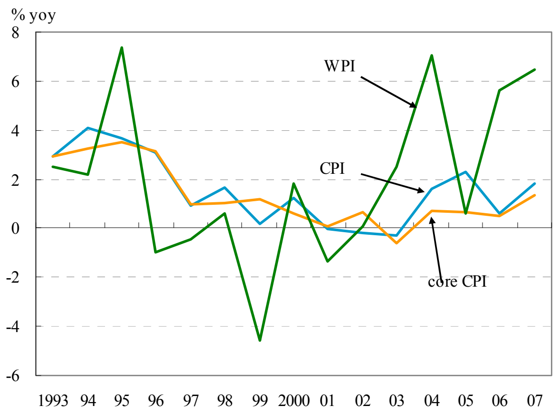


Note: Figure of 2007 is preliminary statistics.
Source: DGBAS.

Inflationary pressures increased

International raw material and commodity prices stayed elevated in 2007, driving an upsurge in wholesale prices. The Wholesale Price Index (WPI) accelerated 6.47% year on year, compared to a rise of 5.63% in the previous year. On the Consumer Price Index (CPI) side, a series of typhoons and a rapid increase in international prices for crude oil, grains and other commodities exerted upward pressure on consumer prices in the latter half of 2007. The annual CPI and core CPI[7] inflation rates stood at 1.8% and 1.35%, respectively, in 2007, both higher than the previous year (Chart 2.2). Inflationary pressures have increased further since the beginning of 2008, due to rising prices for imported raw materials and food. The average CPI and core CPI inflation rate continued to increase from January through May of 2008, averaging 3.66% and 2.97% year on year, respectively. The DGBAS

Chart 2.2 Consumer and wholesale price inflation rates



Source: DGBAS.

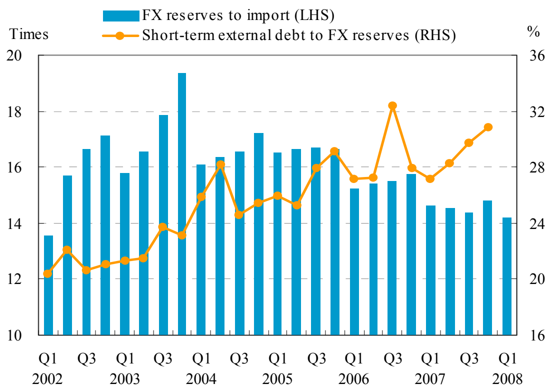
[6] DGBAS press release, 29 May 2008.
[7] The term "core CPI" in this report refers to a consumer prices index excluding perishable fresh fruits and vegetables, fish and shellfish, and energy.

projects the CPI inflation rate to reach 3.29%[8] year on year in 2008 in view of unabated inflationary pressures.

Current account remained in surplus and foreign exchange reserves stayed sufficient

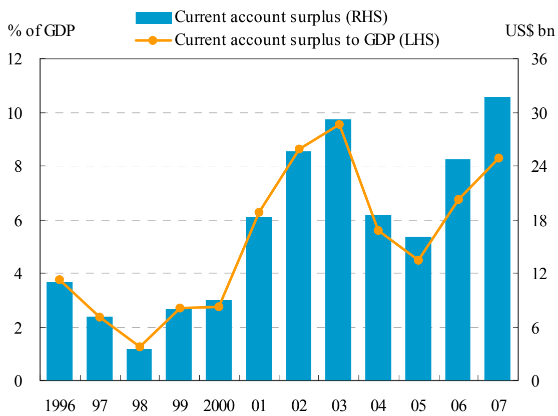
In Taiwan, growth in foreign exchange reserves slowed since 2006, but the outstanding amount still stood at US$286.9 billion as of the end of March 2008, enough to cover 14.19 months of imports.[9] Foreign exchange reserves remained in ample supply,[10] while the ratio of short-term external debt to foreign exchange reserves was 30.81%[11] at the end of 2007, indicating that Taiwan has strong capacity to meet its payment obligations for imports and service its short-term external debt (Chart 2.3). In addition, the current account has remained in surplus for several years, due mainly to a merchandise trade surplus. The 2007 current account surplus reached a record high of US$31.7 billion, equivalent to 8.27%[12] of GDP (Chart 2.4).

Chart 2.3 Short-term external debt servicing capacity



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

Chart 2.4 Current account surplus



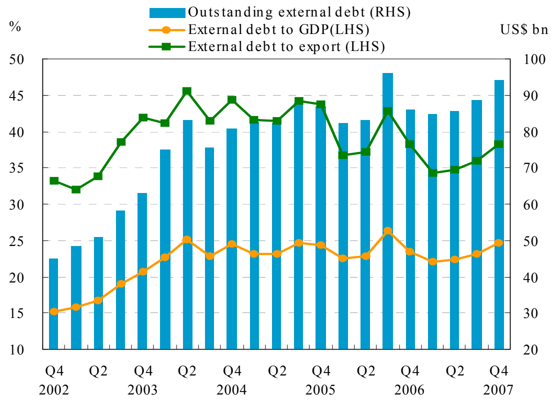
Sources: CBC and DGBAS.

8 Same as Note 6.
9 Figures for imports refer to the Ministry of Finance statistics for total amount of annual imports on customs basis.
10 See "Damocles: Testing Times Ahead," Lehman Brothers, July 22, 2004. For import cover of foreign exchange reserves, the cutoff point for risk is three months. A country with an import cover of less than three months is considered to be at relatively high risk.
11 See WU Yih-Jiuan, "*Taiwan's financial crisis early warning system* [in Chinese]" (April 2003), quoting country risk scoring system of JP Morgan and similar scoring system benchmarks from American Express Bank. The general international consensus is that a reading of less than 50% indicates relatively low risk.
12 See Note 10. For the ratio of current account deficit to GDP, the cutoff point for risk is 3%. A country where the reading is greater than 3% and has risen by at least 5 percentage points from the previous year is considered to be at relatively high risk.

External debt trended upward, but servicing capacity remained strong

External debt[13] has trended generally upward for the past five years, reaching a peak of US$96.0 billion at the end of September 2006 and shrinking slightly to US$94.3 billion, or 24.52% of GDP, at the end of 2007. The ratio nevertheless was still below the internationally recognized warning level [14] of 50%. Meanwhile, external debt as of the end of 2007 was equivalent to 38.22% of annual exports[15], indicating that export revenues were sufficient to cover external debt[16] (Chart 2.5) and there was no clear sign of pressure on external debt servicing capacity.

Chart 2.5 External debt servicing capacity



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

Continued improvement in fiscal positions, and government debts came under control

In order to spur an increase in private investment, thereby boosting overall economic growth, the government has aggressively promoted major infrastructure projects. As a result, substantially increased public spending since 2000 caused fiscal deficits to sharply escalate at all levels of government. The deficits reached a peak of NT$374.9 billion in 2001 and subsequently declined since 2002 on the strength of rising tax revenues and controlled spending growth. In 2007, the deficit contracted further to NT$70.1 billion[17] and the fiscal deficit to GDP ratio also fell to 0.56%[18] from 3.80% in 2001, reflecting a steady improvement in the state of fiscal revenues versus expenditures (Chart 2.6).

[13] The CBC Foreign Exchange Department defines "external debt" as the combined amount owed to foreign parties by Taiwan's public and private sectors, including long-term debts with a maturity of greater than one year and short-term debts with a maturity of one year or less. The term "public external debt" refers to debts that the public sector is either obligated to repay directly or has guaranteed (starting from December 2004, figures for public external debt include outstanding foreign debts arising from repo transactions between the CBC and international financial institutions). The term "private external debt" refers to private-sector foreign debts that are not guaranteed by the public sector.

[14] See Note 10. For the ratio of external debt to GDP, the cutoff point for risk is 50%. A country with a ratio of 50% or higher is deemed to be at relatively high risk.

[15] Figures for exports refer to Ministry of Finance statistics for the total amount of annual exports on customs basis.

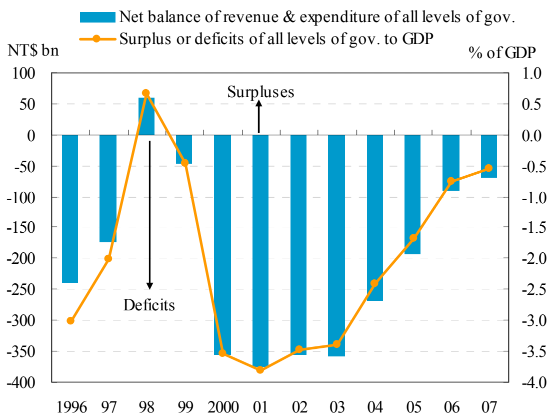
[16] See Note 11. The ratio of external debt to exports less than 100% indicates relatively low risk.

[17] The figure is based on the DGBAS estimate for 2007 fiscal revenues and expenditures, issued on 28 March 2008.

[18] See Note 11. Under the 1992 European Union Maastricht Treaty and the subsequent Stability and Growth Pacts, fiscal deficits in EU member nations are not allowed to exceed 3% of GDP.

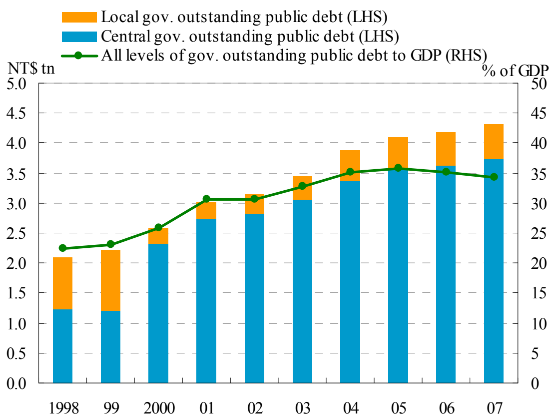
As fiscal deficits rose and governments relied on the issuance of debt to finance their debt servicing expenditures, outstanding public debt at all levels of government[19] has increased steadily over the past decade. However, the expansion began to moderate in 2006 and the outstanding debt stood at NT$4.3 trillion[20] in 2007, up slightly from NT$4.2 trillion[21] as of the end of 2006. Meanwhile, the ratio of outstanding debt to annual GDP fell back to 34.49%[22] in 2007 after peaking in 2005. The growth of public debt is gradually coming under control (Chart 2.7).

Chart 2.6 Fiscal positions in Taiwan



Notes: 1. Data of fiscal surpluses (deficits) are end of period figures.
2. The figures herein include central and local governments.
Sources: MOF and DGBAS.

Chart 2.7 Public debts



Notes: 1. Data of 2007 are final accounts for central government and budgeted figures for local government.
2. The sharp rise of central government debt in 2000 was caused by the transfer of the debts from local to central government due to the simplification of administrative organizations.
Sources: MOF and DGBAS.

[19] The term "outstanding debt at all levels of government" as used by this report refers to outstanding non-self-liquidating debt with a maturity of one year or longer. Final audited figures for outstanding one-year-or-longer non-self-liquidating public debt (NT$4.2 trillion) issued by all levels of government during FY 2006 within their general budgets and extraordinary budgets is equivalent to 37.0% of the average GNP for the preceding three fiscal years (NT$11.3 trillion). This figure is below the ceiling of 48% set out in the Public Debt Act.

[20] The 2007 data for central government debt are from the Executive Yuan's final accounts. Data for local government debt are based on statutory budgeted figures because the Ministry of Finance has not yet announced the final accounts.

[21] This figure indicates the amount of non-self-liquidating debt with a maturity of one year or more issued by all levels of government. If adding in the debt with a maturity of less than one year and self-liquidating debt, outstanding government debt as of 31 December 2006 stood at NT$5.1 trillion.

[22] See Note 11. Under the Maastricht Treaty and the subsequent Stability and Growth Pacts, outstanding debt in EU member nations is not allowed to exceed 60% of GDP.

III. Financial sectors

3. Financial markets

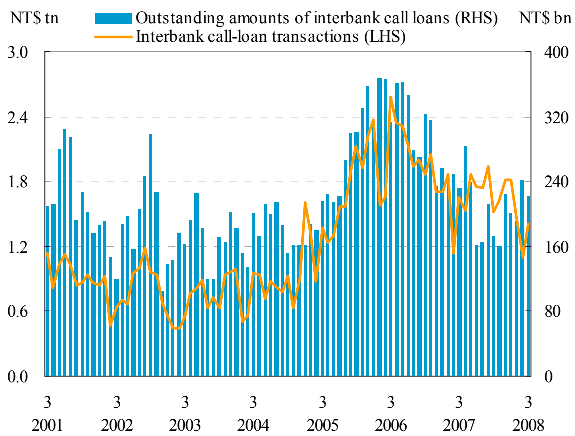
Trading volume in Taiwan's short-term bills and bonds markets continued to decline, while yield spreads remained tight. This situation is unfavorable to financial institutions which use short-term financing to fund long-term bond positions. Drastic fluctuations in the global stock market intensified 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).

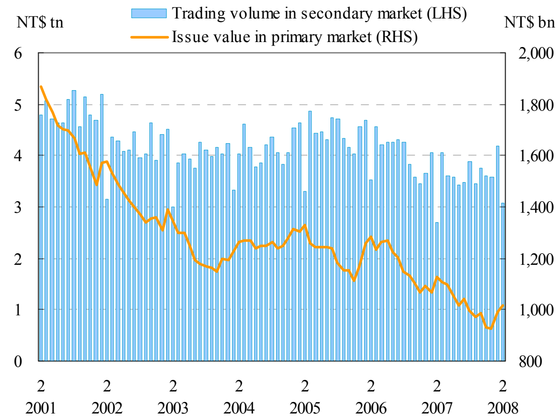
Chart 3.1 Interbank call-loan market



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).

