



Central Bank of the Republic of China (Taiwan)

# Financial Stability Report

December 2008 | Issue No. 2





Central Bank of the Republic of China (Taiwan)

# Financial Stability Report

---

December 2008 | Issue No. 2



---

## Table of contents

---

<b>About the Financial Stability Report.....</b>	<b>I</b>
<b>I. Overview .....</b>	<b>1</b>
<b>II. International and domestic economic and financial conditions.....</b>	<b>8</b>
1. International economic and financial conditions.....	8
2. Domestic economic and financial conditions.....	17
<b>III. Financial sectors .....</b>	<b>22</b>
3. Financial markets.....	22
3.1 Money and bond markets .....	22
3.2 Equity markets.....	24
3.3 Foreign exchange markets.....	27
4. Financial institutions .....	29
4.1 Deposit-taking institutions.....	29
4.2 Non-deposit taking financial institutions.....	45
5. Financial infrastructure .....	52
<b>IV. Non-financial sectors .....</b>	<b>66</b>
6. Corporate sector.....	66
7. Household sector .....	69
8. Real estate market.....	72
<b>BOX 1: Key measures to stabilize the financial system and stimulate the economy in major     countries .....</b>	<b>13</b>
<b>BOX 2: Economic Vitalization Package in Taiwan .....</b>	<b>57</b>
<b>BOX 3: Introduction to fair value accounting standards.....</b>	<b>63</b>
<b>Appendix: Financial soundness indicators .....</b>	<b>77</b>
<b>Explanatory notes: Compilation of financial soundness indicators .....</b>	<b>80</b>
<b>Abbreviations.....</b>	<b>88</b>



---

## 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 as 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 a reference for financial authorities, market participants, and others interested in the subject. Readers are advised to interpret or quote the information contained herein with caution.

### ***Definition of financial stability***

There is as yet no universally accepted definition of "financial stability." Defined positively, "financial stability" can be thought of in terms of the financial system's ability to: (1) facilitate an efficient allocation of economic resources both spatially and intertemporally; (2) assess and manage financial risks; and (3) withstand adverse shocks. From a negative view, "financial instability" refers to the occurrence of currency, banking, or foreign debt crises, or

inability of the financial system to absorb adverse endogenous or exogenous shocks, and allocate resources efficiently, with the result that it cannot facilitate real economic performance in a sustained manner.

*Note: Except as otherwise noted, all data and information cited in this report is current as of 30 September 2008.*

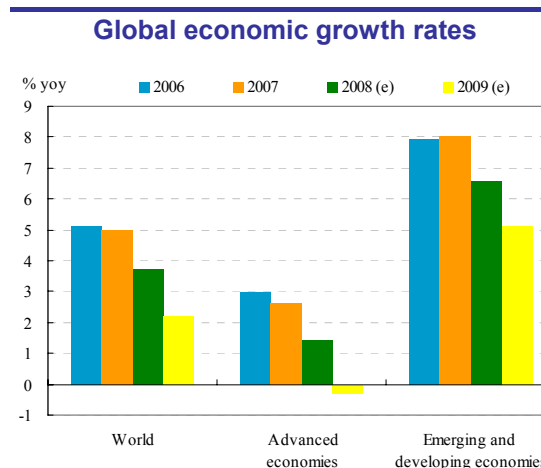
## I. Overview

### *Taiwan's financial system remained stable*

Domestic financial markets functioned normally in the first half of 2008. Local financial institutions faced declining profits but generally maintained satisfactory asset quality and adequate capital levels without affecting their role as intermediaries. Payment and settlement systems operated smoothly with improved efficiency. However, the deteriorating global financial crisis began to spill over to the domestic financial sectors in the third quarter of 2008, causing local financial markets to fluctuate substantially and the domestic financial system to assume higher risks. Thanks to the proactive measures taken by the Taiwan government and the soundness of the domestic financial institutions, the impact has been limited so far. Compared to other countries, the financial system in Taiwan is relatively unharmed. Nonetheless, close monitoring for any possible signs of increasing risks is still needed.

### *World economy faced downside risks and softened inflationary pressures*

Buffeted by the growing global financial crisis, large corrections in the housing markets of some advanced economies, and high energy and commodity prices, the world economy faced downside risks. The International Monetary Fund (IMF) projected that the world economy would slow sharply to 3.7% in 2008 from 5.0% in 2007. Advanced economies suffered the most, as many of them were close to recession. Emerging and developing economies also exhibited slower growth. The global economy as a whole was expected to undergo a protracted deleveraging process. As a result, world economic growth was projected to weaken to 2.2% in 2009, considerably down 1.5 percentage points from 2008. Global inflationary pressures gradually eased, driven



Note: Figures for 2008 and 2009 are IMF estimates.  
Source: IMF, "World Economic Outlook Update," November 2008.

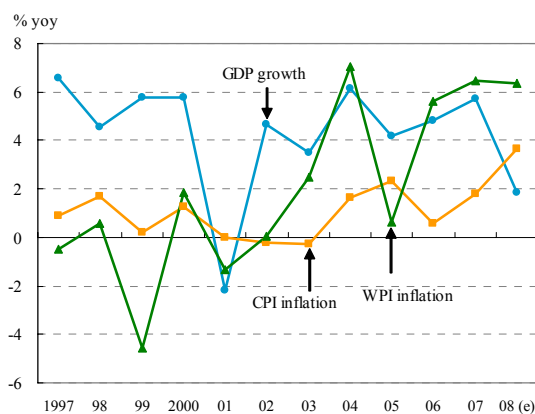


mainly by falling international raw material prices and deteriorating economic prospects. The IMF forecasted headline inflation in the advanced economies as well as the emerging and developing economies to be 1.4% and 7.1% in 2009, respectively, considerably lower than the 3.6% and 9.2% registered in the previous year.<sup>1</sup>

### **Taiwan economy expected to slow, while inflationary pressures eased**

The robust export growth helped Taiwan's economic growth reach 5.40% in the first half of 2008. However, as the momentum in export growth waned in the face of the global economic downturn, along with sluggish consumer spending and lackluster private investment, preliminary statistics from the Directorate-General of Budget, Accounting and Statistics (DGBAS) indicate that Taiwan's economy turned to a negative growth of -1.02% in 2008 Q3, and would further contract to -1.73% in 2008 Q4, bringing the annual economic growth for the entire year of 2008 down considerably to 1.87% from 5.70% in 2007. Looking ahead into 2009, in spite of the sharp expansion in public fixed capital investment and the mild growth in private consumption, the global economic slowdown and a resulting reduction in external demand may continue to have a negative impact on the performance of exports and private investment. The DGBAS forecast economic growth to rebound to 2.12% in 2009, slightly up by 0.25 percentage points from 2008. With respect to prices, upward pressure on consumer prices receded after reaching a peak in July 2008, primarily due to declining international raw material prices. The DGBAS projected the annual growth rates of WPI and CPI to reach 6.33% and 3.64%, respectively, in 2008. The annual growth rate of CPI is expected to decline to 0.37% in 2009, while that of WPI to markedly contract to -2.18%, largely driven by the ongoing global economic downturn, falling commodity prices, and higher figures for the base year of 2008.<sup>2</sup>

**Economic growth and consumer price inflation rate in Taiwan**



Note: Figures for 2008 are DGBAS projections.  
Source: DGBAS.

<sup>1</sup> See the IMF "World Economic Outlook Update," November 2008.

<sup>2</sup> DGBAS press release, 20 November 2008.

## Financial markets

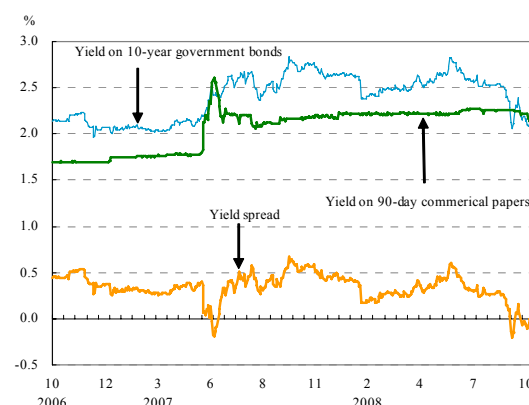
### *Bond market turnover rate fell steadily, and yield spreads between bond and commercial paper once turned negative*

Bond yields began to descend in 2008 Q2 as financial institutions sought to reduce their spare funds through purchases of bonds. This brought down incentives for trading, leading to decreases in the monthly turnover rate. The drop in bond yields resulted in narrowing yield spreads between long-term bonds and short-term commercial papers, which even registered negative in mid-September. The decrease in bond yields is unfavorable to financial institutions that use short-term financing to fund long-term bonds, despite the fact that it generates capital gains for bond holders.

### *Taiwan's stock indices fell and fluctuated sharply*

Motivated by media reports of further improvements in cross-strait economic and trade relations between Taiwan and China, Taiwan's stock markets were buoyant in the first two quarters of 2008. However, beginning in July, due to the slump in major stock markets arising from the persistent expansion of the global financial crisis, Taiwan's stock indices fell sharply amid heightened volatility. The risks of stock investments have thus increased.

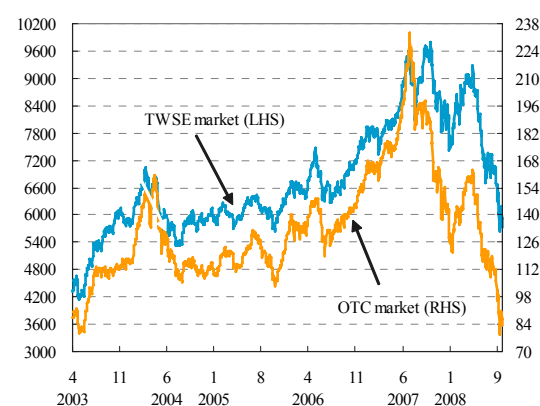
#### Yield spreads



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

Source: Bloomberg.

#### Taiwan stock market indices



Sources: TWSE and GTSM.

**The NT dollar shifted from appreciation to depreciation with decreased volatility**

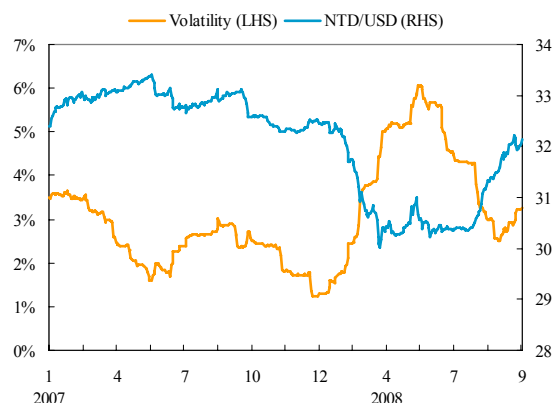
After the dramatic appreciation in 2008 Q1, the New Taiwan dollar (NT dollar) exchange rate against the US dollar generally moved in a narrow range until later depreciated in Q3 due to outward remittances by foreign investors. Volatility in the NT dollar exchange rate once increased to 6%, and then returned to a steady state after July. The depreciation of the NT dollar has not only alleviated the pressure of foreign exchange losses faced by financial institutions, but has also helped to enhance the competitiveness of export industries.

**Financial institutions**

**Domestic banks maintained satisfactory asset quality and adequate capital level**

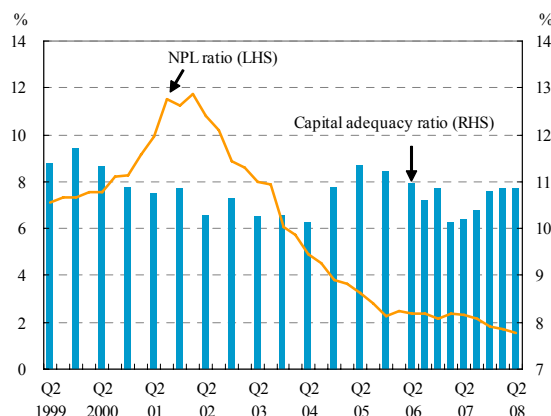
In the first half of 2008, domestic banks still maintained satisfactory asset quality and adequate capital levels despite declining profitability. Given the global economic downturn and financial market turmoil, the future profitability and asset quality of domestic banks may be affected by a number of factors, including further investment losses, eroded profitability due to shrinking interest rate spreads between deposits and loans, depressed wealth management business, as well as uncertainties about the recovery of consumer loans under debt negotiation, cooling real estate markets, and the weakening debt servicing capacity of the corporate and household sectors.

**NT\$/US\$ exchange rate and volatility**



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

**NPL and capital adequacy ratio of domestic banks**

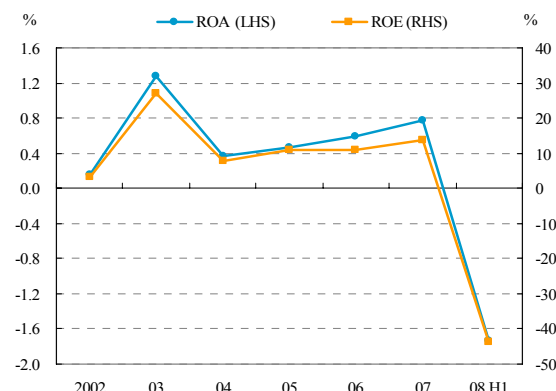


Note: The capital adequacy ratio data are on a semiannual basis before June 2006 and on a quarterly basis after September 2006.  
Source: CBC.