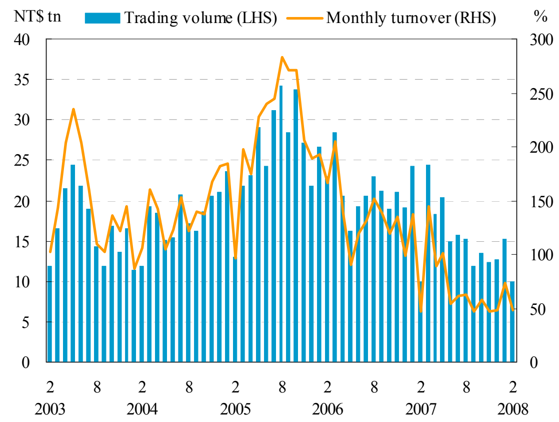
Chart 3.2 Primary and secondary bills markets



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.

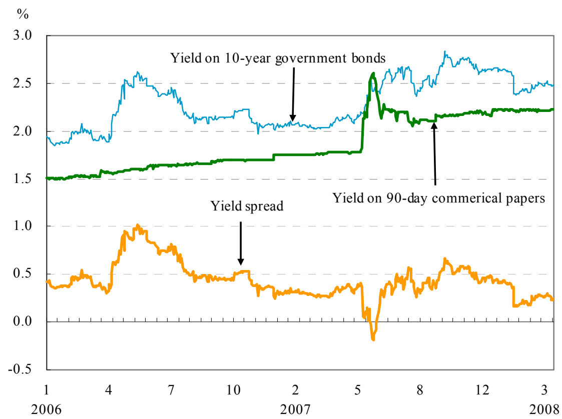
bond market, causing bond market trading volume and monthly turnover rates to rebound slightly, but they still remained at low levels.

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.

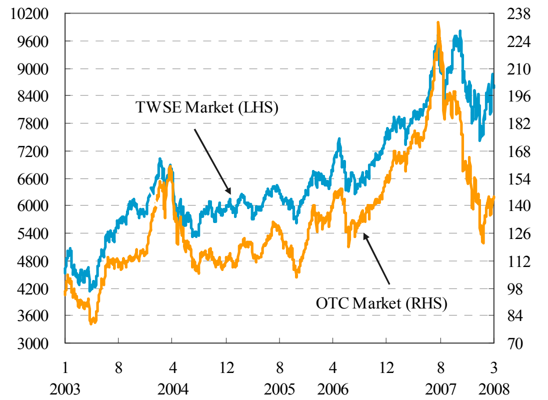
3.2 Equity markets

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).

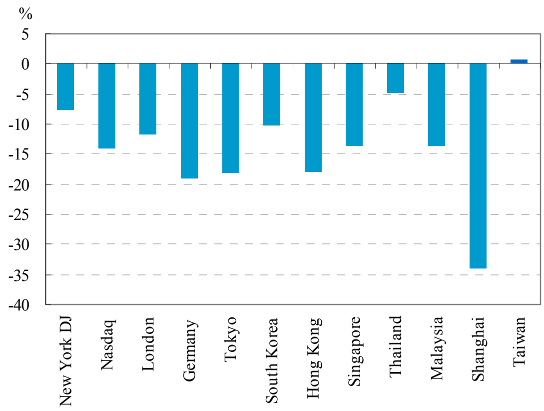
Broken down by sectors, the indices for the building material and construction sector and the tourism sector recorded the best performance in 2008 Q1, climbing 57.25% and 53.68%, respectively. However, most indices for electronics-related sectors declined, particularly the electronic parts & components 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



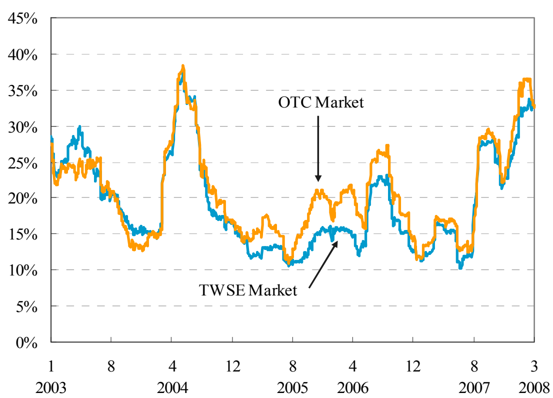
Sources: TWSE and GTSM.

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).

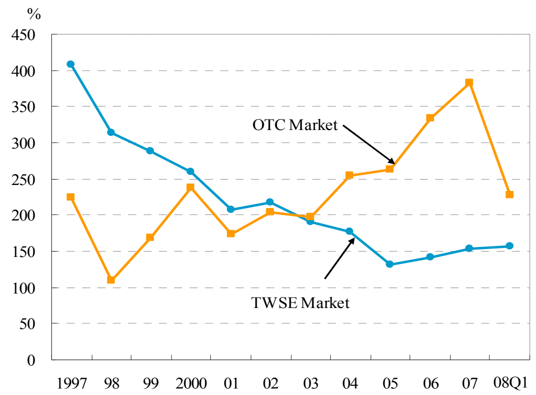
TAIEX volatility had been generally low since the latter half of 2004, but began to increase notably in August 2007, triggered by global stock market turbulence precipitated by the US subprime mortgage crisis. As the volatility on the TWSE market and the OTC market in March 2008 reached 32.66% and 32.56%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

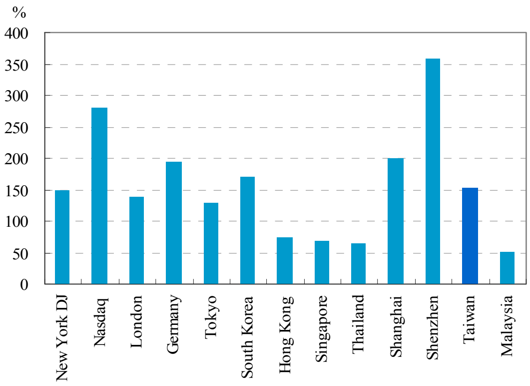
Compared with major stock markets around the world, the annual turnover ratio on the TWSE in 2007 was lower than on the US NASDAQ and in Germany, South Korea, Shanghai, and Shenzhen, but was still higher than in neighboring Tokyo, Hong Kong, Singapore, Thailand, and Kuala Lumpur (Chart 3.9).

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



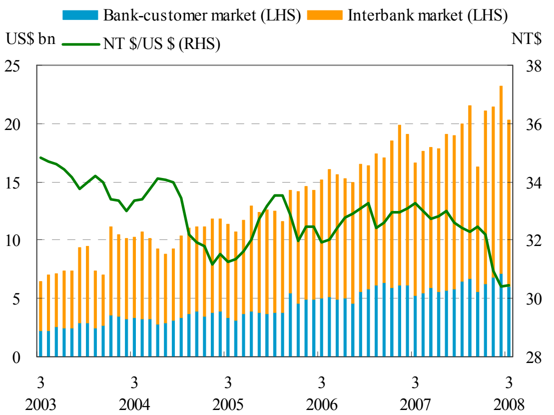
Note: Figures refer to turnover ratios of 2007. Taiwan's data is for TWSE market.
Source: TWSE.

3.3 Foreign exchange markets

Capital flows were sizable and trading volumes continued to expand

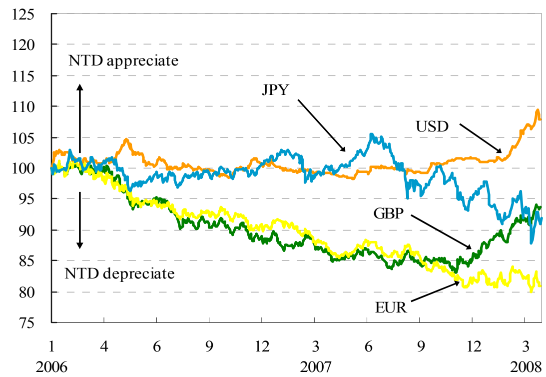
The NT dollar exchange rate generally moved in a narrow range around 33 against the US dollar during the first three quarters of 2007, but then appreciated slightly to 32.44 at the end of 2007 due to increasing concerns over the US economic slowdown, the worsening subprime mortgage crisis, and the expectation 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



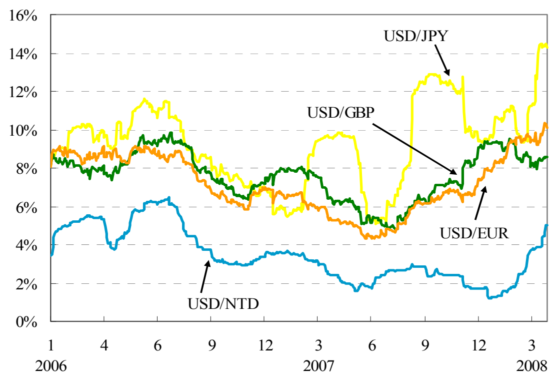
Note: January 2006 = 100.
Source: CBC.

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

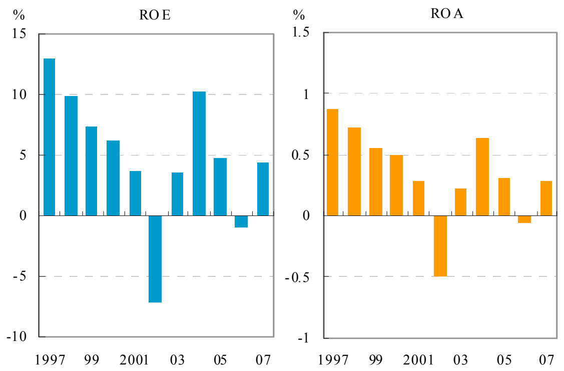
Domestic banks as a whole (excluding Chinese Bank and Bowa Bank[25]) turned a profit in 2007, posting net income before tax of NT$78.0 billion. This was mainly supported by a rapid increase in fees and commissions income due to rapid growth in wealth management business, as well as a sharp decrease in 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.

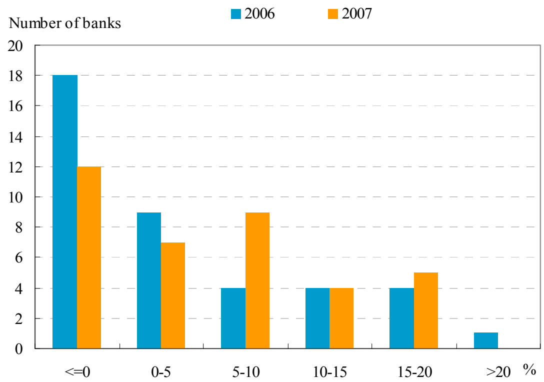
improved notably from the previous year. In addition, five especially strong performers achieved ROE of 15% or better (Chart 4.2).

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

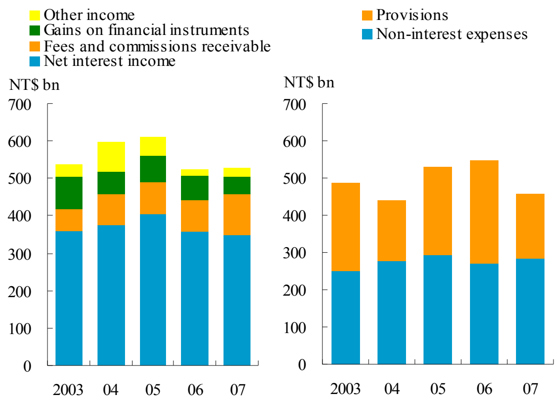


Note: Excludes the banks set up during the year.
Source: CBC.

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).

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

Chart 4.3 Composition of income and cost of domestic banks



Source: CBC.

[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.

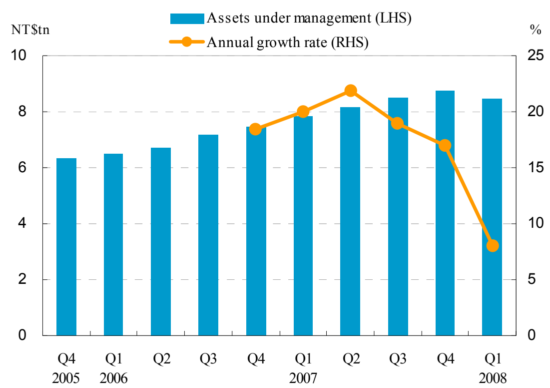
Box 1
Risks to banks engaging in wealth management business

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

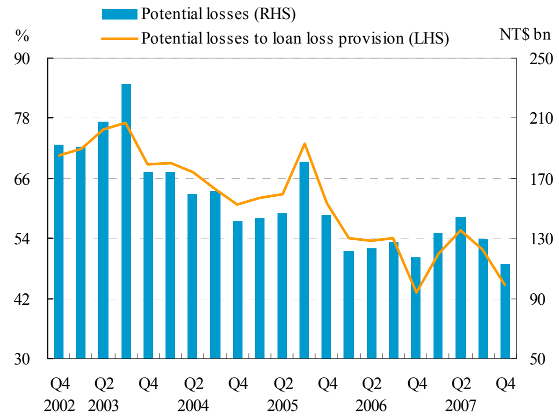
At the end of 2007, the outstanding non-performing assets[27] of domestic banks as a whole stood at NT$656.6 billion and the average non-performing asset ratio was 2.32%, down year on year by 15.54% and 0.75 percentage points, respectively. Potential losses on non-performing assets were estimated at 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

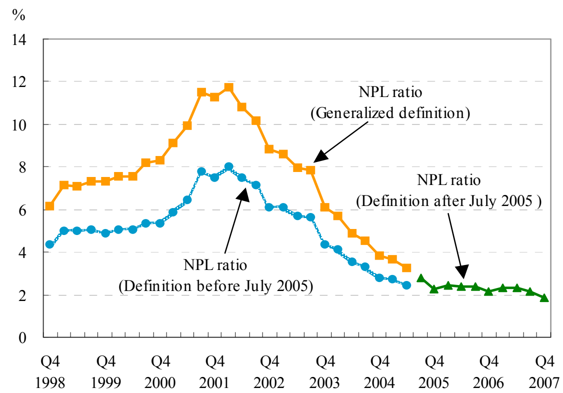


Notes: 1. End of period figures.
2. Excludes interbank loans.
Source: CBC.

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).

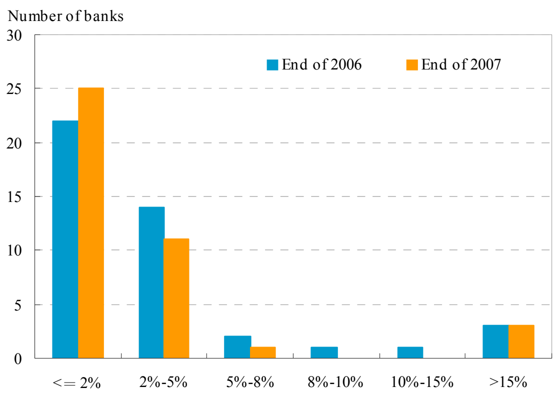
Although asset quality has been thus steadily improving at domestic banks, the amount due on properly performing modified payment plans for delinquent credit card and cash card lendings was still at NT$56.5 billion at the end of 2007. The cumulative repayment rate for these lendings has continued to 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.

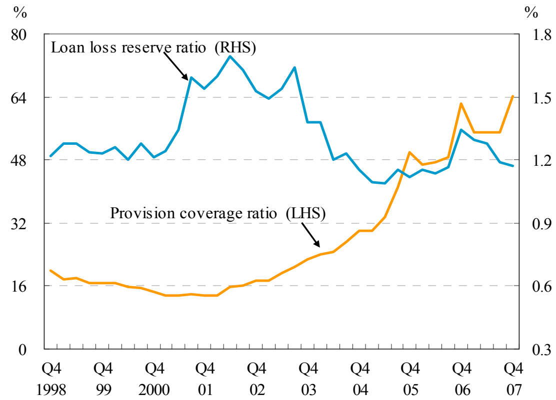
Chart 4.6 Distribution of NPL ratios of domestic banks



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

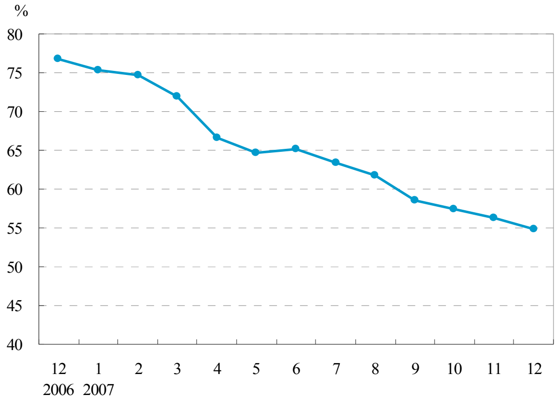
the implementation on 11 April 2008 of the Consumer Debt Clearance Act could trigger a new round of defaults, so the situation needs to be watched closely (Box 2).

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.

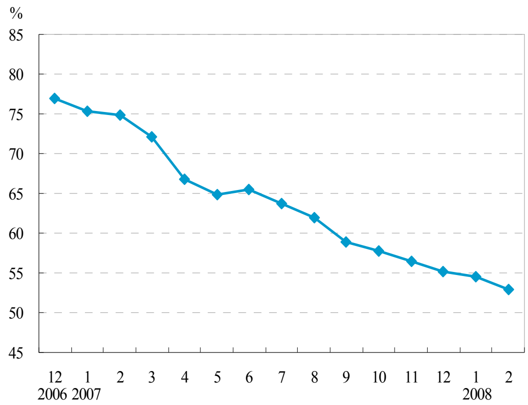
Box 2
Potential impact of Consumer Debt Clearance Act on banks

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.

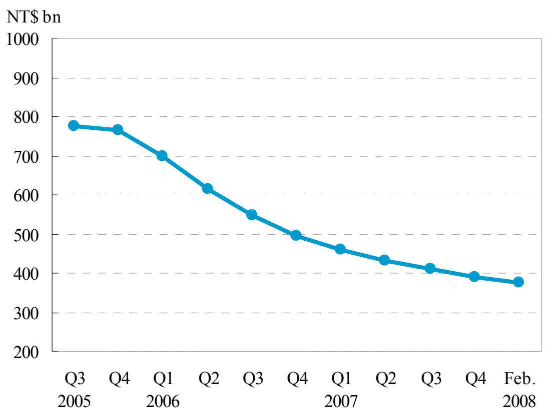
3. Bottleneck at the pre-negotiation stage

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

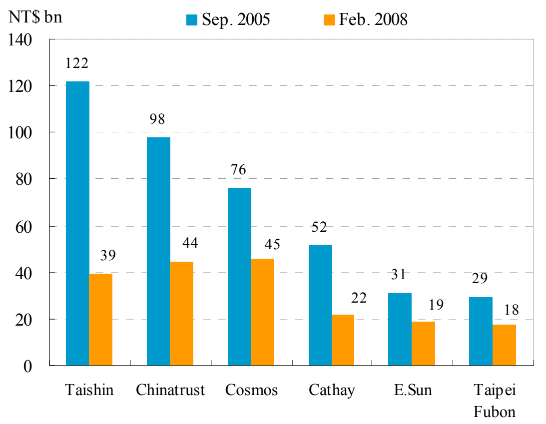
Problems with payment on card debt first came to the fore in September 2005. The aggregate outstanding card debt loans owed to card issuers (including both domestic banks and the local branches of foreign banks) eventually peaked at NT$776.7 billion before dropping by 51.4% to NT$377.1 billion in February 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.

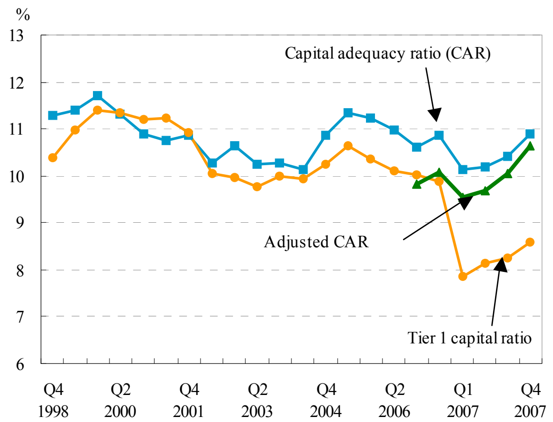
To lower the impact of implementation of the Consumer Debt Clearance Act, banks could take the bull by the horns by actively working with delinquent debtors on repayment plans, encouraging them to continue performing their obligations, and enhancing their pre-negotiation mechanisms in order to reduce 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

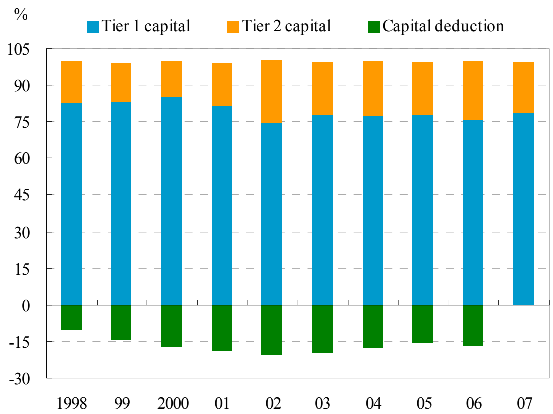
The capital adequacy ratios of domestic banks fell markedly upon implementation of the Basel II Accord in early 2007 (Box 3), but recovered gradually since then due to improving profitability and foreign capital infusions into some weak banks. By the end of 2007, the

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



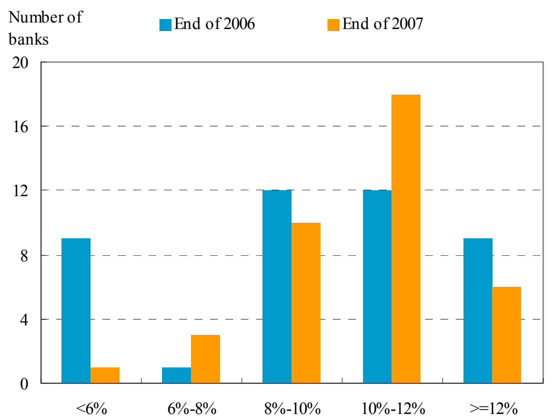
Notes: 1. End of period figures.
2. Capital deductions are deducted directly from Tier 1 and Tier 2 capital from the beginning of 2007 when implementing Basel II, and are not showed herein after then. Tier 3 capital is not showed herein as it is less than 1% of total capital.
Source: CBC.

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.

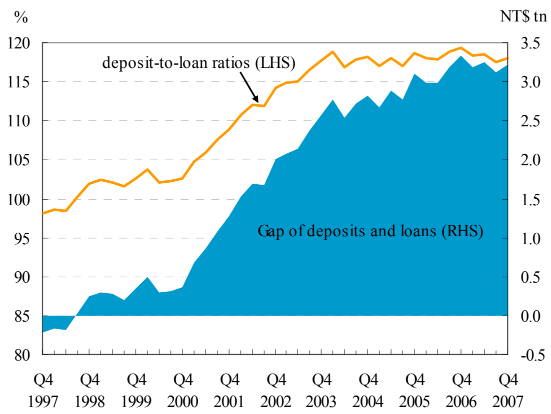
Notes: 1. The Basel Committee on Banking Supervision, "Results of the Fifth Quantitative Impact Study (QIS 5)," June 2006.
2. This capital adequacy ratio figure is based on a regulatory capital amount from which the unamortized deferred assets arising from losses recorded on the sale of non-performing 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).

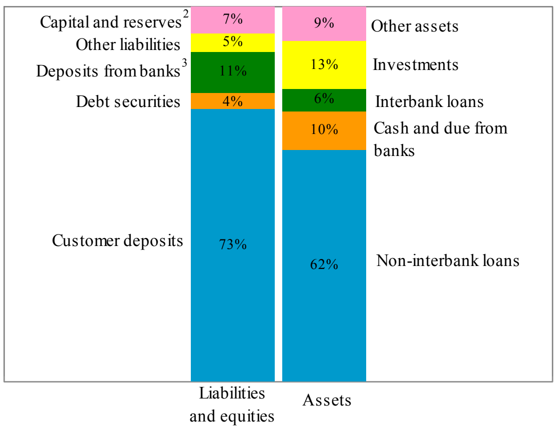
The sources and uses of funds in domestic banks at the end of 2007 remained broadly unchanged, compared with that of one year earlier. On the sources side, customer deposits accounted for the largest share (73%), followed by interbank deposits and borrowings at 11%, while debt securities in issue contributed 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.

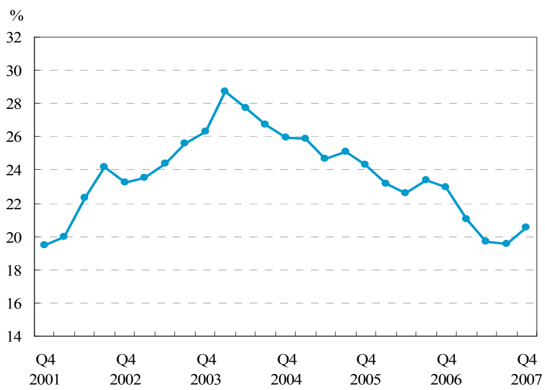
Chart 4.13 Sources and uses of funds in domestic banks



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

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.

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.

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.

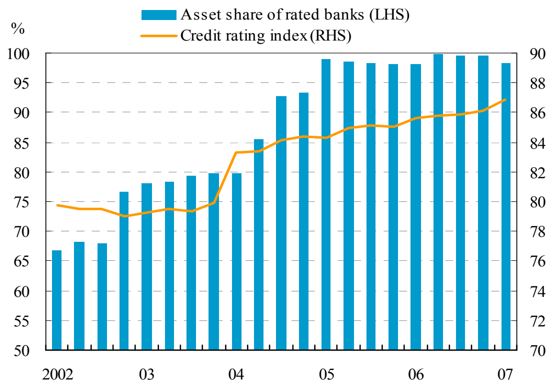
[34] For details, please refer to "Banking Industry Risk Analysis: Asian Banking Systems" (Standard & Poor's) and "Banking Systemic Risk Report" (Fitch).

[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.

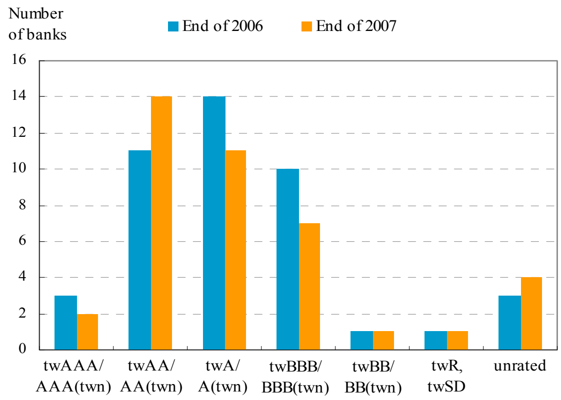
interest payments on schedule (Bowa Bank).