### ***Community financial institutions' performance improved***

Profitability of community financial institutions continued growing in the first half of 2008. Overall loan quality was improving in the credit departments of farmers' and fishermen's associations, while the capital adequacy ratios of credit cooperatives increased slightly. However, the NPL ratios of some credit departments of farmers' and fishermen's associations were still relatively high and had to be brought down.

### **ROE & ROA of life insurance companies**



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

### ***Life insurance companies suffered huge losses***

The asset size of Taiwan's life insurance companies grew slowly in the first half of 2008, while their average risk-based capital (RBC) ratios decreased considerably due to huge losses caused by the appreciation of the NT dollar, and large investment writedowns. Some life insurance companies were even confronted with the pressure of raising capital.

### ***Bills finance companies faced declining profits and higher credit and liquidity risks***

In the first half of 2008, the total assets of bills finance companies continued to contract and the profitability declined, while capital adequacy ratios remained above the statutory minimum. Due to sharp volatility in local financial markets, the credit risk of bills finance companies' stock-secured credit increased. Meanwhile, the liquidity risk of some bills finance companies also increased, as confidence in the local financial system was slightly undermined.

### ***A series of policy measures were taken to enhance financial stability and economic growth***

To address the adverse effects of the global financial crisis on Taiwan, the government has taken many measures to enhance financial stability and to invigorate the economy. Among them, policy measures designed to deal with financial stabilization, including easy monetary policy, blanket deposit guarantee (from 1 November 2008 to the end of 2009), stock market

stabilization, and providing financing support to enterprises and individuals, have produced positive results that gradually stabilized the financial system. As to other measures intended to promote economic growth, it may take more time for the effects to materialize. In addition, Taiwan's Financial Accounting Standards No. 34 has been amended with reference to the latest revisions of International Accounting Standards. The amendment eases restrictions on reclassification of financial instruments in order to reduce the negative impacts on the financial statements of financial institutions and enterprises that sharp movements in fair value may incur.

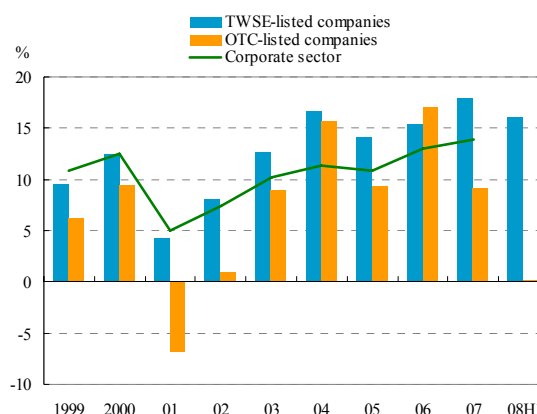
### Profits and financial conditions in the corporate sector languished

In the first half of 2008, the impact of skyrocketing international commodity prices, slowing global economic growth, and increasing operation costs of China-based businesses undermined the profitability and financial structure of listed companies. The short-term debt servicing capacity of OTC-listed companies declined markedly, increasing the risk of default.

### Household debt burden remained heavy

For the household sector, growth in borrowing moderated while short-term debt servicing capacity strengthened, but debt burdens still remained heavy in the first half of 2008. The tumbling global stock markets, and the subsequent slower economic growth and rising unemployment rate at home, will gradually have adverse impacts on households' assets and

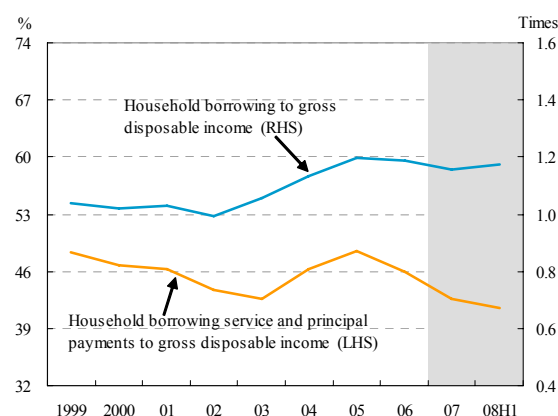
#### ROE in corporate sector



Notes: 1. Return on equity = net income before interest and tax / average equity.  
 2. Figures for 2008 H1 have been annualized. The ROE of the OTC-listed companies in 2008 H1 was only 0.12%.

Sources: JCIC and TEJ.

#### Household debt servicing ratio



Note: Figures for gross disposable income in shaded area are CBC estimates.

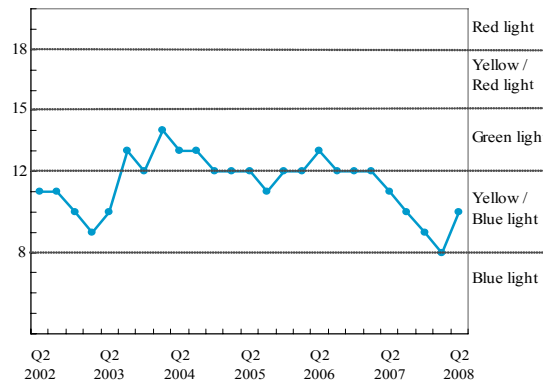
Sources: CBC, JCIC, and DGBAS.

income, reducing their capacity to service their debt.

**Real estate market cooled off**

Real estate prices continued rising even though market trading activity gradually cooled. Moreover, factors such as rising housing vacancy rates, growing cost burden on home buyers, and decelerating real estate loan growth all contributed to increasing downward pressures on the market.

**Real estate cycle indicators**



Note: A red light indicates a “heated market,” while a blue light indicates a “sharply declining market.”  
 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

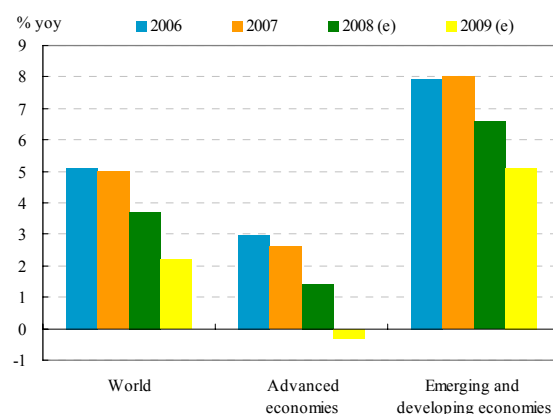
#### *Global economy facing downside risks*

The sustained global financial crisis, significant housing price corrections in some advanced economies, and heightened energy and commodity prices caused the global economy to face downside risks in 2008. Based on the IMF estimates, the global economy would grow at 3.7% in 2008, lower than the 5.0% in 2007. The advanced economies suffered greater impacts, with the projected economic growth rate declining to 1.4% from 2.6% a year earlier, while many of them were on the verge of recession. Emerging and developing economies were also expected to grow at a slower pace of 6.6% in 2008, down from 8.0% in 2007 (Chart 1.1).

With a view to stabilizing financial conditions and preventing systemic crises, many countries in Europe and North America undertook emergency policy measures. However, the IMF forecast that the global economy would face a protracted deleveraging process and the further weakening of growth momentum, during economic growth in 2009 downward by 1.5 percentage points from the previous year to reach 2.2%, the lowest since 2002. In 2009, the advanced economies are expected to experience the first negative growth of -0.3% since World War II, while the emerging economies will also decelerate but still grow at slightly over 5% (Chart 1.1).

Among the advanced economies, statistics from the US Commerce Department's Bureau of Economic Analysis showed that the US economy once dropped to a negative growth of -0.2% in 2007 Q4, but then rebounded to positive growth and reached 2.8% in 2008 Q2, supported both by expanded personal consumption expenditures due to tax rebates and by enhanced export growth; however, the

**Chart 1.1 Global economic growth rates**



Note: Figures for 2008 and 2009 are IMF estimates.  
Source: IMF, "World Economic Outlook Update," November 2008.

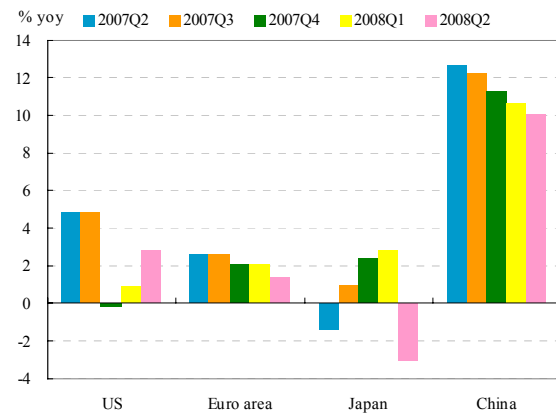
economic growth was still lower than that registered in the same period in the previous year. With respect to the euro area, Eurostat's data revealed that growth slowed in the first half of 2008, declining to 1.4% in Q2 owing to weak performance in household consumption expenditures, fixed capital formation, and exports. On the other hand, statistics from the Japanese Cabinet Office indicated that Japan's economic growth rate reached 2.8% in 2008 Q1, but then fell to a negative growth of -3.0% in 2008 Q2 as a result of slowdowns in private consumption expenditures, private investments, and exports (Chart 1.2).

The emerging and developing economies grew moderately in the first half of 2008 because of weak domestic demands and net exports. Despite this, their overall performance was better than that of the advanced economies. China's economy kept growing rapidly until 2008 Q1 amid buoyant fixed investments, according to the National Bureau of Statistics of China. Its economic growth rate for 2008 Q2 nevertheless dropped to 10.1% from the 12.6% in the same period of the preceding year, due to the impact of the global economic slowdown and the implementation of tighter macroeconomic policies (Chart 1.2).

### **Many countries took actions to stabilize financial markets and revitalize the economy in view of the extended global financial crisis**

The on-going global financial crisis caused by US subprime mortgage problems continued to impact the financial stability of many countries around the world in 2008 Q3. In early July, both Fannie Mae and Freddie Mac encountered liquidity problems which were later temporarily resolved when the US government supplied emergency financing and placed the two agencies into conservatorship. In mid-September, Lehman Brothers filed for bankruptcy protection and American International Group was downgraded by credit rating agencies, resulting in tight interbank markets and money markets as well as a soaring LIBOR overnight rate that once peaked at 6.875%<sup>3</sup> (Chart 1.3). These developments, together with the global

**Chart 1.2 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.

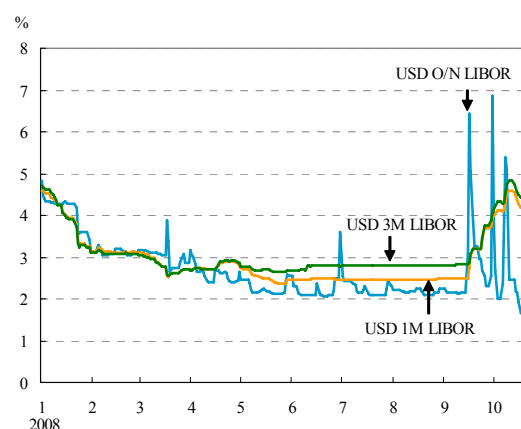
<sup>3</sup> Overnight LIBOR in US dollars on 30 September 2008 increased from 2.56875% of the previous day to 6.875%, the highest for the last seven and a half years.



credit crunch and lack of confidence among investors and depositors, led many large financial institutions in the United States and Europe to face increasing distresses, ranging from bank runs, short-term funding difficulties, liquidity problems, as well as possible failures. Governments around the world took many actions, which included providing ample liquidity for the financial markets, making available emergency financing or capital injections to financial institutions in hardship, as well as raising deposit insurance coverage (even blanket guarantees), to mitigate potential systemic risks. Some countries had to depend on emergency loans from the IMF to survive the crisis due to poor fiscal conditions or high external debt burdens. Furthermore, as the financial crisis deepened and concerns for an economic slowdown intensified, major stock markets around the world slumped, with single-day drops in share prices successively breaking historical records, and the fall in stock prices was the most significant in emerging Asia (Chart 1.4).

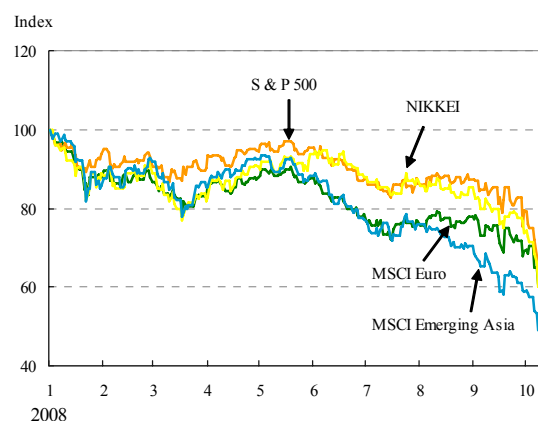
In October 2008, the IMF estimated that the aggregate writedowns based on global holdings of US-originated and securitized mortgage, consumer and corporate debt had climbed to US\$1.4 trillion.<sup>4</sup> It was expected that deleveraging by financial institutions would continue to exert negative influences on the macroeconomy through reduced credit availability and higher credit costs. Many governments took a series of emergency measures (Box 1) to stabilize the financial system and revitalize the economy. Through these measures, financial markets gradually stabilized and systemic risks were greatly reduced at least in the short run. However, whether the aim of revitalizing the economy was achieved is still unclear and pending on further observation.