Chart 4.15 Credit rating indices of rated domestic banks



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

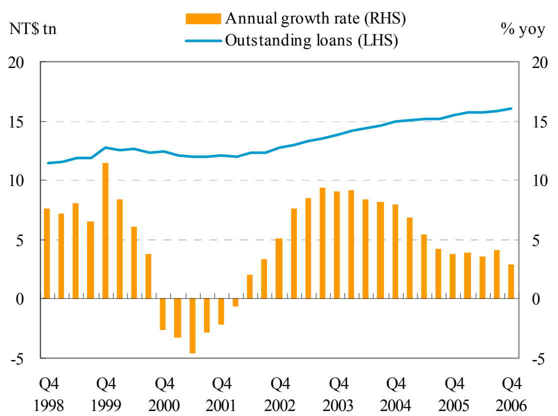
Chart 4.16 Distribution of credit ratings of rated domestic banks



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

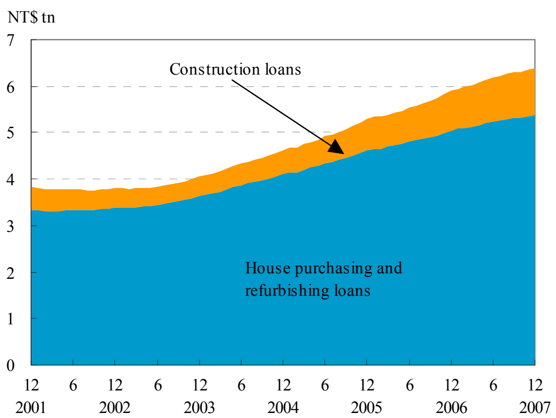
[37] Bowa Bank was auctioned off on 1 February 2008 to DBS Singapore.
[38] Citi (Taiwan) Commercial Bank merged the Bank of Overseas Chinese on 1 December 2007, and then received a national long-term rating of AAA(twn) in May 2008.
[39] The term "loan" herein refers to amounts lent by local business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

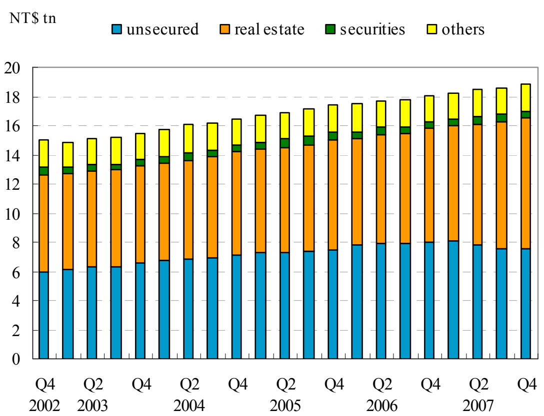
The real estate-related loans (including loans for construction, house purchases, and house refurbishments) of the local business units of domestic banks began to surge in 2004, generally growing at annual rates of 10% to 15%. Construction loans grew most quickly, topping 20% in most years from 2005 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.

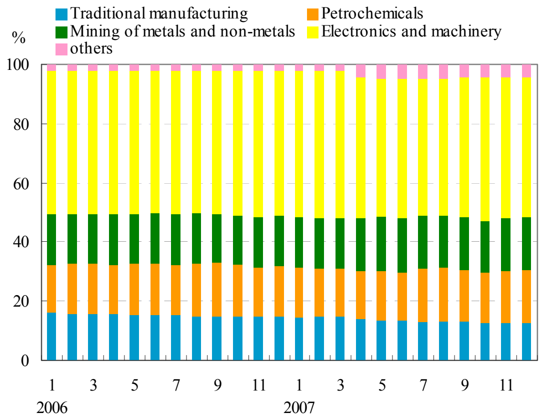
[40] The term “total credit” includes loans, exchange bills negotiated, receivables purchased under non-recourse factoring agreements, guarantees, and acceptances receivable.

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

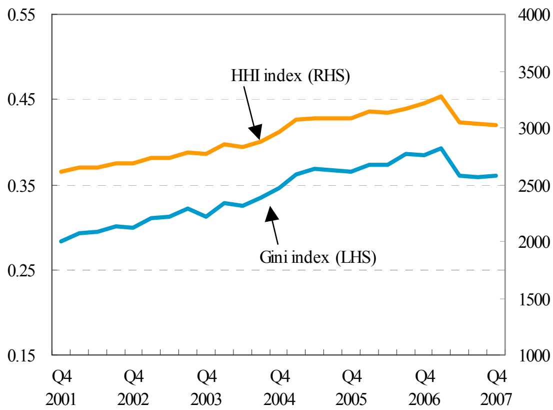
Loans to the manufacturing sector accounted for the largest share (43.32% as of 31 December 2007) of corporate lending by the local business units of domestic banks. Within the manufacturing category[41], loans to electronics and machinery-related industries accounted for the biggest proportion (NT$1.4 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 positon	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

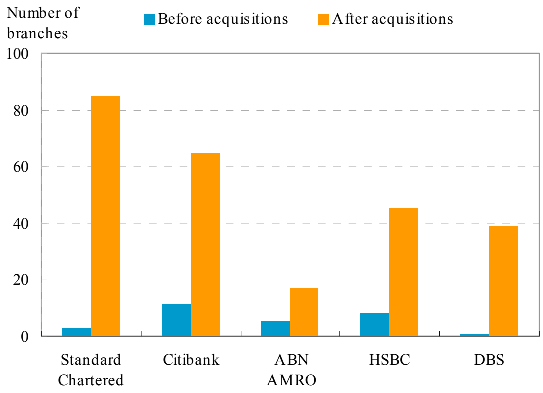
Foreign banks have greatly expanded their business presence in Taiwan since 2007 through a series of cash acquisitions of local banks or tender acquisitions of problem banks that were

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

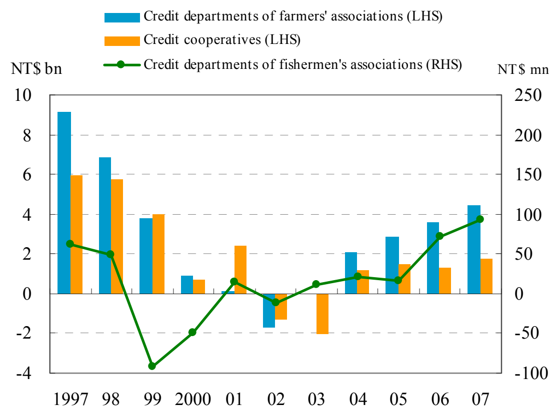
Profitability at community financial institutions (which include credit cooperatives, credit departments of farmers' associations and credit departments of fishermen's associations) has been steadily improving in recent years, as NPL ratios have been falling and capital adequacy ratios have been slowly 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).

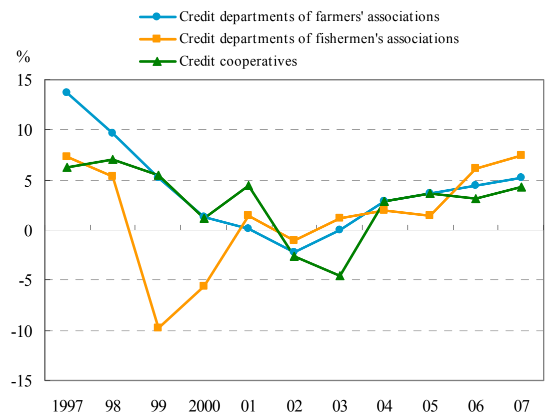
[46] Standard Chartered Bank merged Hsinchu International Bank (effective in July 2007), Citibank acquired Bank of Overseas Chinese (December 2007), ABN AMRO purchased Taitung Business Bank from RTC (September 2007), HSBC Hong Kong purchased Chinese Bank from RTC (March 2008), and DBS Singapore purchased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



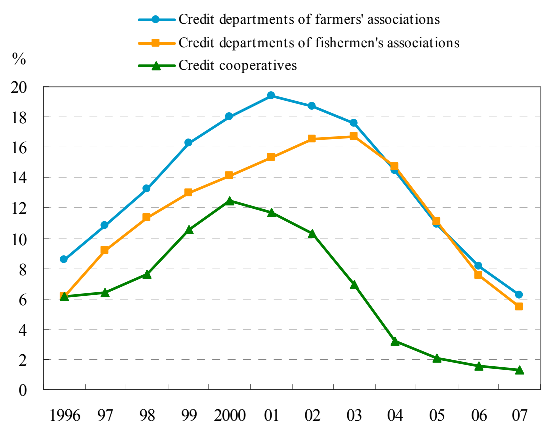
Sources: CBC and CDIC.

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.
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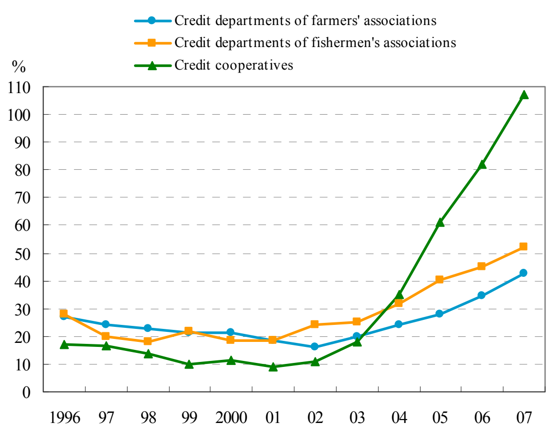
Chart 4.26 NPL coverage ratios of community financial institutions



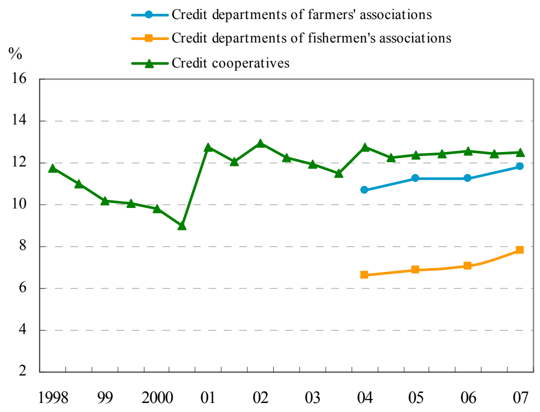
Note: End of period figures.
Sources: CBC and CDIC.

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

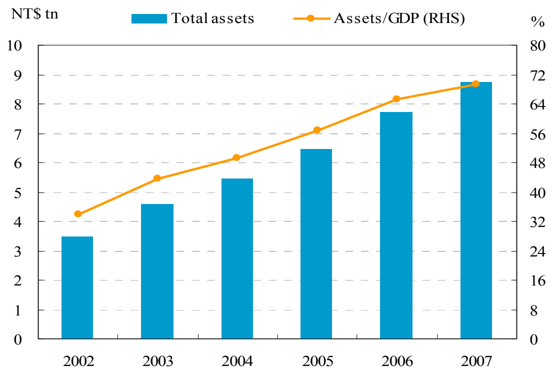
47 The credit cooperatives began reporting capital adequacy ratios on a semiannual basis in 1998, while credit departments of farmers' and fishermen's associations began doing it annually from the end of 2004.

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



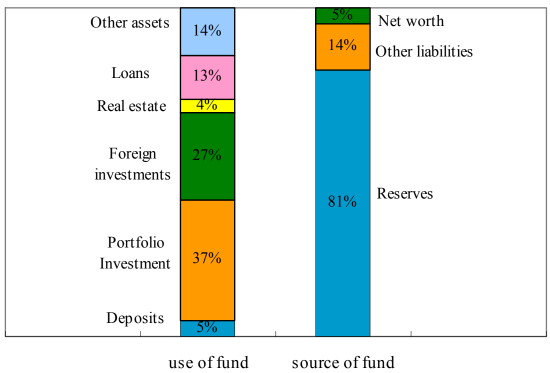
Note: End of period figures.
Source: FSC.

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.

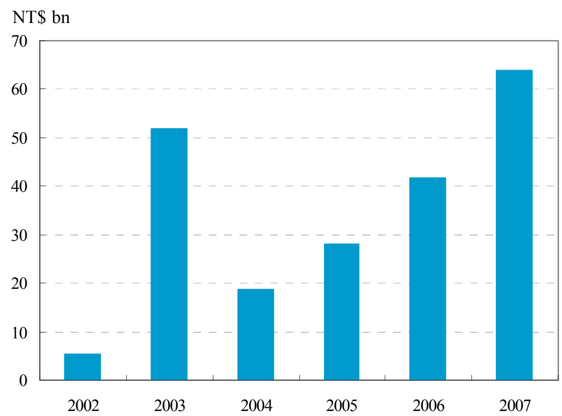
48 When a life insurer sells a product held in segregated custody accounts, it means that the amount of insurance coverage offered under the policy is booked both under "segregated custody account insurance product assets" and "segregated custody account insurance product liabilities."

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

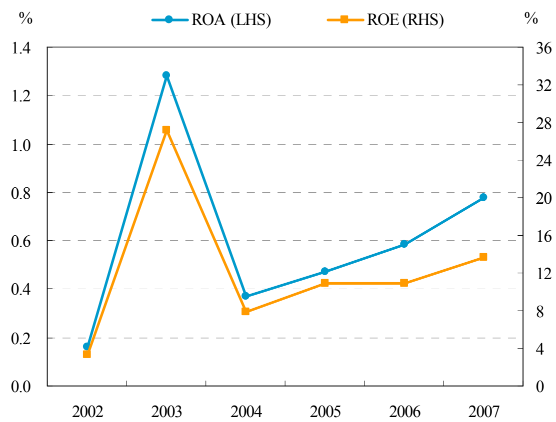
Profitability for life insurers as a whole has been improving annually since 2005. Net income before tax registered NT$64.0 billion in 2007, still well above the NT$37.2 billion of 2006, despite losses on both domestic and foreign investments in 2007 Q4 amid the global financial market turmoil (Chart 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

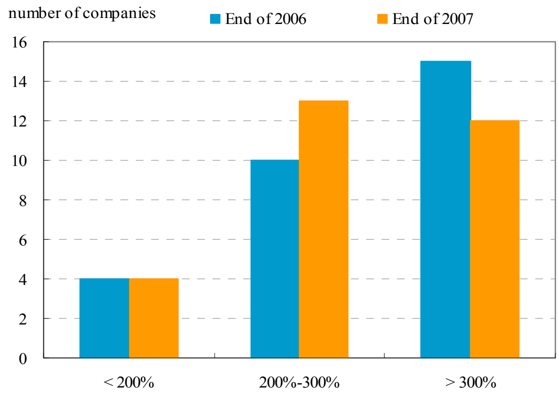


Note: ROA = net income before tax / average asset. ROE = net income before tax / average equity.
Source: FSC.

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

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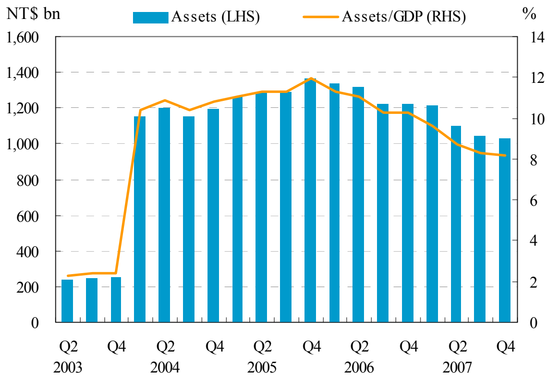
[49] Risk-Based Capital (RBC) ratio for life insurers = regulatory capital/risk-based capital. Under Article 143-4 of the Insurance Act, this ratio must be at least 200%.