**Chart 1.3 London Interbank Offered Rate (LIBOR) trends**



Source: Bloomberg.

**Chart 1.4 Performance of key international stock indices**



Notes: 1. 1 January 2008 = 100.

2. MSCI Euro is MSCI Euro money area index, which includes Euro money area and the UK.

Source: Bloomberg.

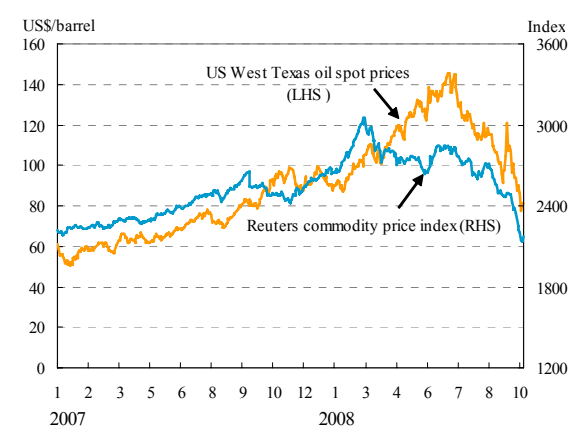
<sup>4</sup> Compared to the US\$945 billion losses estimated by the IMF in April 2008, expected losses as estimated in October increased by 49%.

According to the IMF, the global financial system continued to face the following systemic risks: (1) some financial institutions may have inadequate capital because of difficulties in raising funds from the private sectors; (2) US Government Sponsored Enterprises may not be able to assume sizable losses and maintain their capacity to support US mortgage and real estate markets without government assistance; (3) bank failures following increased credit losses are likely to raise concerns about insufficient deposit insurance funds; (4) higher settlement risks in credit derivatives and repo markets may intensify concerns on counterparty risks; (5) deleveraging by and mergers between financial institutions may lead to shrinking transaction volumes in the markets of many key financial products, which could in turn limit market participants' abilities to adjust their positions; (6) escalating redemption pressures on money market mutual fund investments could increase reliance on funding through interbank markets while decreasing investments in commercial paper, leading to heightened pressures in interbank markets as well as reduced funding options and increased funding cost for the corporate sectors; and (7) increasing government commitments may transfer risks from the private sector to the public sector, raising concerns about sovereign risk.

### **Falling oil and commodity prices helped ease Inflation pressure**

Beginning from early 2008, the growing demand for and tight supply of international oil, grains, and other commodities, as well as the continued depreciation of the US dollar, caused their prices to surge. Spot prices of West Texas Intermediate crude oil reached a historical high of US\$145.29 per barrel in July, while the commodity<sup>5</sup> (crude oil excluded) index also rose above 3,000 points in March (Chart 1.5), contributing to increasing global inflationary pressures. Subsequently, international oil and commodity prices fell back significantly and gradually stabilized, owing to the influences of energy conservation, decreasing speculative activities in crude oil futures, shrinking oil demand on concerns about a global recession, as well as increased oil supplies from oil-producing nations.

**Chart 1.5 International oil and key commodity price trends**



Sources: Bloomberg and Reuters.

<sup>5</sup> Commodity (crude oil excluded) 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.

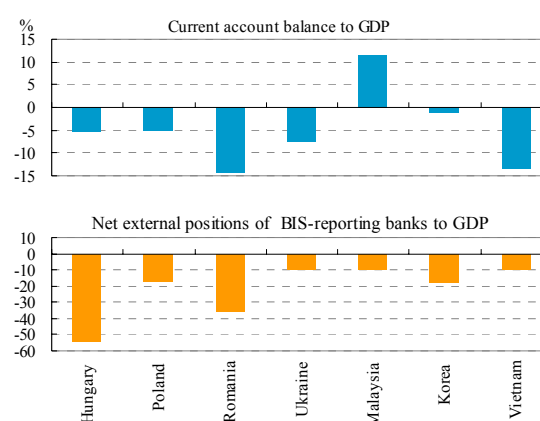
The IMF forecasts that stabilized commodity prices, slower global economic growth, and wider production gaps would help ease inflationary pressures. The inflation rate in the advanced economies is expected to drop from 3.6% in 2008 to 1.4% in 2009, while that in the emerging economies will decline from 9.2% to 7.1%. However, inflationary risks remain high in some of the emerging economies that experienced high prices and sustained shortages of domestic supply in the goods market.

### Emerging markets faced challenges to withstand shocks

It was thought that emerging markets were capable of withstanding financial and economic shocks originating from advanced economies. Yet with the intensified global turmoil, their capabilities to withstand these shocks underwent a series of challenges. Emerging Asia appeared more vulnerable due to the challenges of high inflation, worsening terms-of-trade, and increasing concerns about the impacts of the slowing global economy. In Latin America, there were concerns about abilities to overcome the global economic slowdown due to recent declines in commodity prices. Among emerging countries in Europe, many of which had experienced booming credit and soaring inflation in the past, some confronted credit cycle downturns, drastic decreases in economic activities, and increasing regional credit crunch risks.

The rising demand for US dollars and the increasing risks in emerging markets arising from the US subprime crisis caused institutional investors, such as mutual funds and pension funds, to reduce or withdraw their portfolio investments from emerging markets, especially emerging Asia. This led to large drops in stock prices in many economies. The capital outflows from emerging markets, together with financing difficulties and rising funding costs, became great obstacles for those countries that rely on external funding and have low foreign reserves (Chart 1.6). If the difficulty in external funding cannot be eased, or even deteriorates, some economies with high leverage ratios or rapid growth in domestic credit previously may face the pressures of severe funding shortages.

**Chart 1.6 Financial Soundness Indicators for Some Emerging Markets**



Notes: 1. The cut-off values adopted by the IMF are current account / GDP lower than -5% and net external position / GDP lower than -10%.  
2. Figures for current account balances and GDP are derived from the IMF's 2008 projection; net external positions are from BIS statistics in March 2008.  
Source: IMF, "Global Financial Stability Report," October 2008.

**Box 1****Key measures to stabilize the financial system and stimulate the economy in major countries**

The financial turmoil sparked by the US subprime mortgage crisis has persisted and spread to the world since September 2008. Its impact has resulted in the global financial markets' violent fluctuations along with downside risks to global economic growth. In response, a series of policy measures designed to stabilize the financial system has been taken by the US and many other governments, together with the joint actions employed by the EU, G7, IMF, and the euro area, to cope with the worldwide crisis. Moreover, growing concerns about the global downside risks stemming from the financial turmoil have prompted major countries to launch a succession of economic stimulus packages to alleviate the extent and impacts of the economic slump. Recent measures adopted by selected countries to stabilize the financial system and stimulate economic growth are summarized as follows.

***1. Measures to stabilize the financial system*****1.1 Liquidity injection**

Major central banks including the US Federal Reserve Board and the Bank of England have implemented a series of measures aimed at easing liquidity pressures in short-term funding markets, which encompass: (1) introducing new accommodation facilities and extending the range of eligible collaterals for repo operations so that sufficient liquidity would be injected into the financial system; (2) cutting policy rates markedly several times or reducing reserve requirement ratios in order to ease money market constraints; (3) establishing temporary foreign currency swap mechanisms between major countries to mitigate the elevated pressures in the short-term US dollar funding market.

**1.2 Government's assurance on interbank funding and a raise in deposit protection**

To resolve credit crunches in interbank funding markets, the UK and fifteen members of the euro area successively announced guarantees on interbank lending with public funds. The US, Italy, and several other countries also provided guarantees on newly issued bank debt. Meanwhile, the UK, the US, twenty-seven member states of the EU, and some emerging countries sought to restore depositors' confidence through raising deposit insurance limits or providing blanket guarantees on deposits.

### **1.3 Supports for troubled financial institutions**

To prevent systemic threats resulting from failures of large financial institutions, the US and many European governments have initiated massive programs to aid troubled financial institutions through lending, recapitalizing with public funds, nationalization, or arranging mergers or acquisitions by other financial institutions. For instance, a series of government supports has been provided to Fannie Mae, Freddie Mac, AIG, Citigroup, UBS, Fortis, Dexia SA, ING, and other financial institutions to help them overcome their financial distress.

### **1.4 Stock market rescue packages**

The expanding global financial crisis and the accompanying economic slowdown caused global stock markets to tumble. To rescue stock markets, the US, Europe, and some Asian countries restricted short selling on financial stocks or banned naked shorting on all stocks. Some countries that were hard hit by the tumbling stock markets, such as Iceland, Russia, Brazil, and Indonesia, even temporarily suspended trading in the stock market. Moreover, South Korea and Japan eased restrictions on share buyback, while China cut the stamp tax on security transactions to 0.1% in an effort to boost local stock markets.

### **1.5 Other financial stabilization measures**

In addition to those measures taken by individual countries, international organizations also took joint policy actions. For example, (1) the G7 finance ministers and central bank governors jointly released a five-point action plan designed to stabilize financial markets,\* restore the flow of credit, and to support global economic growth; (2) leaders from fifteen member states of the euro area reached a consensus on the financial bailout framework, which allows individual countries to take the necessary steps to support troubled financial institutions in terms of their current state and requirement; and (3) the IMF announced the initiation of an emergency funding scheme to support member states in financial difficulty. Moreover, in order to mitigate the unfavorable impact of the application of fair value accounting rules on financial institutions, the International Accounting Standards Board (IASB) issued amendments to International Accounting Standards 39 (IAS 39) and International Financial Reporting Standards 7 (IFRS 7) that would permit reclassification of securities out of the trading category in rare circumstances without applying fair value assessments.

## **2. Economic stimulus plans**

### **2.1 Measures to rescue housing market**

The decline in housing prices is the origin of this financial crisis. To support the housing market, the US government promulgated the Housing and Economic Recovery Act in July 2008, which includes the following key measures: (1) refinancing eligible distressed homeowners' mortgages into affordable 30-year fixed-rate mortgages insured by the Federal Housing Administration (FHA); (2) providing assistance to borrowers and communities devastated by falling housing prices; and (3) raising the limits of new FHA-insured mortgages. The UK government later announced its Homeowners Support Package in September 2008. The package was designed to increase confidence, stability, and fairness in the housing market by (1) reducing the thresholds of housing tax breaks; (2) offering interest-free mortgages for first-time, low-income home buyers; and (3) for those who can not sustain their mortgages, the government offered a "sale and rent back" option (the so-called "government mortgage to rent" plan). Moreover, the governments of Japan, South Korea, Australia, and China also deployed a wide range of rescue plans to the domestic housing market, respectively, including (1) raising the mortgage tax-exemption limit, (2) reducing property taxes, (3) increasing the mortgage subsidy for first-time buyers, and (4) implementing a housing protection plan.

### **2.2 Tax cuts**

In early 2008, the US government took the lead in introducing an economic stimulus plan focusing on tax rebates. The UK, France, Japan, South Korea, China, India, and Singapore later followed suit by adopting tax reform measures to boost private consumption and investment. For instance, (1) the governments of the US, Japan, South Korea, India, and Singapore offered tax cuts or tax rebates to individuals; (2) the US, France, South Korea, and India reduced corporate taxes; (3) the UK government cut value added tax (VAT) and slashed income tax rates for low-income and middle-income families while raising taxes on high-income earners; (4) the German government provided tax exemption for car buyers; (5) the South Korean government lowered inheritance tax rates; and (6) the Chinese government raised the rate of export tax rebates for specific products along with decreasing the tax rates relating to house purchases by individuals.

### **2.3 Expanding public expenditures**

The governments of the UK, Germany, Australia, Japan, South Korea, and China successively unveiled large-scale plans for expanding public expenditures on infrastructure investments, aiming to boost domestic demand and prevent a protracted economic downturn. Among these countries, the scale of public funds used to expand public spending under South Korea's and China's economic stimulus plans in September and November 2008 reached an equivalent share of 17.9% and 16.2% of GDP, respectively.

### **2.4 Assistance to corporate sector and individuals**

To mitigate the impacts on different sectors or industries, assorted fiscal support or loan assistance measures were undertaken by national governments in response to their respective economic and financial conditions. These assistance measures were mainly aimed at low- or middle-income families, employed labor, SMEs, and the construction sector.

\* The details of the five-point plan include: (1) taking decisive action using all available tools to support struggling financial institutions and prevent their failure; (2) taking all necessary steps to unfreeze credit and money markets; (3) ensuring that banks can raise sufficient capital from public as well as private sources in order to continue lending to households and businesses; (4) strengthening deposit insurance and guarantee programs to maintain depositors' confidence; and (5) taking action, where appropriate, to restart the mortgage securitization markets. Accurate valuation and transparent disclosure of assets and consistent implementation of high quality accounting standards are necessary.