[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.

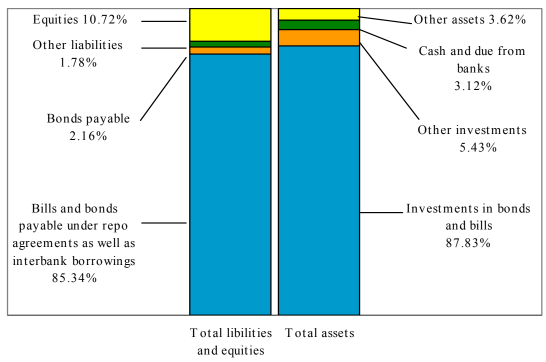
[51] Ratings prefixed with "tw" are from the Taiwan Ratings Corporation, while ratings suffixed with "(twn)" are from Fitch Ratings.

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.

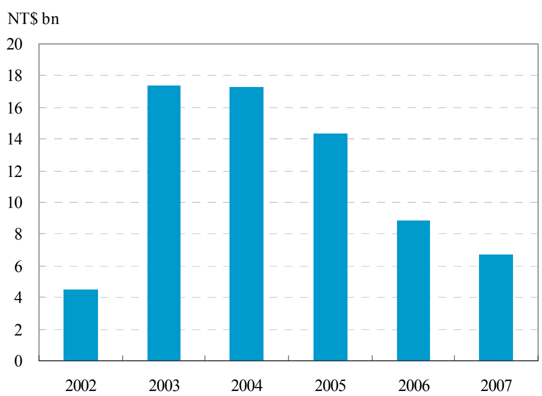
companies (Mega Bills Finance, International Bills Finance, and China Bills Finance) commanded market shares by assets of 26.20%, 21.91% and 16.94%, respectively, for a combined market share of 65.05%. No other firm has a market share as high as 10%.

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

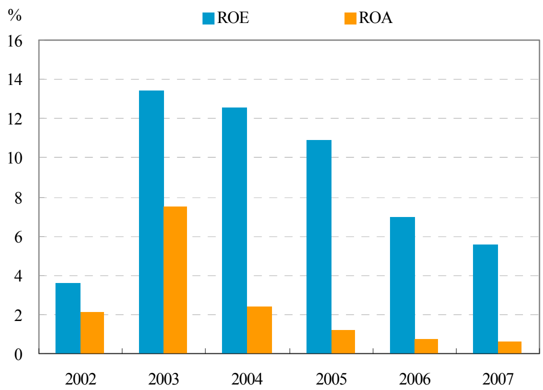
The profitability of bills finance companies began to deteriorate in 2005, and they posted net

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).

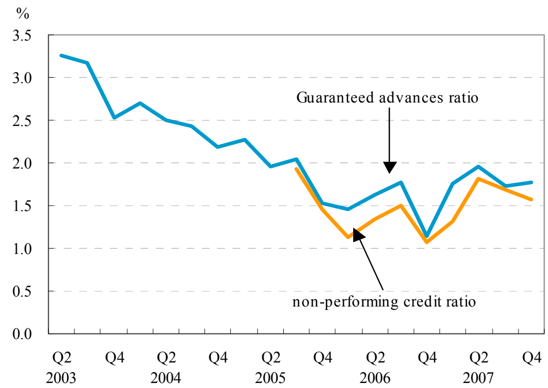
Asset quality remained acceptable

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.

Capital adequacy ratios in gradual decline

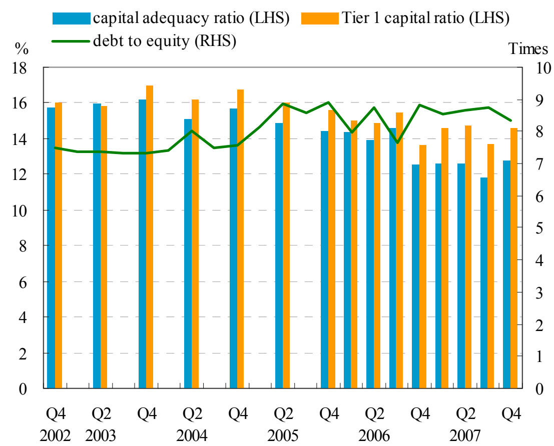
The average capital adequacy ratio of bills finance companies fell from 15.73% at the end of 2002 to 12.76% as of the end of 2007, but all companies were still above 10%. Over the same time period, the average Tier 1 capital ratio also slid from 16.03% to 14.58%. Additionally, the average ratio of debt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

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.

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

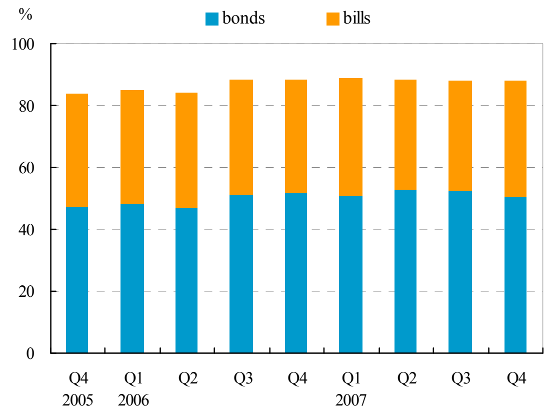
(Chart 4.38), reflecting increasing leverage.

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

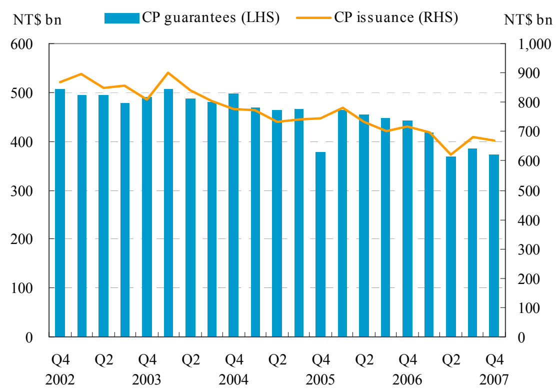


Note: End of period figures.
Source: CBC.

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



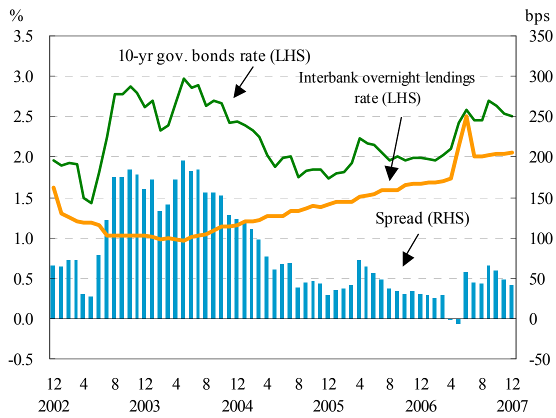
Note: End of period figures.
Source: CBC.

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

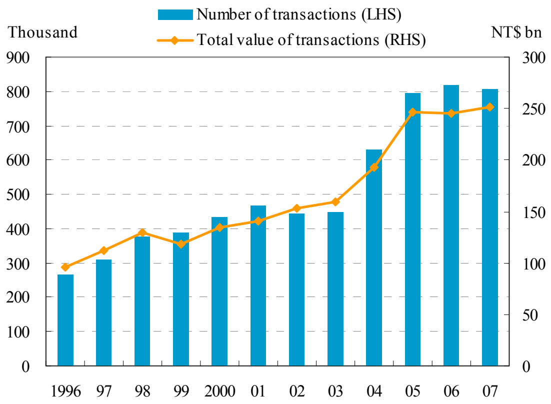
5.1 Measures to improve payment and settlement systems and raise efficiency and safety

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.

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[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".

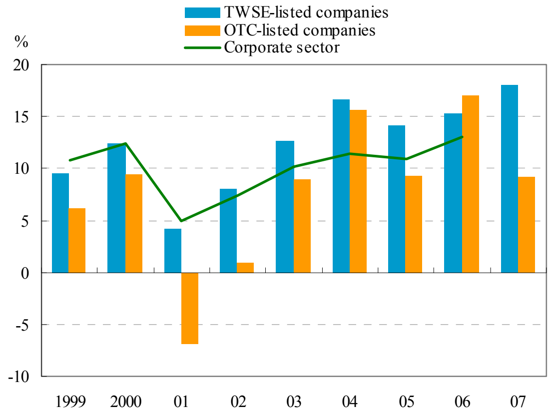
IV. Non-financial sectors

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

6. Corporate sector

Corporate sector profitability has strengthened, and its financial structure and solvency have improved markedly. The quality of corporate lending also has remained satisfactory. However, the impact of slowing global economic growth, skyrocketing international commodity prices, and appreciation of the NT dollar could undermine operating revenues and financial health of the corporate sector, and thus bear close watching. In addition, enterprises with investments in China could face increased risk due to the adverse effects arising from the implementation of the Employment Contract Law and the adoption of tax reforms in China.

Chart 6.1 Return on equity in corporate sector



Note: Return on equity = net income before interest and tax / average equity.
Sources: JCIC and TEJ.

Profitability improved notably

Profitability in the corporate sector[59] troughed in 2001 and has been gradually climbing since then. In 2006, thanks to moderate global economic expansion, stable production growth and booming international trade, average return on equity (ROE) hit 13.04%. ROE for

[59] Corporate sector data are from the corporate financial report database operated by the Joint Credit Information Center. The database includes the data of the all CPA audited financial reports of non-financial corporate sector. In selecting sample data, the enterprises meeting any of the following criteria are excluded: (1) shareholder equity is zero or negative; (2) operating revenues are less than NT$10 million; (3) a CPA issued an audit report containing an adverse opinion or disclaimer of opinion; (4) was established for less than one year; (5) is a financial or insurance enterprise (Industrial classification K); or (6) is a public administration, defense or compulsory social security enterprise (Industrial classification O). The number of samples taken in individual years are as follows:

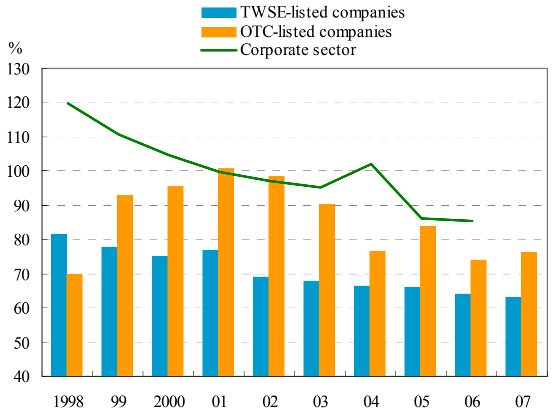
	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total samples	22,998	23,372	23,918	24,973	25,957	27,474	28,162	25,480	29,772
Valid samples	16,821	17,287	17,859	18,667	19,584	20,960	21,417	19,459	22,660

most TWSE-listed companies[60] has trended upward, except for 2005, reaching an average of 18.03% in 2007, the highest level since 2001. Average ROE among OTC-listed companies[61] was more volatile, sliding steeply from 2006 to a figure of 9.21% for 2007, mainly because of lower gross profit margins in the electronics sector (Chart 6.1).

Financial structure improved

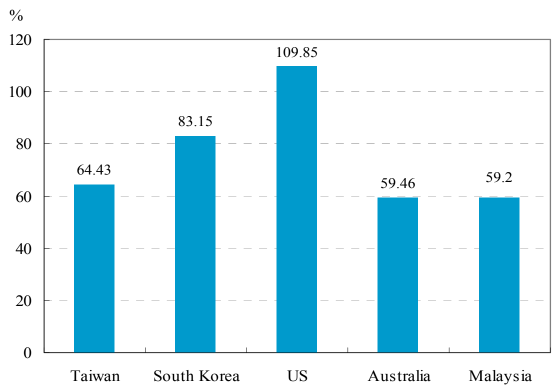
Average leverage ratios in the corporate sector have been on a long-term downward trend, standing at 85.21% at the end of 2006, the lowest level in ten years, reflecting a pronounced improvement in overall financial structure. The average leverage ratio of TWSE-listed companies has also been going down, and has been lower than the average ratio for the corporate sector as a whole, dropping to 63.20% at the end of 2007. OTC-listed companies have also been performing better than the corporate sector as a whole in this regard, but their average leverage ratio has actually deteriorated of late, going up to 76.45% at the end of 2007 from 74.10% in the previous year (Chart 6.2), mainly due to an increase in long-term liabilities. The average leverage ratio at Taiwan's listed companies was lower than those in South Korea and the United States, but was higher than in Australia and Malaysia[62] (Chart 6.3).

Chart 6.2 Leverage ratios in corporate sector



Notes: 1. End of period figures.
2. Leverage ratio = total liabilities / equity.
Sources: JCIC and TEJ.

Chart 6.3 Corporate sector leverage ratios in selected countries



Note: Figures for Taiwan, US and Malaysia are at the end of December 2007, while for South Korea and Australia are at the end of June 2007.
Sources: TEJ, BOK, Fed, ABS and BNM.

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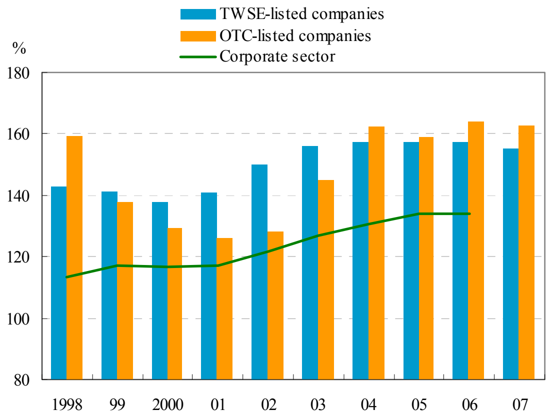
60 TWSE-listed companies are listed on Taiwan Stock Exchange Corporation (TWSEC). With the exception of financial and insurance companies, data for TWSE-listed companies are from the Taiwan Economic Journal Co., Ltd.