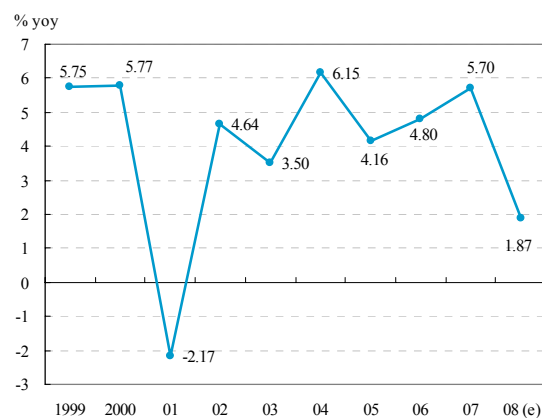
## 2. Domestic economic and financial conditions

Taiwan's economy was expected to moderate in 2008 while inflationary pressures eased. The economy exhibited resilience supported by ample foreign exchange reserves, a sustained current account surplus, and strong short-term external debt servicing capacity despite increases in the scale of external debt. Although the government's fiscal deficits could widen along with rising government debts, the ratio of outstanding government debts to GDP was still below the international warning level.

### *Domestic economy expected to moderate in 2008*

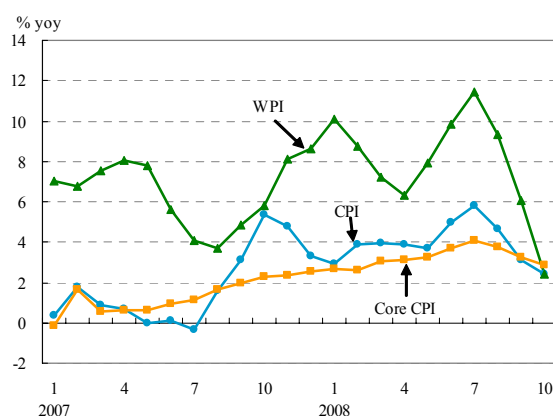
Taiwan's economic growth reached 5.4% in the first half of 2008, underpinned mainly by robust export growth against the backdrop of strong intra-Asian trade performance. However, export momentum weakened in the face of the global economic downturn, coupled with sluggish private consumption and private investments. Preliminary statistics from the DGBAS indicate that Taiwan's economy turned to a negative growth of -1.02% in 2008 Q3, and further contracted to -1.73% in 2008 Q4, causing annual economic growth to decline considerably from the previous year's 5.70% to 1.87% in 2008 (Chart 2.1). Looking ahead, despite sharp expansion in public fixed investments and mild growth in private consumption, the slowing of the global economy may continue to impact Taiwan's exports and exert adverse effects on private investments through reduced external demand. The DGBAS forecast Taiwan's economy to grow 2.12% in 2009, slightly up 0.25 percentage points from 2008.

**Chart 2.1 Economic growth in Taiwan**



Note: Figure for 2008 is DGBAS estimate.  
Source: DGBAS.

**Chart 2.2 Consumer and wholesale price inflation rates**



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



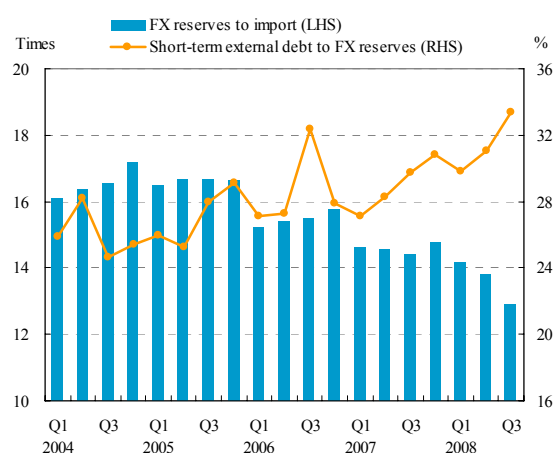
## Inflationary pressures eased

From the beginning of 2008, high international raw material and commodity prices had driven up wholesale prices. Consumer prices also continued to rise, attributable to price hikes in crude oil, electricity, fuel, agricultural and industrial raw materials as well as heightened food prices due to damage from several typhoons. The Wholesale Price Index (WPI) reached a peak of 11.44% year on year in July, while the Consumer Price Index (CPI) and core CPI<sup>6</sup> stood at 5.81% and 4.06%, respectively, reflecting increased inflationary pressures. However, the upward pressure on inflation eased subsequently, thanks to declining prices of international raw material that led to a drop in wholesale and consumer prices (Chart 2.2). The average WPI, CPI, and core CPI from January through October of 2008 increased notably by 7.95%, 3.92%, and 3.23% year on year, respectively. The DGBAS projected the annual WPI and CPI inflation rates to reach 6.33% and 3.64%, respectively, in 2008. Furthermore, the CPI inflation rate is expected to decline to 0.37% year on year in 2009, and the WPI to contract to -2.18%, largely driven by the ongoing global economic downturn, falling commodity prices, and higher figures for the base year of 2008.

## Current account remained in surplus, and foreign exchange reserves stayed sufficient

With sizable foreign capital inflows, Taiwan's foreign exchange reserves grew substantially in the first half of 2008 and reached a peak of US\$291.4 billion as of the end of June. The outstanding amount, however, trended generally downward as a result of net foreign capital outflows in Q3, and declined to US\$281.1 billion at the end of September, slightly up 4.00% from the end of 2007. Nevertheless, foreign exchange reserves remained adequate, enough to cover 12.91 months of imports,<sup>7</sup> while the ratio of short-term external debt to foreign exchange reserves registered 33.35% at the end of

**Chart 2.3 Short-term external debt servicing capacity**



Note: FX reserve balances are end-of-period figures, while imports are quarterly averages of monthly imports.  
Sources: CBC, DGBAS and MOF.

<sup>6</sup> The term "core CPI" in this report refers to a consumer price index excluding perishable fresh fruits and vegetables, fish and shellfish, and energy.

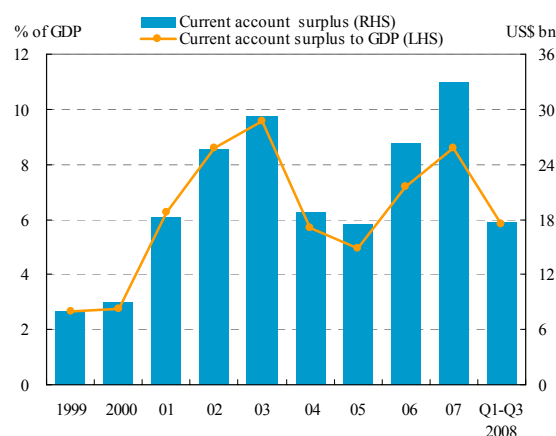
<sup>7</sup> See "Damocles: Testing Times Ahead," Lehman Brothers, 22 July 2004. For import cover of foreign exchange reserves, the cutoff point for risk is three months. A country with an import cover of less than three months is considered to be at relatively high risk.

September 2008.<sup>8</sup> These data indicated that Taiwan's foreign exchange reserves have a strong capacity to meet payment obligations for imports and to service short-term external debt (Chart 2.3). In addition, the current account surplus during the first three quarters of 2008 stood at US\$17.6 billion, down by 19.13% year on year. The reduction in the current account surplus was due mainly to a sharp expansion in imports, especially imports of mineral products (e.g. crude oil), steel, and steel-related products. Reflecting this, the ratio of current account surplus to GDP decreased to 5.85% over the same period (Chart 2.4).<sup>9</sup>

### External debt trended upward, but servicing capacity remained strong

External debt<sup>10</sup> reached US\$107.5 billion at the end of September 2008, fueled by a significant rise in private short-term debts that mainly emanated from increased deposits of overseas correspondent banks and foreigners. Meanwhile, the ratio of external debt to annual GDP<sup>11</sup> stood at 26.78%, still far lower than the internationally recognized warning level of 50%.<sup>12</sup> In addition, external debt as

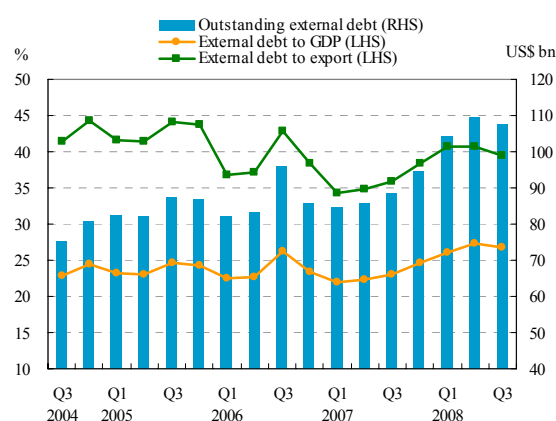
Chart 2.4 Current account surplus



Note: Ratio of 2008 Q1-Q3 is measured by dividing the current account balances during the first three quarters of 2008 by GDP over the same period.

Sources: CBC and DGBAS.

Chart 2.5 External debt servicing capacity



Notes: 1. External debts are end-of-period figures, while GDP and exports data are annual figures.

2. Ratios herein are measured as quarterly external debts balances divided by annualized GDP or exports.

Sources: CBC and DGBAS.

<sup>8</sup> See Wu Yih-Jiuan, "Taiwan's financial crisis early warning system [in Chinese]" (April 2003), quoting the 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.

<sup>9</sup> See Note 7. For the ratio of current account deficit to GDP, the cutoff point for risk is 3%. A country in which the reading is greater than 3% and has risen by at least 5 percentage points from the previous year is considered to be at relatively high risk.

<sup>10</sup> External debt is defined by the CBC as the combined amount owed to foreign parties by Taiwan's public and private sectors, including long-term 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.

<sup>11</sup> The figure for the GDP of 2008 is based on DGBAS statistics released on 20 November 2008 (hereafter quoting the same source).

<sup>12</sup> See Note 7. 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.

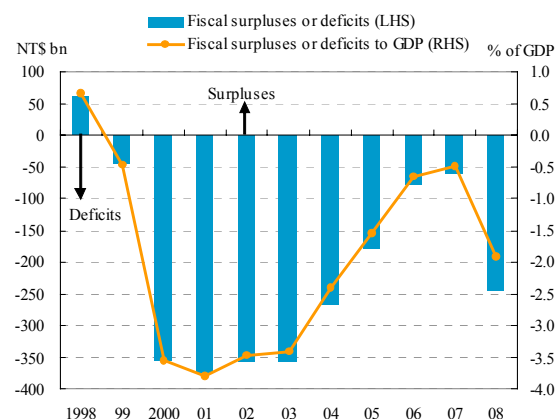
of the end of September 2008 was equivalent to 39.45% of annual exports,<sup>13</sup> higher than the 38.32% registered at the end of 2007. Nevertheless, export revenues were still sufficient to cover external debt (Chart 2.5), and there was no clear sign of pressure on external debt servicing capacity.<sup>14</sup>

### Fiscal deficits could grow, while government debts increased steadily

Fiscal deficits shrank gradually from 2002, falling to a low of NT\$62.1 billion at the end of 2007. In 2008, however, the government increased infrastructure spending to spur domestic demand, thereby boosting overall economic growth. As a result, the fiscal deficit budget expanded to NT\$244.1 billion or 1.93% of GDP (Chart 2.6). The ratio, however, is still below the internationally recognized warning level of 3%.<sup>15</sup>

As fiscal deficits rose and governments relied on debt issuance to finance debt servicing expenditures, outstanding public debt of central and local governments<sup>16</sup> increased steadily over the past decade and stood at NT\$4.3 trillion in 2007,<sup>17</sup> up slightly from NT\$4.2 trillion as of the end of 2006. The ratio of outstanding public debt to annual GDP fell back

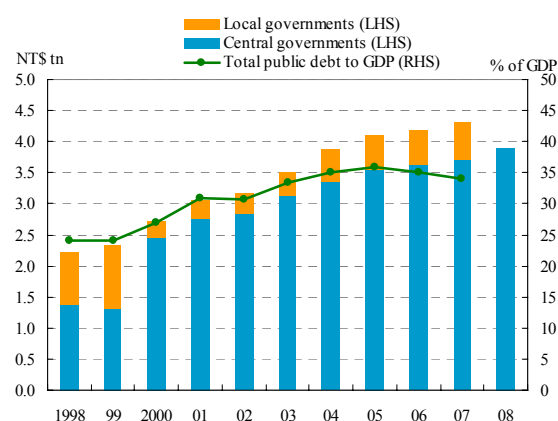
Chart 2.6 Fiscal positions



Notes: 1. Data of fiscal surpluses (deficits) are end-of-period figures. Figures for 2008 are budgeted ones.  
2. Fiscal positions data include those of central and local governments.

Sources: MOF and DGBAS.

Chart 2.7 Public debts



Notes: 1. Outstanding public debt refers to non-self-liquidating debt with a maturity of one year or longer, excluding external debts.  
2. Outstanding public debts for 2008 are budgeted figures, while the 2008 data for local governments are not available.

Sources: MOF and DGBAS.

<sup>13</sup> Figures for exports refer to Ministry of Finance statistics for the total amount of annual exports on a customs basis. The figure for 2008 is an annualized figure up to 2008 Q3.

<sup>14</sup> See Note 8. A ratio of external debt to exports of less than 100% indicates relatively low risk.

<sup>15</sup> See Note 8. 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.