61 OTC-listed companies are listed on the GreTai Securities Market. With the exception of financial and insurance companies and emerging stock board companies, data for OTC-listed companies are from the Taiwan Economic Journal Co., Ltd.

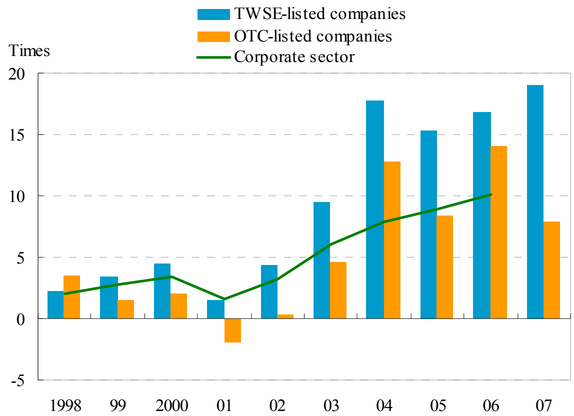
62 The figures herein are non-financial listed companies for Taiwan, large non-financial listed businesses for South Korea, non-farm and non-financial corporate businesses for US, non-financial corporations for Australia, and 100 listed corporations for Malaysia.

Chart 6.4 Current ratios in corporate sector



Notes: 1. End of period figures.
2. Current ratio = current assets / current liabilities.
Sources: JCIC and TEJ.

Chart 6.5 Interest coverage ratios in corporate sector



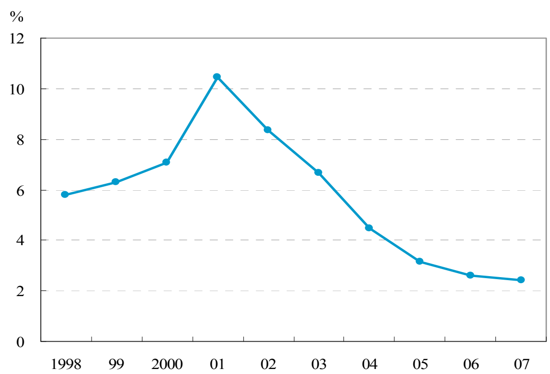
Note: Interest coverage ratio = income before interest and tax / interest expenses.
Sources: JCIC and TEJ.

Debt servicing capacity improved

Debt servicing capacity for the corporate sector as a whole began improving in 2002. The average current ratio registered a significant increase of 133.84% at the end of 2006 from 121.58% as of 31 December 2002, indicating that overall liquidity was sufficient to cover short-term debt servicing requirements. The average current ratios for both TWSE-listed and OTC-listed companies were well above that for the corporate sector as a whole, and stood over 155% despite a decline in both ratios at the end of 2007 (Chart 6.4).

Supported by annually rising earnings, the average interest coverage ratio for the corporate sector soared from 1.59 times in 2002 to 10.10 times in 2006, showing that annual profits were quite sufficient to cover interest servicing requirements. The average interest coverage ratio continued to ascend to 19.08 times in 2007 among TWSE-listed companies, while that for OTC-listed companies fell to 7.90 times due to a contraction in profitability (Chart 6.5).

Chart 6.6 Non-performing ratios of loans to corporate sector



Note: End of period figures.
Source: JCIC.

Non-performing ratio of loans to the corporate sector declined

As profitability and solvency improved steadily, the non-performing (delinquency) ratios of loans to the corporate sector began falling in 2001 and reached 2.40% as of 31 December 2007, the lowest level in ten years (Chart 6.6). During the reporting period, the credit quality of loans to the corporate sector remained satisfactory, but the slowing global economic growth, skyrocketing international commodity prices and appreciation of the NT dollar may bring about adverse impacts on the future profitability of the corporate sector. In addition, for many Taiwanese enterprises that have made investments in China, the implementation of the Employment Contract Law and the adoption of tax reforms in China could adversely affect their operations and profitability.

7. Household sector

For the household sector, borrowing growth has moderated and debt servicing capacity has strengthened, but debt burdens are still heavy. The credit quality of loans to households remains satisfactory. But the real income and debt repayment capacity of households may be undermined in the future as inflationary pressures increase and monthly payments on high loan-to-value mortgages spike upward with the expiration of interest-only periods.

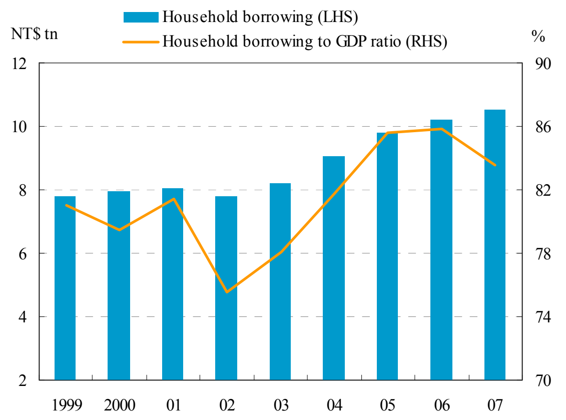
Growth in household borrowing decelerated

Total household borrowing[63] began a steady rise in 2003, due to falling interest rates, continuation of the government's preferential mortgage programs, and active expansion by banks of consumer finance activities. This growth momentum softened, however, after the credit and cash card debt crisis erupted in 2005. By the end of 2007, total household borrowing reached NT$10.52 trillion (Chart 7.1) on year-on-year growth of 3.09%, down from a peak of 10.58% posted in 2004. The single biggest share of household borrowing at the end of 2007 went for the purchase of real estate (67.23%), followed by working capital loans[64] (24.13%) and revolving balances on credit cards (2.71%) (Chart 7.2). Loans for the purchase of real estate grew 6.95% year-on-year in 2007, while revolving balances on credit cards plummeted by 18.76%.

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

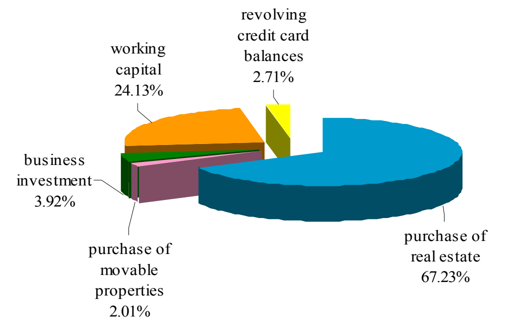
[64] The term "working capital loans" includes outstanding cash card loans.

Chart 7.1 Household borrowing to GDP



Note: Household borrowings are end of period figures.
Sources: CBC, JCIC and DGBAS.

Chart 7.2 Purposes of household borrowing



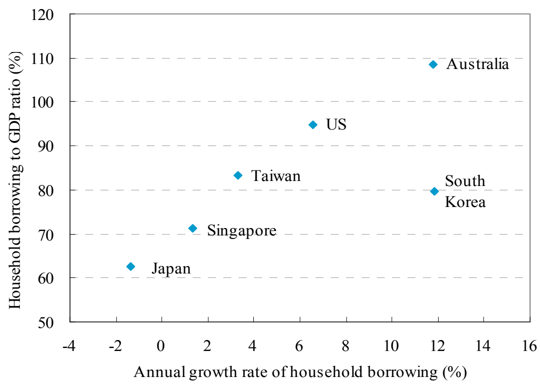
Note: Data are as of the end of 2007.
Sources: CBC and JCIC.

The ratio of household borrowing to GDP began climbing in 2003, topping out at 85.85% at the end of 2006, and then dropped to 83.60% in 2007 on the back of slowing growth in household borrowing and rising GDP growth (Chart 7.1). Total household borrowing in Taiwan grew at a faster annual rate than in Japan and Singapore but much slower than in the US, Australia, and South Korea. As a percentage of GDP, household borrowing in Taiwan was lower than in the US and Australia, but higher than in South Korea, Singapore, and Japan (Chart 7.3).

Household debt burden remained heavy

Steady economic growth, declining unemployment, and stable growth in regular earnings have fueled moderate growth in household gross disposable income[65] over the past six years; however, total household borrowing has increased steadily over the same period. As household borrowing has expanded faster since 2003 than disposable income, the ratio of household borrowing to gross disposable income and the household debt servicing ratio both have risen slowly,

Chart 7.3 Household indebtedness in selected countries

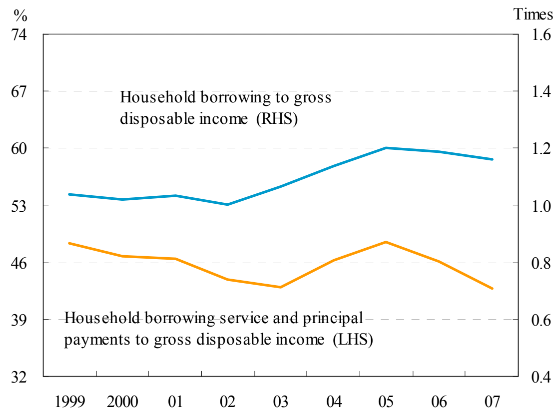


Note: Figures for Singapore and South Korea are as of June-end 2007 and September-end 2007, respectively. The remainders are based on the figures of the end of 2007.
Sources: Fed, BEA, BOJ, Cabinet Office of Japan, BOK, ABS, DGBAS, CBC and JCIC.

65 Gross disposable income = disposable income + rental expenses + interest expenses. Gross household disposable income in 2007 was estimated by using parameters based on DGBAS data for household disposable income and national disposable income and carrying out "linear interpolation" that yielded better results through "trend detection" (e.g. performance under various interpolations, such as nearest, linear, spline, pchip, and cubic interpolation).

reflecting that the debt servicing capacity of households has deteriorated. Then the credit and cash card debt crisis erupted in the latter half of 2005, prompting banks to tighten consumer credit. This resulted in a softening, and even a contraction, of growth in short-term lending to the household sector, slightly alleviating the pressures stemming from principal and interest payments. The ratio of household borrowing to gross disposable income was 1.16 times as of the end of 2007, slightly down from the 1.19 times for the previous year, but still high, indicating that the household debt burden remained heavy. Meanwhile, the ratio of household borrowing service and principal payments to gross disposable income dropped back down to 42.67%, the same level as in 2003, implying that household debt servicing capacity has gradually improved (Chart 7.4).

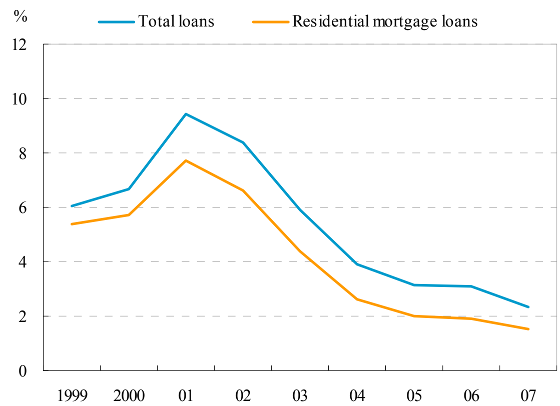
Chart 7.4 Household debt servicing ratios



Note: Figure for gross disposable income of 2007 is CBC estimate.
Sources: JCIC and DGBAS.

The household NPL ratio[66] peaked at 9.45% at the end of 2001 before trending downward, increased temporarily in 2006 after the outbreak of the credit and cash card debt crisis, but resumed its decline to 2.33% at the end of 2007, the lowest level in nine years (Chart 7.5). This came about primarily because the non-performing ratio for residential mortgage loans, which accounts for the largest share of loans to households, remained at a low level due to continued appreciation of real estate. The credit quality of loans to households thus remains satisfactory, but increasing inflationary pressures and gradual expiration of interest-only periods on high loan-to-value mortgage loans may undermine the real income and debt repayment capacity of households.

Chart 7.5 NPL ratios of household loans



Source: JCIC.

[66] Data relating to the Remittances & Savings Department of Chunghwa Post Co. and securities firms are excluded from the figure for household NPL ratio.

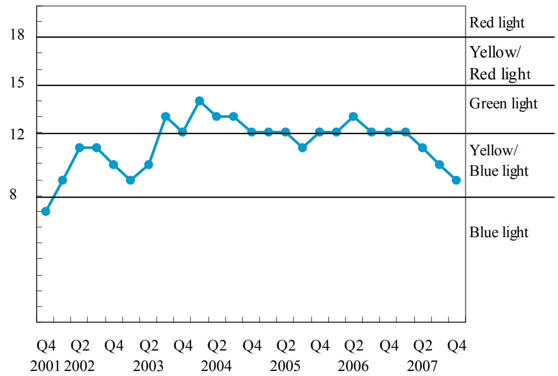
8. Real estate market

Rising prices but falling transaction volumes in the real estate market, coupled with a climbing vacancy rate and generally tighter lending standards on the part of banks, are exerting increased downward pressure on the market. These movements in the fundamentals, however, are not at all in line with optimistic expectations for the market after the national election of 2008. Future developments bear close watching.

Real estate market cooled off

According to the fourth quarter 2007 edition of the "Quarterly Report of Taiwan Real Estate Cycle Indicators," Taiwan's real estate cycle indicators [67] were "yellow/blue" for three consecutive quarters beginning in 2007 Q2 (Chart 8.1). Among the real estate cycle composite indicators, moreover, the composite index of leading indicators [68] was down 3.68% from the previous quarter, and the composite index of coincident indicators [69] fell slightly by 0.98%. This reflects a slowdown in real estate market growth. However, many real estate-related firms were expecting a big upswing after the 2008 presidential election, an indication that the market expectations were disconnected from movements in the fundamentals. There is still a need to cautiously monitor the future direction of the market.

Chart 8.1 Real estate cycle indicators



Source: "Quarterly Report of Taiwan Real Estate Cycle Indicators," Architecture and Building Research Institute, MOI.