<sup>16</sup> The term "outstanding debt at all levels of government" as used in this report refers to outstanding non-self-liquidating debt with a maturity of one year or longer. Final audited figures for outstanding one-year-or-longer non-self-liquidating public debt (NT\$4.3 trillion) issued by all levels of government during the 2007 fiscal year within their general budgets and extraordinary budgets is equivalent to 36.5% of the average GNP for the preceding three fiscal years (NT\$11.8 trillion). This figure is below the ceiling of 48% set out in the Public Debt Act.

<sup>17</sup> 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 debt with a maturity of less than one year and self-liquidating debt, outstanding government debt as of 31 December 2007 stood at NT\$5.2 trillion.

to 34.07% in 2007, well below the internationally recognized warning level of 60%,<sup>18</sup> mainly due to sustained economic growth. In 2008, the central government's outstanding public debt was projected to increase to NT\$3.9 trillion following the expansion in infrastructure investments, compared to NT\$3.7 trillion in the previous year. Consequently, the public debt is likely to grow further (Chart 2.7).

---

<sup>18</sup> See Note 8. Under the Maastricht Treaty and the subsequent Stability and Growth Pact, outstanding debt in EU member nations is not allowed to exceed 60% of GDP.

## III. Financial sectors

### 3. Financial markets

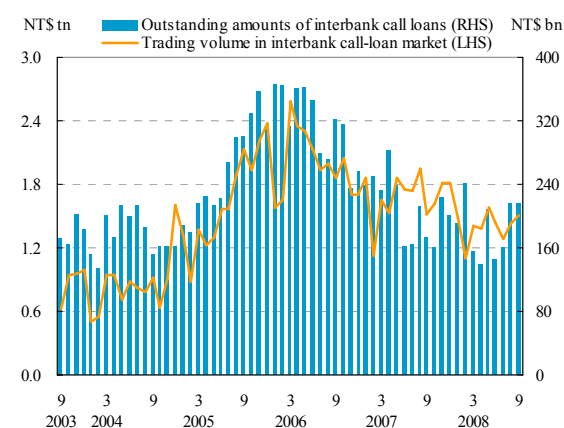
The trading volume in Taiwan's bond market continued to shrink, along with the once-negative yield spreads registered in 2008 Q3. This situation is unfavorable to financial institutions which use short-term financing to fund long-term bond positions. Local equity prices slumped and volatility increased amid the global stock market crash, resulting in higher risks in stock investments. Large cross-border capital flows caused the NT dollar exchange rate against the US dollar to shift from appreciation to depreciation, with volatility gradually stabilizing after experiencing large fluctuations. The depreciation of the NT dollar helped reduce the pressure of foreign exchange losses on financial institutions while strengthening the competitiveness of export enterprises.

#### 3.1 Money and bond markets

##### *Trading volume picked up in bill market but contracted notably in bond market*

The average monthly trading volume of interbank call loans was off 15.84% year on year from January through September of 2008, but both the trading volume and outstanding amount of interbank call loans trended upwards from August 2008 onwards (Chart 3.1), indicating that allocation of funding resources was somewhat uneven along with a rise in demand for interbank call loans. The average monthly trading volume of interbank call loans from January through September of 2008 consisted mainly of overnight call loans, accounting for 54.19% of average interbank call-loan transactions over the same period, a slight increase compared to the same period last year, followed by one-week call loans, with a declining share of 26.80%.

**Chart 3.1 Interbank call-loan market**



Source: CBC.

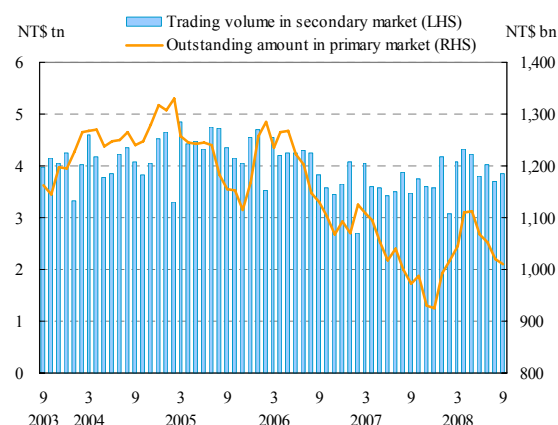
The outstanding amount of bills issuance ascended in early 2008 but turned to contraction in June. In September, the figure declined by 9.14% compared to the previous year end, primarily because of a marked reduction in the outstanding issuance of treasury bills, while that of commercial paper rose by 6.40%. Affected by a rise in the issuance of commercial paper, the secondary market saw an expansion in trading volume in the first half of 2008. The average monthly trading volume rose by 9.27% year on year from January through September (Chart 3.2).

In the bond market, both trading value and monthly turnover rate expanded in 2008 Q1 due to sizable capital inflows. However, trading activities cooled from 2008 Q2 onwards as financial institutions sought to reduce their spare funds through purchases of bonds, causing bond yields to decrease, which in turn discouraged bond trading. The monthly turnover rate fell notably to a trough of 25.75% in July, a five-year low. In August, both bond trading value and monthly turnover rate rebounded slightly as investors redirected funds from the lackluster equity markets into the bond market, but they still remained in low gear (Chart 3.3).

### ***Bond yields fell markedly along with narrowed and once-negative yield spreads***

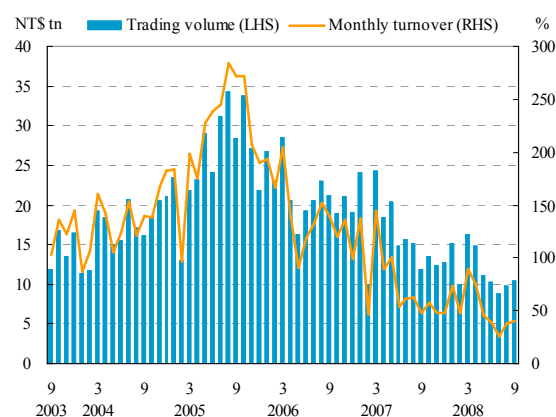
In 2008, the average overnight interbank call-loan rate increased steadily in response to rate hikes by the CBC, peaking at 2.166% in July, and then fell back to 2.092% in September as the CBC shrank the issuance of certificates of deposit to maintain market liquidity at an appropriate level against the backdrop of unfavorable financial conditions domestically and overseas. Interest rates on bills first rose and then fell, with the average rate on 1-30 day commercial paper in the secondary market falling to 2.01% in September after rising slightly

**Chart 3.2 Primary and secondary bill markets**



Source: CBC.

**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.

to 2.03% in July. As for long-term interest rates, the yield on 10-year government bonds began a gradual rise in 2008 Q2, peaking at 2.82% in mid-June on the back of a rebound in equity prices, rate hikes by the CBC, and heightened inflation expectations. The bond yield dipped appreciably afterwards and registered 2.15% in September. This was led by increasing inflows of funds into the bond market supported by the CBC's rate cuts and expanded Repo facility operations (Chart 3.4).

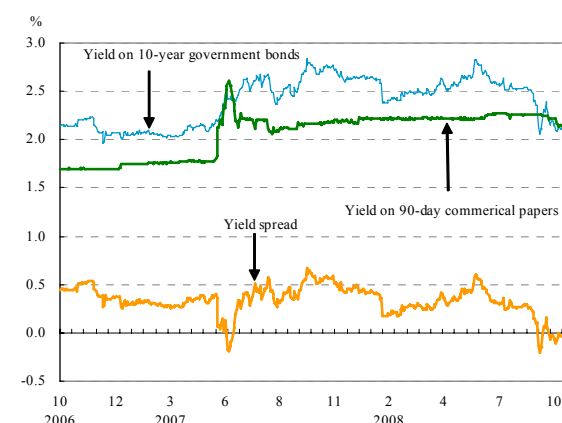
The spread between the yields of 10-year government bonds and 90-day commercial papers began to widen in 2008 Q2 as bond yields trended upwards. Bond yields dropped noticeably afterward, resulting in a convergence of yield spreads between 10-year government bonds and 90-day commercial papers. The yield spreads even became negative in mid-September and troughed at -20 basis points (Chart 3.4). Declining bond yields are unfavorable to financial institutions which use short-term financing to fund long-term bond positions, despite the fact that they generate capital gains for financial institutions holding long bond positions.

### 3.2 Equity markets

#### *Stock indices continued to fall with record high volatility*

Motivated by the developments of cross-strait economic and trade issues after the presidential election in March 2008, the Taiwan Stock Exchange Weighted Index (TAIEX) of the Taiwan Stock Exchange (TWSE) market trended upward and reached a high of 9,295 in mid-May 2008. Afterward, two gigantic US mortgage lenders (Fannie Mae and Freddie Mac), Lehman Brothers, and AIG faced difficult financial conditions, and the consequent blow to market

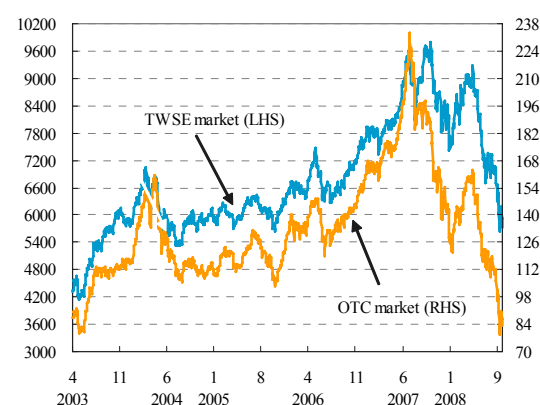
**Chart 3.4 Yield spreads**



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

Source: Bloomberg.

**Chart 3.5 Taiwan stock market indices**



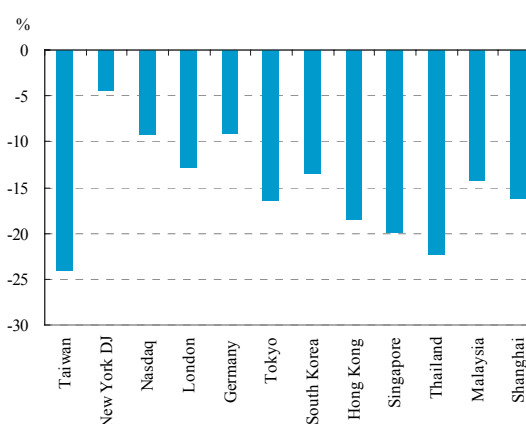
Sources: TWSE and GTSM.

confidence prompted major stock markets around the world to slump, setting new record one-day percentage declines. Due to the global stock market crash and foreign investors' net selling,<sup>19</sup> the TAIEX then fell back to 5,719 at the end of September, down 38.47% compared to its highest closing level in 2008. Meanwhile, Taiwan's GTSM Index (the over-the-counter or OTC index) basically tracked the movements of the TAIEX, falling sharply after hitting a peak of 163 in May 2008, and then declining to 83 at the end of September, a decrease of 49.08% from its highest closing level in 2008 (Chart 3.5).

Broken down by sector, all indices were in bear territory in 2008 Q3, while the indices for the building material and construction sector and the cement sector performed the most poorly, dropping by 52.33% and 43.00%, respectively. Indices for communication and networking sectors and the oil, electricity, and gas sectors fell by less than 9%, resisting a slump, while all major stock markets around the world declined considerably in 2008 Q3, the TAIEX posted deeper fall of 23.98% (Chart 3.6).

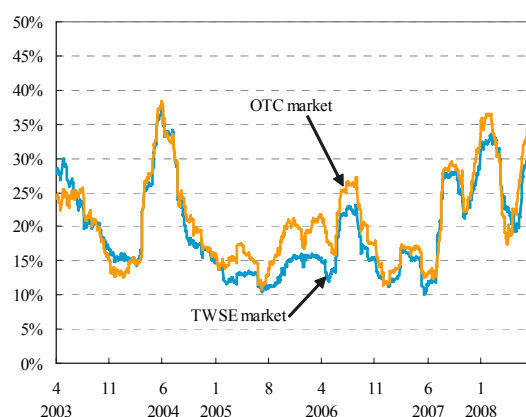
TAIEX volatility began to come down after hitting a peak of 33.67% in mid-March, dropping below 20% in mid-June 2008, but it climbed again in July owing to the global stock market crash. With the volatility on the TWSE market and the OTC market in September 2008 reaching a record five-year high of 38.85% and 43.35% (Chart 3.7), respectively, the risks in stock investments have risen significantly.

**Chart 3.6 Comparison of major stock market performances**



Notes: 1. Figures are for 2008 Q3.  
2. Taiwan's data is for the TWSE market.  
Source: TWSE.

**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.

<sup>19</sup> During the period January to September 2008, foreign investors (foreign institutional investors, overseas Chinese, and foreign individual investors) were net sellers of NT\$315.9 billion worth of securities in Taiwan, while net accumulated inward remittances of foreign investors decreased by US\$3.7 billion.

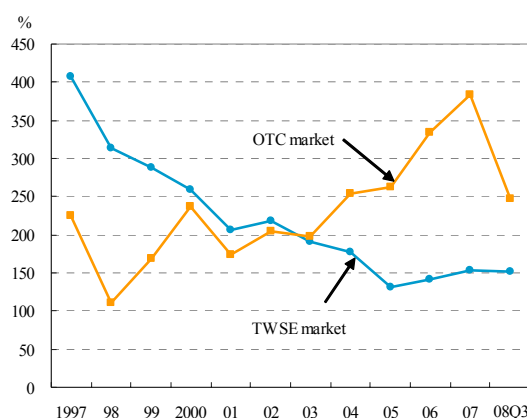


### ***Dramatic decrease in trading value and turnover in exchange-listed shares***

As the global stock market turned bearish, the TWSE market cooled down during the first three quarters of 2008, with a dramatic decrease in trading value. However, as the result of market value tracking the movements of trading value, turnover ratio in terms of trading value on the TWSE still posted 152.25%, down slightly from 153.28% in 2007. After reaching a peak of 382.81% in 2007, the turnover ratio in the OTC market plummeted to 247.53%, with a dramatic decrease in trading value during the first three quarters of 2008 (Chart 3.8). In order to mitigate the impact of the extreme volatility in international stock markets from late September, the FSC temporarily suspended all short selling and narrowed the daily percentage fall limit from the existing 7% to 3.5%.<sup>20</sup> Consequently, the trading value of all TWSE- and OTC-listed stocks contracted markedly, leading to a lower turnover ratio and weakened market liquidity. Trading value started to increase slowly after the FSC resumed the 7% down-limit, effective from 27 October 2008.

Compared to major stock markets around the world, the accumulated turnover ratio of the TWSE between January and September 2008 was lower than those on New York's Dow Jones and NASDAQ, and the stock markets in Germany, South Korea, and Shenzhen, while approximately equal to those in London and Shanghai, but still higher than those in

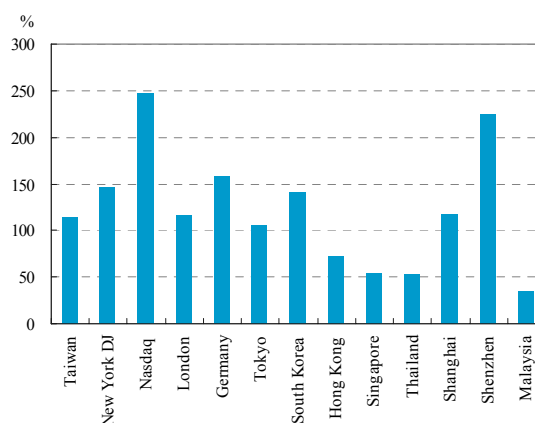
**Chart 3.8 Annual turnover ratio in Taiwan's stock markets**



Note: 2008 Q3 figures are annualized results of the accumulated monthly turnover ratios.

Sources: TWSE and GTSM.

**Chart 3.9 Comparison of turnover ratio in major stock markets**



Note: Figures refer to accumulated turnover ratios in 2008 Q3. Taiwan's data is for the TWSE market.

Source: TWSE.

<sup>20</sup> On 12 October 2008, the FSC halved the existing 7% down-limit to 3.5%, while the up-limit remained unchanged at 7%. (The FSC resumed the 7% down-limit effective from 27 October 2008.) On 21 September 2008, the FSC announced the temporary reinstatement of the ban on short sales at prices at or below the previous day's closing prices for the 150 component stocks of the Taiwan 50 Index. At a later time, the FSC decided to temporarily suspend all short selling until 31 December 2008. That ban, however, did not apply to put warrants issued by securities firms before 30 September 2008, for which short selling is necessary for hedging needs.

neighboring markets of Tokyo, Hong Kong, Singapore, Thailand, and Kuala Lumpur (Chart 3.9).

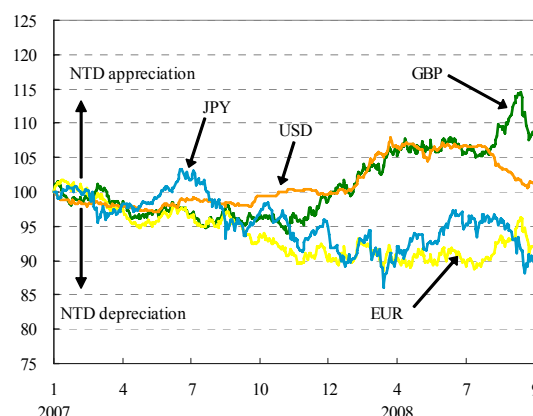
### 3.3 Foreign exchange markets

#### *The NT dollar exchange rate reversed from appreciation to depreciation and trading volume shrank from Q2*

After the dramatic appreciation in 2008 Q1, the NT dollar exchange rate generally moved in a narrow range between 30 and 31 against the US dollar in Q2, but then depreciated to 32.13 at the end of September, a 5.53% drop compared to the end of June, or a rise of 0.97% compared to the end of 2007. The NT dollar exchange rate turned into depreciation due mainly to continued foreign capital outflows from the Taiwan stock market and the rebound of the US dollar caused by sizable international capital inflows into the US to address a worsening financial crisis (Chart 3.10). As for other key international currencies, the NT dollar trended downward against the yen in the first three quarters of 2008, depreciating by 5.13%, while the NT dollar appreciated against the pound and the euro by 12.78% and 4.67%, respectively, over the same period (Chart 3.10). The recent depreciation of the NT dollar against the US dollar not only relieved the pressure of significant exchange losses on those financial institutions with large foreign currency assets in the first half of 2008, but it would also enhance the competitiveness of export industries.

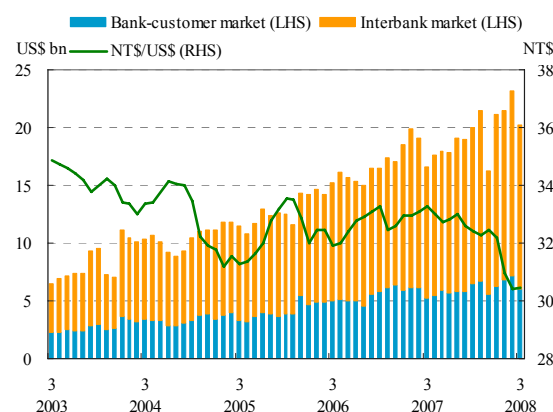
The trading volume on Taiwan's foreign exchange market has gradually decreased due to the stockpiling of US dollars in the market, while the average daily trading volume in the first eight months of 2008 reached US\$20.2 billion, an increase of 10.16% compared to the US\$18.3 billion recorded during the same period of the previous year. The interbank market

**Chart 3.10 Movements of NT dollar exchange rate against key international currencies**



Note: 2 January 2007 = 100.  
Source: CBC.

**Chart 3.11 NT\$/US\$ exchange rate and foreign exchange market trading volume**



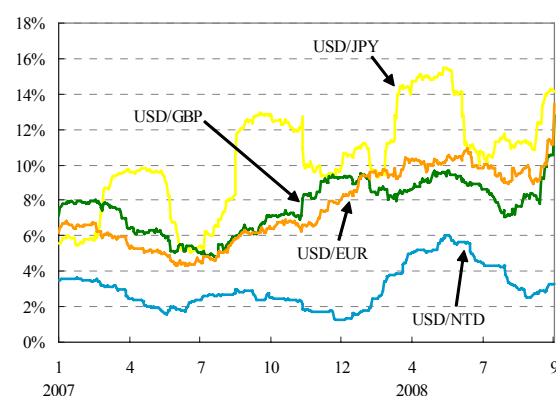
Note: Trading volume is the monthly average of daily data, while exchange rate is end-of-period data.  
Source: CBC.

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 69.69% of total volume, the largest share in the first eight months of 2008, while the bank-customer market made up a 30.31% share (Chart 3.11). As for types of transactions, spot trading accounted for 50.56% of total volume, followed by foreign exchange swaps with 31.27%.

***NT dollar volatility against US dollar soared before gradually stabilizing***

In 2008 Q1, volatility in the NT dollar exchange rate against the US dollar increased dramatically, hitting a peak of 6.00% in late May, and then decreased steadily to around 3.00%, before settling at 3.25% at the end of September. Compared to the volatility in the exchange rates of major currencies (e.g. GBP, EUR, and JPY) against the US dollar, however, 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<sup>21</sup>

### 4.1 Deposit-taking institutions<sup>22</sup>

#### Size and market share

Deposit-taking institutions held a total of NT\$37.92 trillion in assets at the end of June 2008, climbing by 1.82% from the previous year's end and equivalent to 3.00 times of the DGBAS-estimated GDP of 2008. Total loans and total deposits amounted to NT\$20.09 trillion and NT\$28.64 trillion, respectively. Compared to the end of the previous year, total loans rose slightly by 2.34%, while total deposits increased by 0.84% (Table 4.1).

Domestic banks dominated nearly 74% of assets and deposits, and had a share of more than 90% in loans in all deposit taking institutions, while their market share in each category dropped slightly from the end of 2007, mainly because the assets and liabilities of the Chinese Bank and Bowa Bank were taken over by the Hongkong and Shanghai Banking Corporation and DBS Bank, respectively. After the aforementioned takeover, the individual market share of the local branches of foreign banks rose moderately from the end of 2007.

**Table 4.1 Size and market share of deposit-taking institutions**

Unit: %

Items	End of period	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	37.24	75.76	7.13	11.57	3.88	0.10	1.56
	June 2008	37.92	74.53	8.36	11.69	3.79	0.10	1.53
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
	June 2008	28.64	74.04	4.52	14.88	4.57	0.13	1.86
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
	June 2008	20.09	90.42	4.20	0.01	3.56	0.10	1.71

Sources: CBC and CDIC.

<sup>21</sup> 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.

<sup>22</sup> "Deposit-taking institution" stated 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.

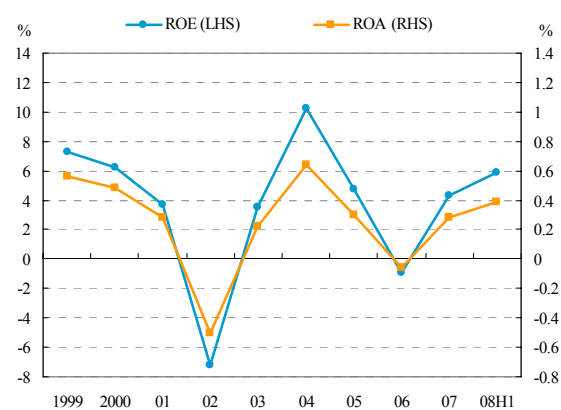
The Remittances & Savings Department of Chunghwa Post Co. held a slightly increasing market share of 14.88% in deposits. Community financial institutions, including credit departments of farmers' and fishermen's associations and credit cooperatives, commanded small market shares, which either remained stable or declined in all categories, except for a slight increase in market share for loans of the credit departments of fishermen's associations (Table 4.1).

#### 4.1.1 Domestic banks

Domestic banks were subject to declining profitability in the first half of 2008, while asset quality continued to improve. The average capital adequacy ratio rose slightly, whereas only a few banks had ratios below the statutory minimum. Average external credit ratings of domestic banks increased slightly on the whole. Domestic banks held ample liquidity, except for a few banks faced with a temporary problem of insufficient liquidity in the second half of 2008. However, the liquidity tensions in these banks eased afterwards.

Domestic bank credit exposures at the end of June 2008 remained concentrated in the real estate market as well as the electronics and electrical machinery manufacturing sectors. Credit risk appeared to increase as the real estate market turned to a slowdown and the global economy worsened. In respect to market risks, the VaR (value at risk) for equity risk increased as a result of the sharp fluctuations in the stock market in 2008 Q3. However, the impact on domestic banks was limited due to relatively small positions. The VaR for interest rate risk and foreign exchange risk once rose owing to the higher volatility in these markets. Nevertheless, both of them declined substantially when the markets gradually stabilized at the end of September, leading to a considerable decrease in total VaR on domestic banks as a whole compared to the end of the previous year.

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. Ratios for 2008 H1 had been annualized.

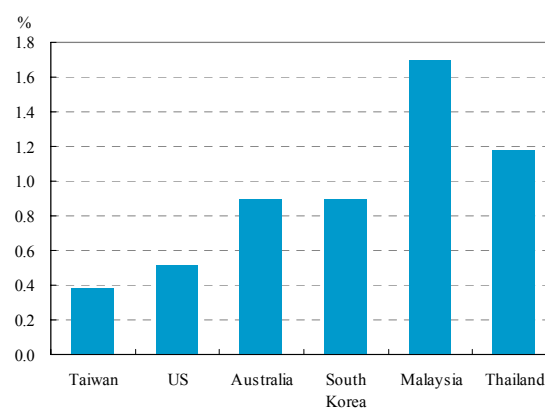
Source: CBC.

### *Domestic banks' overall profitability<sup>23</sup> declined*

Domestic banks as a whole posted a net income before tax of NT\$54.6 billion in the first half of 2008, decreasing by 22.34% on a year-on-year basis. This was mainly due to an increase in investment losses stemming from sharp falls on the local and foreign stock markets and continuously increasing provisions in investment positions associated with American subprime mortgage products. Return on equity (ROE) and return on assets (ROA) came to 5.84% and 0.39%, respectively, in the first half of 2008. These figures reflected a slight increase from the yearly figures of 4.32% and 0.28% in 2007, yet showed a decrease from 8.14% and 0.51% year on year, respectively (Chart 4.1). Compared to the US and other Asia-Pacific neighboring countries, the profitability of domestic banks in Taiwan still needs to be improved (Chart 4.2).