Real estate prices continued rising even as transaction volume fell

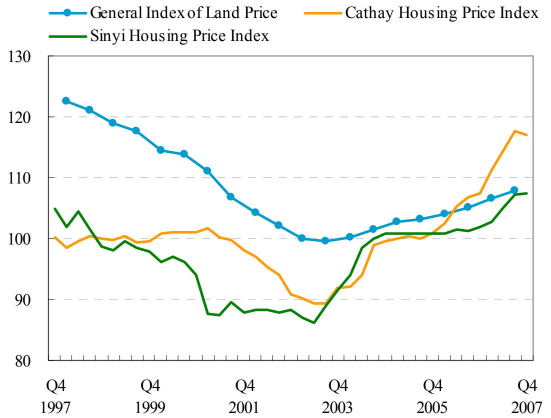
Real estate prices continued to climb in 2007. The Taiwan Area Land Price Index hit 107.85 in September 2007, the highest level since 2001, rising by 2.63% year on year, with the fastest growth in Taipei City and Taichung City. In addition, the Sinyi housing price index

[67] The real estate cycle indicators show five different outlooks. A red light indicates a "very heated market," a yellow/red light indicates a "moderately heated market," a green light indicates a "stable market," a yellow/blue light indicates a "moderately declining market," and a blue light indicates a "sharply declining market."

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

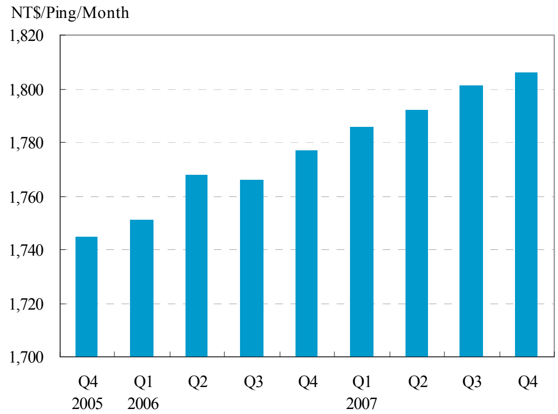
[69] The composite index of coincident indicators is made up of the following six components: undeveloped land transaction index, base lending rate, construction permit floor space, standard unit price for new construction projects, new loans for property purchases, and housing occupancy rate.

Chart 8.2 Land and housing price indices



Note: Land price index is released each half year (i.e. March and September).
Sources: MOI, Cathay Real Estate and Sinyi Real Estate.

Chart 8.3 Average office rental rates in Taipei



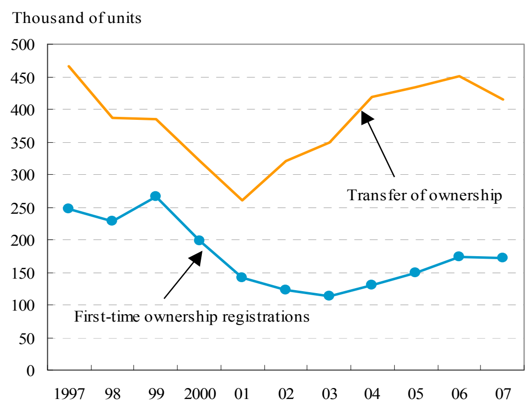
Source: Colliers International "Taipei Office Market Overview."

(for existing buildings) was at 107.4 as of the end of 2007, up 5.45% year on year, with the sharpest increase coming in the greater Taichung metropolitan area, while the Cathay housing price index (for new construction) stood at 117.09, up 8.87% year on year (Chart 8.2), with Taipei City showing a marked 20% increase. In 2007 Q4, however, the prices of new and existing buildings rose at a slower pace, and it turned toward a buyer's market as sellers become more flexible about price concessions.

Rental rates have also been going up steadily in step with appreciating real estate prices. Analyzed by the rental movements, a component of the consumer price index, the average rental price rose by 0.2% year on year in 2007. Office building rentals in Taipei City have also continued to climb, reaching an average of NT$1,806 per ping (3.3 square meters) per month in 2007 Q4, up 1.6% year on year (Chart 8.3).

With regard to transactions, transfers of ownership were registered on 415,000 units in 2007, dropping by 7.90% year on year and marking the first decline in property transactions since 2002. The drop was due mainly to continuing housing price appreciation, tighter real estate lending policies at banks, and the decision of many potential buyers to wait on the sidelines until after the elections of 2008. In addition, there were 172,000 first-time

Chart 8.4 Building ownership registrations



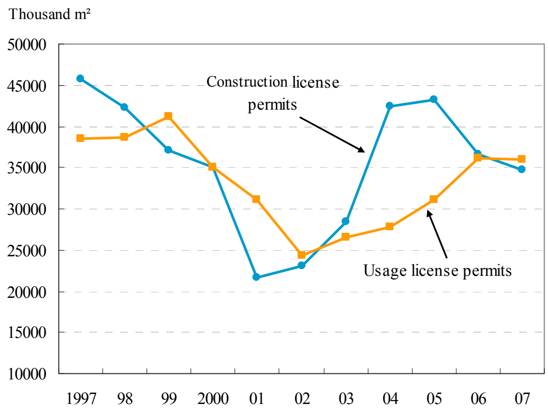
Source: Monthly Bulletin of Interior Statistics, MOI.

ownership registrations in 2007, down 0.67% from the year before (Chart 8.4), showing that market activity has cooled off.

New residential property supply expanded, and vacancy rate climbed

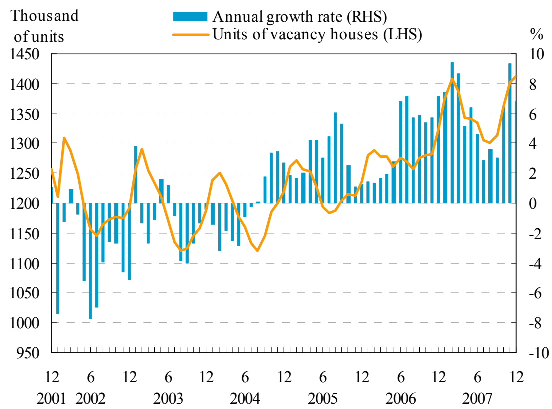
Total floor area represented by construction license permits posted negative growth in 2006, and then fell another 5.40% in 2007, with declines coming in both residential and commercial real estate, showing that builders grew cautious about investing in new constructions. Total floor area represented by usage license permits for newly completed buildings increased annually from 2003 before dipping 0.41% in 2007 (Chart 8.5). The decline was mainly accounted for by a 9.9% drop in commercial real estate in spite of a 3.46% growth in housing. The aggregate supply of newly completed housing in 2007 was 130,000 units, the highest figure since 1997, reflecting a rising supply of newly completed housing. In addition, the average number of vacant residential properties in 2007, estimated by the number of units consuming less power than the minimum service charge from the Taiwan Power Company, was 1.357 million units, up 6.2% from the previous year (Chart 8.6), and the average number for the first quarter of 2008 further expanded to 1.458 million units, showing that housing vacancy rates continue to rise.

Chart 8.5 Floor space of construction permits and use permits



Source: Monthly Bulletin of Interior Statistics, MOI.

Chart 8.6 Estimated units of vacant houses

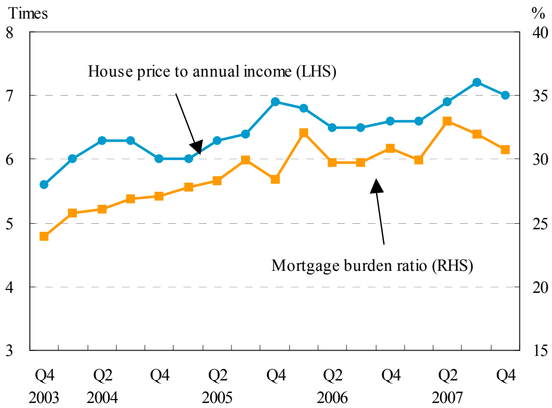


Source: Taiwan Power Company.

House price to income ratio rose, cost burden for home buyers grew

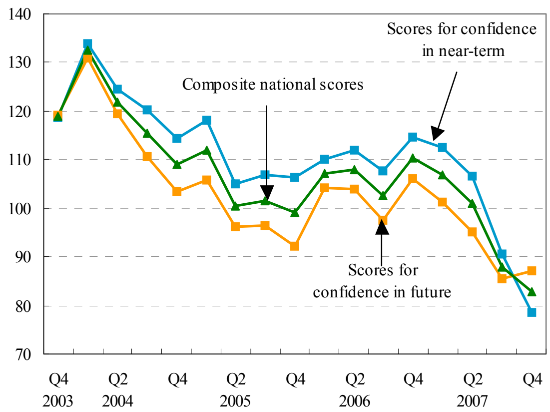
Rising housing prices in 2007 brought a heavier cost burden for home buyers. The average mortgage burden ratio and price to income ratio hit all-time highs of 33% and 7.2 times in Q2 and Q3, then fell back slightly to 30.8% and 7.0 times in Q4 (Chart 8.7) due to a rising number of lower priced homes purchased by the interviewees. These figures were still quite high, however. The cost burden was heaviest in Taipei City, where the mortgage burden ratio and price to income ratio stood at 36.5% and 8.6 times, respectively. In the meantime, the "Taiwan Housing Demand Survey" issued by the Council for Economic Planning and Development showed that the composite national score for housing price confidence declined throughout 2007, dropping below 100 points in Q3 and continuing down to 82.8 points in Q4. Scores for confidence in near-term and future housing prices were also below 100 points[70] (Chart 8.8), indicating that market confidence in future housing prices is declining.

Chart 8.7 House price to income ratio & mortgage burden ratio



Note: Mortgage burden ratio = monthly mortgage expenditure / household monthly income.
Source: "Taiwan Housing Demand Survey Report," Council for Economic Planning and Development.

Chart 8.8 Scores for housing price confidence



Source: "Taiwan Housing Demand Survey Report," Council for Economic Planning and Development.

Growth in real estate lending declined gradually, while mortgage interest rates rose slowly

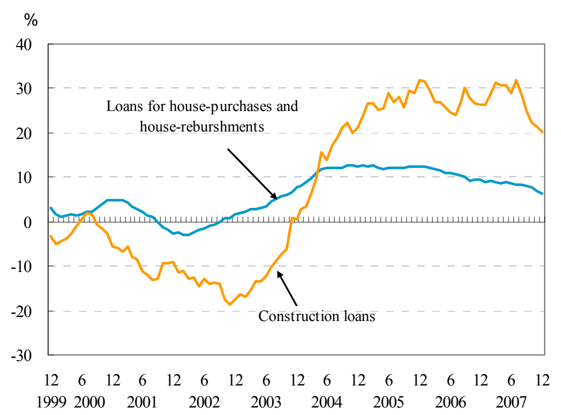
The outstanding balance of real estate-related loans granted by banks[71] continued to grow in 2007, though at a slower pace. Year-on-year growth in loans for house purchases and house-refurbishments declined to a mere 6.17% in December 2007, and year-on-year growth in construction loans began decelerating in August, reaching 20.30% by December (Chart 8.9). The total amount of new housing lending by Taiwan's top five banks[72] peaked at NT$57.0 billion in December 2006 before declining to just NT$39.4 billion in December 2007 (Chart 8.10) and NT$34.2 billion in March 2008, mainly due to stricter standards in real

[70] Scores for housing price confidence range from 0 to 200, with a score of 100 indicating that the number of people expecting prices to rise is equal to the number of those expecting the opposite. A score above 100 indicates that more people expect prices to rise, and vice-versa. Scores for confidence in near-term and future prices refer to expectations for prices three months and one year in the future, respectively.
[71] The term "bank" in this section includes domestic banks (including medium business banks) and the local branches of foreign banks.
[72] The "top five" banks refer to the Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank of Taiwan, Hua Nan Commercial Bank, and Chang Hwa Commercial Bank.

estate lending and a shrinking average loan-to-value ratio for housing loans. In addition, the ratio of the outstanding balance of house purchases and construction loans[73] to the sum of total deposits and bank debentures of domestic banks averaged 23.35% at the end of 2007, up from the 19.98% in the previous year. The ratio exceeded 25% at 16 banks (or 15 when the Land Bank of Taiwan is excluded because of its special status[74]), which was near the statutory limit of 30%.

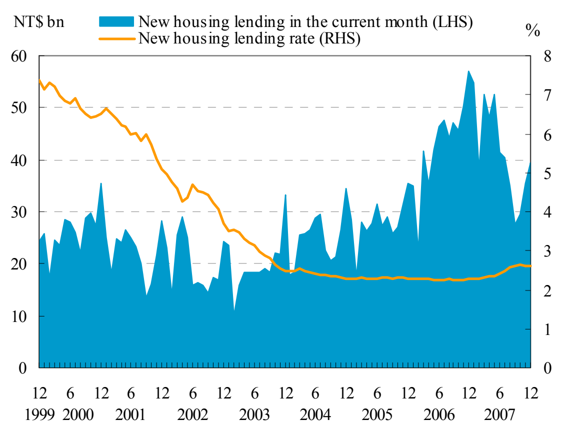
As for cost of financing, the mortgage interest rates charged by Taiwan's top five banks[75] climbed slowly in 2007, reaching an average of 2.62% (Chart 8.10) by December 2007 and increasing further to 2.76% in March 2008. In the meantime, the average NPL ratio for housing loans by financial institutions[76] stood at 1.54% at the end of 2007, down 0.39 percentage points year on year, an indication that credit quality remains satisfactory. However, a cooling real estate market, together with increasing repayment pressures on high loan-to-value mortgages granted in recent years, could undermine the future credit quality of real estate loans.

Chart 8.9 Annual growth in housing and construction loans



Source: CBC.

Chart 8.10 New mortgage loans – amounts & interest rates



Source: CBC.

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73 The term "outstanding balance of house-purchase loans and construction loans" refers to the total amount of such loans meeting the restrictions of Article 72-2 of the Banking Act.

74 The Land Bank of Taiwan specializes in real estate credit, and is not subject to the restrictions of Article 72-2 of the Banking Act regarding the provision of residential and commercial real estate construction loans.

75 See Note 72.

76 The term "financial institution" herein includes domestic banks, the local branches of foreign banks, community financial institutions, life insurers, trust and investment companies, and securities finance companies. The data is from the Joint Credit Information Center.

Appendix: Financial soundness indicators

Table 1: Domestic Banks

Unit: %

Items / Year (end of year)	2002	2003	2004	2005	2006	2007
Earning and profitability						
Return on assets (ROA)	-0.50	0.22	0.64	0.30	-0.06	0.28
Return on equity (ROE)	-7.20	3.52	10.25	4.74	-0.94	4.35
Net interest income to gross income	79.34	66.86	62.60	66.11	68.34	65.78
Non interest expenses to gross income	50.51	46.35	46.59	47.84	51.21	53.54
Gains and losses on financial instruments to gross income	14.06	15.87	10.13	11.49	12.63	9.17
Personnel expenses* to non-interest expenses	-	-	-	-	55.37	55.88
Spread between lending and deposit rates (basis points)	3.15	2.63	2.30	2.22	1.91	1.72
Assets quality						
Non-performing loans to total loans	8.85	6.08	3.82	2.24	2.15	1.83
Provision coverage ratio	17.25	22.68	30.14	50.06	62.26	64.07
Capital adequacy						
Regulatory capital to risk-weighted assets	10.64	10.29	10.87	11.23	10.87	10.88
Tier 1 capital to risk-weighted assets	9.96	10.00	10.25	10.37	9.88	8.59
Capital to total assets	6.53	6.17	6.28	6.45	6.19	6.42
Non-performing loans net of provisions to capital	76.74	51.76	30.61	15.28	15.16	12.23
Liquidity						
Customer deposits to total loans	114.15	117.69	118.10	118.70	119.41	117.98
Liquid assets* to total assets	-	-	-	-	-	18.04
Liquid assets* to short-term liabilities	-	-	-	-	-	27.79

Table 1：Domestic Banks (cont.)

Unit: %

Items \ Year (end of year)	2002	2003	2004	2005	2006	2007
Credit risk concentration						
Household loans to total loans	40.66	42.65	44.89	46.51	46.74	47.10
Corporate loans to total loans	43.39	42.07	41.30	41.60	43.02	44.39
Large exposures to capital	-	-	-	137.32	144.28	136.74
Gross asset positions in financial derivatives* to capital	-	-	-	-	5.28	10.34
Gross liability positions in financial derivatives* to capital	-	-	-	-	4.79	5.44
Sensitivity to market risk						
Net open position in foreign exchange* to capital	-	-	-	-	3.11	5.02
Foreign-currency-denominated loans* to total loans	-	-	-	-	13.44	15.57
Net open position in equities* to capital	-	-	-	-	28.63	30.85
Foreign-currency-denominated liabilities* to total liabilities	-	-	-	-	19.84	22.18

Notes: 1. The items with "*" are only available from 2006. Liquidity asset related items are disclosed from 2007.
2. The data of earnings and profitability in 2006 and 2007 exclude Chinese Bank and Bowa Bank.

Table 2: Non-financial Corporate Sector

Units: %, Times

Items \ Year (end of year)	2002	2003	2004	2005	2006	2007
Total liabilities to equity						
Corporate sector	97.20	95.27	102.15	86.10	85.21	-
TWSE-listed companies	69.26	68.03	66.33	66.11	64.20	63.20
OTC-listed companies	98.67	90.48	76.67	84.01	74.10	76.45
Return on equity						
Corporate sector	7.46	10.18	11.36	10.88	13.04	-
TWSE-listed companies	8.02	12.64	16.68	14.17	15.29	18.03
OTC-listed companies	0.90	8.97	15.70	9.28	17.07	9.21
Net income before interest and tax / interest expenses (times)						
Corporate sector	3.18	6.03	7.89	8.97	10.10	-
TWSE-listed companies	4.39	9.45	17.78	15.29	16.79	19.08
OTC-listed companies	0.37	4.55	12.73	8.40	14.07	7.90

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

Table 3: Household Sector

Unit: %

Items \ Year (end of year)	2002	2003	2004	2005	2006	2007
Household borrowing to GDP	75.56	78.08	81.74	85.55	85.85	83.60
Borrowing service and principal payments to gross disposable income	43.90	42.92	46.25	48.45	46.08	42.67

Note: Figure for 2007 disposable income is CBC estimate.

Table 4: Real Estate Market

Unit: %

Items \ Year (end of year)	2002	2003	2004	2005	2006	2007
Land price index	102.05	99.62	101.52	103.24	105.09	107.85
Residential real estate loans* to total loans	-	-	-	-	29.14	30.14
Commercial real estate loans* to total loans	-	-	-	-	10.74	11.84

Notes: 1.Land price index is released each half year (March and September).
2.The items with "*" are only available from 2006.

Table 5: Market Liquidity

Unit: %

Items \ Year (end of year)	2002	2003	2004	2005	2006	2007
The turnover ratio of trading value in stock market	217.41	190.82	177.46	131.36	142.20	153.28
The monthly average turnover ratio in bond market	-	-	135.40	215.69	140.58	74.65

Notes: 1.The turnover ratio in terms of trading value in stock market is the accumalative figure of the year.
2.The monthly average turnover ratio in bond market is the average figure of the year. This data is available from 2004.

Explanatory notes:
Compilation of financial soundness indicators

I. General notes

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

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

- Compilation of Domestic Banks' Indicators

1. The banks in this report as of the end of 2007 include Bank of Taiwan, Land Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank, Ltd., Chang Hwa Commercial Bank, Citibank Taiwan Limited, The Shanghai Commercial & Savings Bank, Ltd., Taipei Fubon Commercial Bank, Cathay United Bank, The Export-Import Bank of the Republic of China, Bank of Kaohsiung, Mega International Commercial Bank Co., Ltd., Agricultural Bank of Taiwan, China Development Industrial Bank, Industrial Bank of Taiwan, Taiwan Business Bank, Standard Chartered Bank (Taiwan) Limited, Taichung Commercial Bank, King's Town Bank, First Capital Commercial Bank, Hwatai Bank, Shin Kong Commercial Bank, Sunny Bank, Bank of Panhsin, Cota Commercial Bank, Union Bank of Taiwan, The Chinese Bank, Far Eastern International Bank, Yuanta Commercial Bank, Bank Sinopac Company Limited, E. Sun Commercial Bank, Ltd., Cosmos Bank, Bowa Bank, Taishin International Bank, Ta Chong Bank Ltd., Jih Sun International Bank, Entie Commercial Bank, Chinatrust Commercial Bank and Chinfon Commercial Bank, amounting to 40 banks.
2. The domestic banks' related indicators are calculated on unaudited data submitted by domestic banks regularly. The submitted data are different from the data posted on the banks' websites, which are audited and certified by certified public accountants or adjusted by banks. The statistical basis for these two types of data is different.
3. Domestic banks' related indicators are calculated by aggregating the numerators and denominators of each ratio, and then dividing the total numerator by the total denominator to obtain the peer-group ratios. This methodology differs from the winsorized mean on the quarterly "Condition and Performance of Domestic Banks" report compiled by the Department of Financial Inspection of the Central Bank of the Republic of China (Taiwan).

II. Explanatory notes on the indicators

1. Domestic banks' indicators

1.1 Earnings and profitability

1.1.1 Return on assets (ROA)

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

ROA = net income before income tax / average total assets

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

1.1.2 Return on equity (ROE)

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

ROE = net income before income tax / average equity

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

1.1.3 Net interest income to gross income

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

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

1.1.4 Non-interest expenses to gross income

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

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

- Personnel expenses
- Other expenses related to the operations.
  - Expenses for property and equipment: including purchasing, ordinary and regular maintenance and repair, depreciation and building rentals paid.
  - Other expenditure related to operations: including purchases of goods and services (e.g. advertising costs, staff training service expenses, and royalties paid for the use of other produced or non-produced assets).
  - Taxes other than income taxes less any subsidies received from general government.
- Gross income: same as 1.1.3.

1.1.5 Gains and losses on financial instruments to gross income

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

Gains and losses on financial instruments include the following items:

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

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

Gross income: same as 1.1.3.

1.1.6 Personnel expenses to non-interest expenses

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

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

1.1.7 Spread between lending and deposit rates

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

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

1.2 Assets quality

1.2.1 Non-performing loans to total loans

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

- Definition of non-performing loans

  "Non-performing loans" before 30 June 2005 include the following items:

  - Loans for which repayment of principal has been overdue for more than 3 months.
  - Medium and long-term loans for which installment repayments are overdue for more than 6 months.
  - Any loan for which the debtor has been sued for non-payment or the underlying collateral has been disposed of.
  - Any loan for which repayment of interest has been overdue for more than 6 months.

  "Non-performing loans" after 1 July 2005 include the following items, according to the "Regulations Governing the Procedures for Banking Institutions to Evaluate Assets and Deal with Non-performing / Non-accrual Loans," which were issued by the Ministry of Finance on 6 January 2004 and entered into force on 1 July 2005:

  - Loans for which repayment of principal or interest has been overdue for more than 3 months. Any loan for which the principal debtors and surety have been sued for non-payment or the underlying collateral has been disposed of, although the repayment of principal or interest has not been overdue for more than 3 months.

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

1.2.2 Provision coverage ratio

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

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

1.3 Capital adequacy

1.3.1 Regulatory capital to risk-weighted assets

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

- Regulatory capital: the eligible capital includes Tier 1 capital, eligible Tier 2 capital and eligible used Tier 3 capital.
- Risk-weighted assets:

The term "risk-weighted assets" before the end of 2006 is the aggregate amount of the risk-weighted assets for credit risk together with the capital requirements for market risk multiplied by 12.5. From the beginning of 2007, it is the aggregate amount of the risk-weighted assets for credit risk together with the capital requirements for market risk and operational risk multiplied by 12.5.

1.3.2 Tier 1 capital to risk-weighted assets

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

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

1.3.3 Capital to total assets

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

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

1.3.4 Non-performing loans net of provisions to capital

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

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

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

1.4 Liquidity

1.4.1 Customer deposits to total loans

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

- Customer deposits: including check deposits, demand deposits, time deposits, saving deposits and money remittance.

- Total loans: same as 1.2.1.

1.4.2 Liquid assets to total assets

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

- Liquid assets: the core liquid assets comprising cash and cash equivalents, amounts due from Central Bank, amounts due from banks and call loans to banks (excluding amounts due from domestic banks which are included in the reporting population).
- Total assets: same as 1.3.3.

1.4.3 Liquid assets to short-term liabilities

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

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

1.5 Credit risk concentration

1.5.1 Household loans to total loans

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

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

1.5.2 Corporate loans to total loans

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

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

1.5.3 Large exposures to capital

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

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

1.5.4 Gross asset positions in financial derivatives to capital

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

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

1.5.5 Gross liability positions in financial derivatives to capital

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

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

1.6 Sensitivity to market risk

1.6.1 Net open position in foreign exchange to capital

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

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

1.6.2 Foreign-currency-denominated loans to total loans

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

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

1.6.3 Net open position in equities to capital

This indicator is to analyze the effect of the fluctuating of banks' net position in equity compared with own equity.

- Net open position in equities: the sum of on-balance-sheet holding of equities and notional positions in equity derivatives.

1.6.4 Foreign-currency-denominated liabilities to total liabilities

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

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

2. Non-financial corporate sector indicators

2.1 Total liabilities to equity

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

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

2.2 Return on equity

This indicator is to analyze profitability of non-financial corporations in using their capital.

- Return on equity = net income before interest and tax / average equity (the "net income before interest and tax" is adopted according to the FSIs of IMF).
- Net income before interest and tax: net income before tax plus interest expenses from continuing operation units.
- Average equity: the mean of the equity at the beginning and the end of current year.

2.3 Net income before interest and tax / interest expenses

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

- Interest expenses: the interest expense payments on debts within the specified time period of the statement.

3. Household sector indicators

3.1 Household borrowing to GDP

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

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

3.2 Borrowing service and principal payments to gross disposable income

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

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

4. Real estate market indicators

4.1 Land price index

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

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

4.2 Residential real estate loans to total loans

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

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

4.3 Commercial real estate loans to total loans

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

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

5. Market liquidity

5.1 The turnover ratio of trading value in stock market

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

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

5.2 The monthly average turnover ratio in bond market

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

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

Abbreviations

ABS	Australian Bureau of Statistics
ATM	Automated teller machine
BEA	U.S. Bureau of Economic Analysis
BICRA	Banking Industry Country Risk Assessment
BNM	Bank Negara Malaysia
BOJ	Bank of Japan
BOK	Bank of Korea
BSI	Banking System Indicator
CAR	Capital adequacy ratio
CBC	Central Bank of the Republic of China (Taiwan)
CDIC	Central Deposit Insurance Corporation
CP	Commercial paper
CPI	Consumer price index
CSFTs	Complex structured finance transactions
DGBAS	Directorate-General of Budget, Accounting and Statistics of Executive Yuan
DJ	Dow Jones index
EU	European Union
FED	Federal Reserve System
FSC	Financial Supervisory Commission
GBP	Great Britain pound
GDP	Gross domestic product
GTSM	GreTai Securities Market
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
JCIC	Joint Credit Information Center
LTV	Loan-to-value

MOI	Ministry of Interior
MOF	Ministry of Finance
MPI	Macro-Prudential Indicator
NIBT	Net income before tax
NPL	Non-performing loan
OTC	Over-the-counter
qoq	Quarter-on-quarter
RBC	Risk-based capital
ROA	Return on assets
ROE	Return on equity
RTGS	Real-Time Gross Settlement
SIV	Structured investment vehicle
TAIEX	Taiwan Stock Exchange Weighted Index
TEJ	Taiwan Economic Journal Co., Ltd.
TWSE	Taiwan Stock Exchange
WPI	Wholesale price index
yoy	Year-on-year

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