Among individual banks, seven banks<sup>24</sup> suffered losses and posted negative ROEs in the first half of 2008, fewer than the twelve banks in the previous year. This was mainly because some weak banks improved their profitability after being merged or taken into conservatorship. Moreover, the number of banks achieving an ROE of 15% or more decreased from five in the previous year to three owing to the reduced profitability (Chart 4.3).

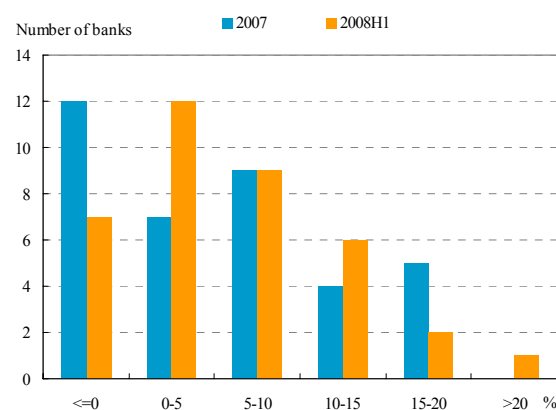
**Chart 4.2 Comparison of ROA in selected countries**



Note: Data for Australia is for end-March 2008, while the others are for end-June 2008.

Sources: CBC, FDIC, APRA, FSS, BNM, and BOT.

**Chart 4.3 Distribution of ROE of domestic banks**



Note: Excludes Chinfon Bank, who had negative net worth and the banks set up during the assessment period.

Source: CBC.

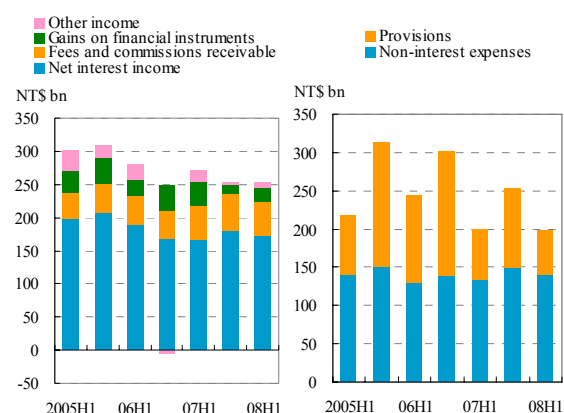
<sup>23</sup> The Chinese Bank and Bowa Bank were both taken into conservatorship in 2007 and exited the market in March and May 2008, respectively. In order to prevent their losses from affecting analyses of overall profitability at domestic banks, the data of the Chinese Bank and Bowa Bank for 2006 and 2007 were excluded in this section. The Chinese Bank and Bowa Bank suffered losses of NT\$6.7 billion and NT\$8.0 billion, respectively, in 2006, and NT\$4.6 billion and NT\$41.3 billion, respectively, in 2007.

<sup>24</sup> These exclude Chinfon Bank, which suffered losses of NT\$5.5 billion in the first half of 2008. Due to the negative net worth at the end of June 2008, its ROE could not be calculated.

As for operating revenues and costs, net interest income, the primary source of operating revenues for domestic banks, leveled off due to a continued low interest rate spread between deposits and loans.<sup>25</sup> Net fee and commission income decreased materially under the influence of a sharp drop in the sales volume of structured notes and mutual funds. The net revenues from financial instruments and other net revenues fell dramatically, mainly due to the weakened financial market and increasing provisions for impairment losses on assets linked to the US subprime mortgage-related products. As a result, the total operating revenues declined by 5.91% year on year. On the cost side, although non-interest expenses rose in the first half of 2008 as employee bonuses were recognized as expenses, total operating costs fell slightly by 0.16% compared to the first half of 2007 as a result of a sharp decline in provisions (Chart 4.4).

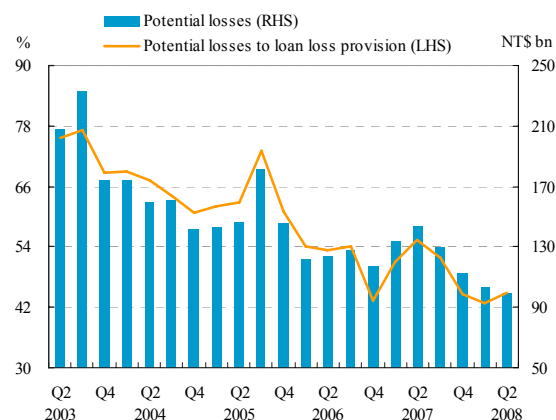
As of the end of June 2008, domestic banks reported limited exposure to or losses from outstanding investments associated with subprime mortgage-related products. Some financial institutions in the US and Europe have experienced severe financial distress since July 2008. As leading countries adopted measures to stabilize their financial systems such as liquidity injection, bailout programs, and an urgent rescue of some vulnerable countries through financial aid from the IMF, the systemic crisis was relieved temporarily. However, the financial emergency condition showed little notable improvement and global stock markets continued to decline due to increasing concerns about the economic downturn. These developments, which are likely to cause more losses on the investments and credit positions of domestic banks and undermine their profitability, need to be closely monitored.

**Chart 4.4 Composition of income and cost of domestic banks**



Source: CBC.

**Chart 4.5 Potential classified asset losses of domestic banks**



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

Source: CBC.

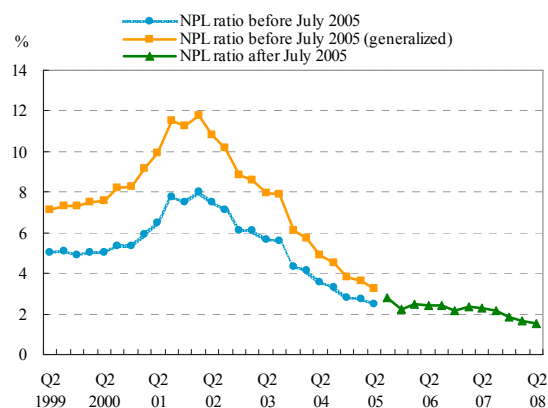
<sup>25</sup> The average interest rate spread between deposits and loans was a mere 1.69 percentage points in 2008 Q2, shrinking from 1.70 percentage points in 2007 Q4.

### Asset quality continued to improve

At the end of June 2008, the outstanding classified assets<sup>26</sup> of domestic banks as a whole stood at NT\$579.8 billion, and the average classified asset ratio was 2.05%, decreasing by 11.69%, or 0.27 percentage points, compared to the end of 2007, respectively. Expected losses on classified assets were estimated at NT\$99.5 billion,<sup>27</sup> also decreasing from the end of the previous year by 11.72%. The asset quality of domestic banks improved steadily. Expected losses from classified assets were equal to 44.78% of loan loss provisions and other reserves, indicating that the provisions and reserves were sufficient to cover expected losses (Chart 4.5).

At the end of June 2008, the outstanding NPL of domestic banks as a whole stood at NT\$281.2 billion, and the average NPL ratio was 1.55%, down by 14.29% and 0.28 percentage points when compared with the end of 2007, respectively (Chart 4.6). The drop was mainly due to the ongoing write-off and sales of non-performing loans. Among individual banks, all had NPL ratios of less than 5%, except for one bank<sup>28</sup> with an NPL ratio as high as 28.15; among them, twenty-five had ratios below 2% (Chart 4.7). Compared to the US and other Asian neighboring countries, the NPL ratio of domestic banks in Taiwan is lower than in the US, Thailand, Indonesia, and Malaysia, but higher than in Hong Kong and South Korea (Chart 4.8).

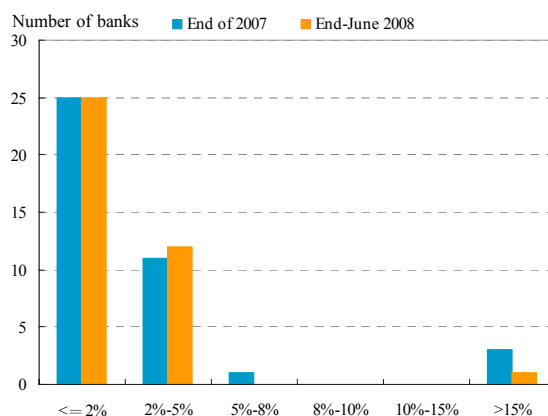
Chart 4.6 Average NPL ratio of domestic banks



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

Source: CBC.

Chart 4.7 Distribution of NPL ratio of domestic banks



Note: Excludes interbank loans.

Source: CBC.

<sup>26</sup> 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 are broken down into four different categories as follows: Category One for normal assets, while Category Two, Category Four, and Category Five are for specially mentioned, doubtful, and loss assets, respectively. The term “non-performing assets” includes all classified assets other than those in Category One.

<sup>27</sup> The loss herein refers to the losses from loans, acceptance, guarantee, credit card revolving balance, and factoring without recourse.

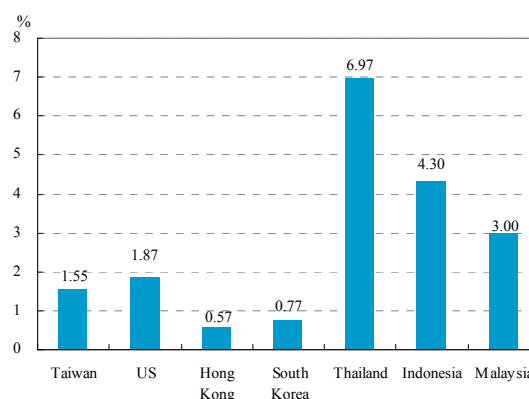
<sup>28</sup> Chinfon Bank was taken into conservatorship by the CDIC on 26 September 2008.



As to loan loss provisions, the NPL coverage ratio at the end of June 2008 was 67.36%, advancing 3.30 percentage points from the end of the previous year, primarily due to a sharp drop in non-performing loans. The loan loss reserve ratio fell to 1.04% from 1.17% at the end of 2007 as loan loss provisions decreased and loans outstanding continued to grow (Chart 4.9).

Asset quality of domestic banks has been steadily improving, but may be affected by remaining uncertainties including the following factors: (1) the cumulative repayment rate on modified payment plans for delinquent loans has continued to drop,<sup>29</sup> adding to the uncertainty about the prospects for future repayment; (2) pursuant to the Consumer Debt Clearance Act, in force as of April 2008, financial institutions engaged in preliminary negotiations with debtors outside the court,<sup>30</sup> but whether such debtors can continue to repay normally in accordance with payment terms needs to be watched closely; (3) for delinquent debtors under modified payment plans and debtors performing repayment normally but almost on the brink of default, banks agreed to renegotiate with them the terms of repayment, which may increase the incentive of moral hazard for debtors; and (4) domestic and global economic growth was expected to slowdown, which may weaken the financial health of the business sector and the repayment ability of the household sector, hence heightening credit risk.

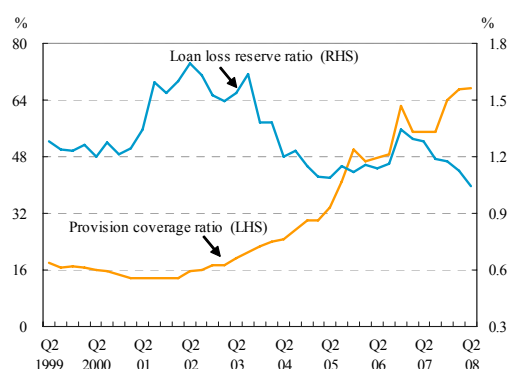
**Chart 4.8 NPL ratio in selected countries**



Note: Figures for Hong Kong, South Korea, and Malaysia are for end-March 2008, while Indonesia is for end-May 2008. The others are for end-June 2008.

Sources: CBC, FDIC, HKMA, FSS, BOT, BI, and BNM.

**Chart 4.9 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.

<sup>29</sup> Based on the reported data submitted by domestic banks, the outstanding amount under modified plans for delinquent loans stood at NT\$274.3 billion. The cumulated repayment rate (monthly number of successful payment / number of signed contracts) dropped from 54.91% at the end of 2007 to 48.08% at the end of June 2008.

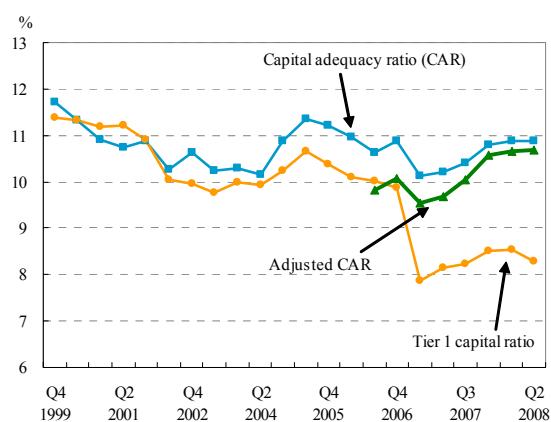
<sup>30</sup> According to the Bankers Association of the Republic of China as of end-August 2008, the financial institutions have held preliminary negotiations with 18,774 debtors holding a total debt of NT\$33.2 billion.

### Capital adequacy ratios increased slightly

The average capital adequacy ratio stood at 10.87% by the end of June 2008, slightly higher than the 10.80%<sup>31</sup> registered at the end of 2007. The average ratio of Tier 1 capital to risk-weighted assets was 8.28%, down by 0.22 percentage points from the end of 2007 due to the sharp capital reduction by one bank and cash dividends paid by banks in the second quarter. Given unamortized deferred assets of NT\$33.5 billion<sup>32</sup> arising from losses recorded on the sale of classified assets were deducted from regulatory capital, the adjusted capital adequacy ratio at the end of June 2008 came to 10.68%, up from the 10.57% of the end of 2007. The average capital adequacy ratio increased slightly (Chart 4.10). Compared to the United States and some Asia-Pacific neighboring countries, the average capital adequacy ratio of domestic banks is slightly higher than in Australia, but lower than in the United States and other Asian neighbors (Chart 4.11).

Further breaking down the component of regulatory capital, Tier 1 capital, which features the best risk bearing capacity, accounted for 76.21% of eligible capital at the end of June 2008, decreasing by 2.48 percentage points from the end of 2007. Tier 2 capital registered at 23.46%, up by 2.47 percentage points from the end of 2007, owing to some banks increasing the issue of

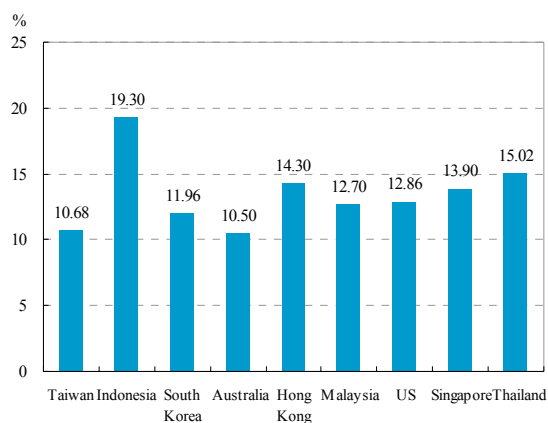
**Chart 4.10 Capital adequacy ratio of domestic banks**



- 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 4.11 Comparison of capital adequacy ratio in selected countries**



- Notes: 1. Figures for Indonesia and South Korea are as of end-2007, while those for Hong Kong and Australia are as of end-March 2008. The others are as of end-June 2008.  
 2. The figure for Taiwan is adjusted for unamortized deferred assets arising from losses recorded on the sale of classified assets.

Sources: BI, FSS, APRA, HKMA, BNM, FDIC, MAS, BOT, and CBC.

<sup>31</sup> The capital adequacy ratio at the end of 2007 had been revised by a Certified Public Accountant.

<sup>32</sup> 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.

long-term subordinated debt, while Tier 3 capital contributed a mere 0.33%.

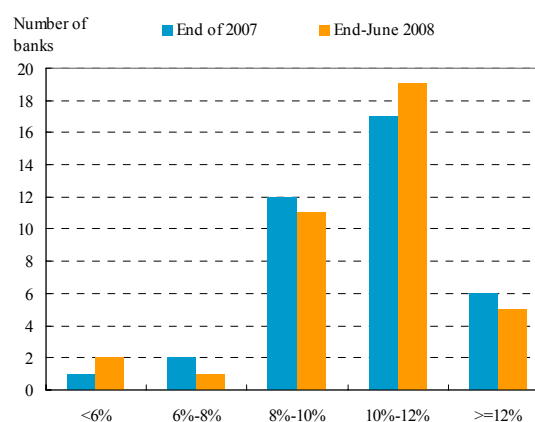
There was only one bank with a capital adequacy ratio under the statutory minimum (8%) at the end of June 2008. As for adjusted capital adequacy ratios, three banks, with combined assets accounting for only 2.21% of all domestic bank assets, had ratios below the statutory minimum, posing limited impact on the banking system. In addition, there were twenty-four banks with ratios above 10%, unchanged from the end of the previous year (Chart 4.12).

### ***Funding remained in good supply, and liquidity tension eased at a few banks***

#### *Funding remained ample*

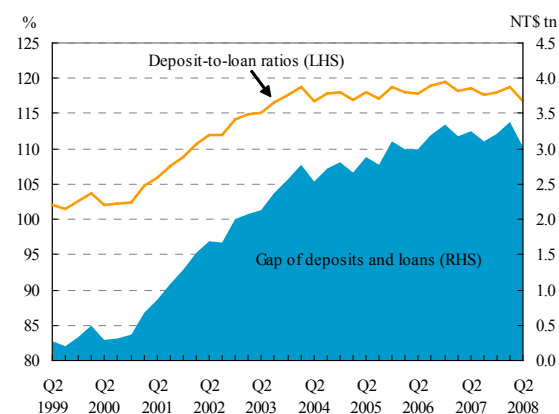
The deposit-to-loan ratios of domestic banks as a whole have been standing above 115% since June 2003 and reached 117.98% at the end of 2007. With the annual growth rate of deposits lower than that of loans in the first half of 2008, the deposit-to-loan ratios slightly dropped to 116.72% at the end of June 2008, while the funding surplus (i.e. deposits exceeding loan demand) stood at NT\$3.04 trillion, reflecting ample liquidity in domestic banks (Chart 4.13).

**Chart 4.12 Distribution of adjusted capital adequacy ratio of domestic banks**



Source: CBC.

**Chart 4.13 Deposit-to-loan ratio 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.  
3. End-of-period figures.

Source: CBC.

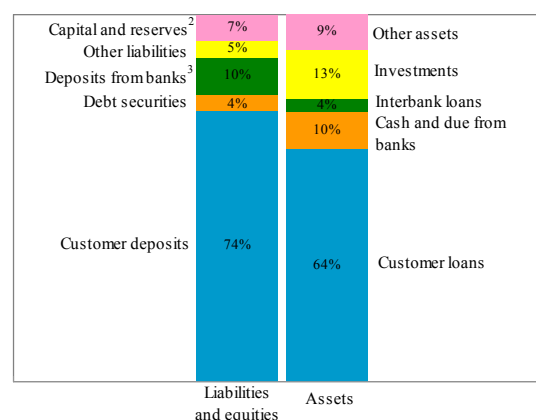
The sources and uses of funds in domestic banks at the end of June 2008 remained broadly unchanged. On the sources side, customer deposits accounted for the largest share at 74%, followed by deposits from banks at 10%, while debt securities in issue contributed a mere 4%. On the uses side, customer loans accounted for the biggest share at 64%, followed by investments in debt securities and equities at 13% (Chart 4.14).

*Average liquid reserve ratio kept high, and liquidity tension eased at some banks*

The average NT dollar liquid reserve ratio of domestic banks escalated to 21.85% in June 2008, well above the statutory minimum of 7% (Chart 4.15), and the reserve ratio of each bank was higher than 12%. Tier 1 liquid reserves,<sup>33</sup> mainly consisting of certificates of deposit issued by the CBC, accounted for 86.63% of total liquid reserves in June 2008, while Tier 2 and Tier 3 reserves accounted for 2.41% and 10.96%, respectively. This reflected the fact that the quality of liquid assets remained satisfactory and overall liquidity risk was low.

In September 2008, Lehman Brothers and other financial institutions in the US were mired in financial difficulties successively, which in turn affected domestic depositors' confidence in Taiwan. A few private banks suffered from drainage of deposits and faced funding difficulty (Chart 4.16). To bolster public confidence, the government announced in October 2008 that it would provide a blanket guarantee on deposits of all insured financial institutions (i.e. banks and community financial institutions) and actively strengthen financial supervision. The

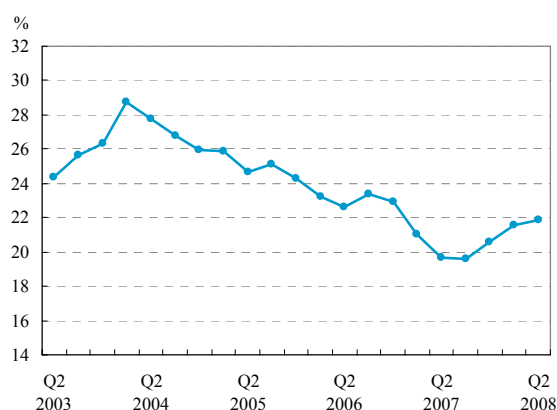
**Chart 4.14 Sources and uses of funds in domestic banks**



Notes: 1. End-June 2008 figures.  
2. Includes provision.  
3. Includes "due to Central Bank" and "borrowing funds."

Source: CBC.

**Chart 4.15 Liquid reserve ratio of domestic banks**



Note: Figures are the average of the last month in each quarter.  
Source: CBC.

<sup>33</sup> 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 banks 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.

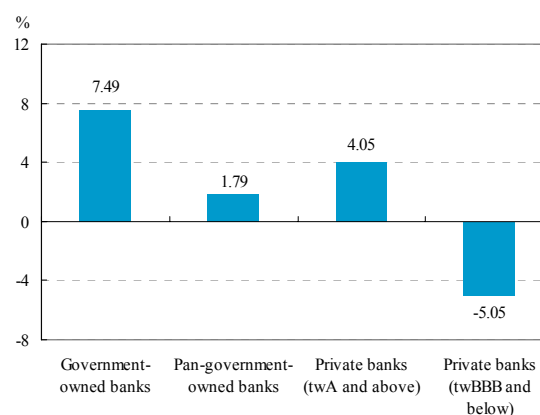
liquidity tension had hence been relieved.

### *Average credit ratings improved*

The rankings of Taiwan's banking system in the Standard & Poor's Banking Industry Country Risk Assessment (BICRA)<sup>34</sup> and the Fitch Ratings Banking System Indicator /Macro-Prudential Indicator (BSI/MPI)<sup>35</sup> remained unchanged in the first half of 2008 at Group 4 and D/1, respectively. In October 2008, Fitch Ratings upgraded Taiwan's ranking on BSI from D to C, reflecting an improvement in both capital and loss reserves of Taiwan's banking sector (Table 4.2). Compared 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 and Thailand, but much lower than in China, Indonesia, and the Philippines.

According to statistics from the rating agencies,<sup>36</sup> two banks received rating downgrades in the first half of 2008 due to weakened capital adequacy and poor profitability, while two other banks were upgraded and one weak bank had its credit rating withdrawn. As a result, the credit rating

**Chart 4.16 Changes in the balances of domestic bank deposits**



Notes: 1. Figures are the percentage of change between balances at end-September 2008 and end-2007.  
2. Government-owned banks include Bank of Taiwan and Land Bank of Taiwan. Pan government-owned banks include Taiwan Cooperative Bank, First Bank, Hua Nan Bank, Mega Bank, and Taiwan Business Bank.

Source: CBC.

**Table 4.2 Systemic risk indicators for banking system**

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

Note: Figures are as of end-October 2008.

Sources: Standard & Poor's and Fitch Ratings.

<sup>34</sup> The classification scheme used by the Banking Industry Country Risk Assessment (BICRA) is a synthetic assessment developed by Standard & Poor's Corporation that is based on the credit standing of financial institutions in the context of the structure and performance of the economy, legal and regulatory infrastructure supporting the financial system, and the competition and operation environment of the banking sector, while factoring out the potential for government support for banks. Assessment results reflect relative country risk and banking sector credit quality, and are indicated with a score of 1 (strongest) to 10 (weakest).

<sup>35</sup> 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 Bank 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-trend level of private sector credit, a bubble in real asset prices, and/or major currency appreciation, measuring the vulnerability of the macro environment on a scale from 1 (low) to 3 (high) in terms of banking system vulnerability.

<sup>36</sup> Include Taiwan Ratings Corporation ratings (tw~) and Fitch ratings (~(tw)).

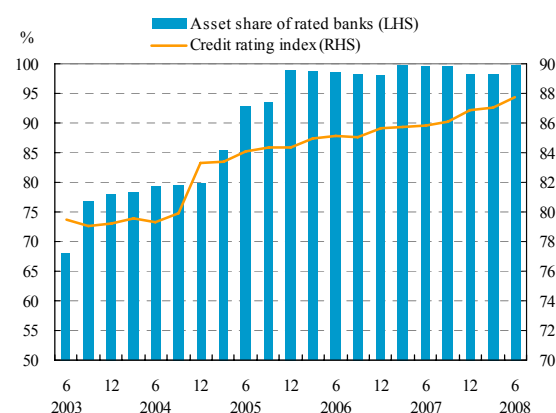
indices<sup>37</sup> for rated banks in Taiwan continued to rise (Chart 4.17), reflecting improvement in the overall credit rating level of domestic banks.

Most rated banks received credit ratings of twAA/twA (Taiwan Ratings Co.) or A(twn) (Fitch Ratings) at the end of June 2008, while there was only one bank with a credit rating of twB+ (Chart 4.18). All banks had a rating outlook or credit watch of either “stable” or “positive,” except for two banks with a negative rating outlook or creditwatch due to poor profitability or under-capitalization and one bank with a “developing” rating outlook. In addition, there was one bank without a long-term issuer credit rating at the end of June 2008.

### ***Credit exposure concentration sustained, and credit risk increased***

Customer loans<sup>38</sup> were the major credit exposures for the local business units of domestic banks, equaling NT\$16.36 trillion, or 57.88% of total assets, at the end of June 2008. The annual growth rate in loans saw a modest decline of 2.73% over the same period (Chart 4.19), attributable mainly to a sharper decelerating growth in individual loans.

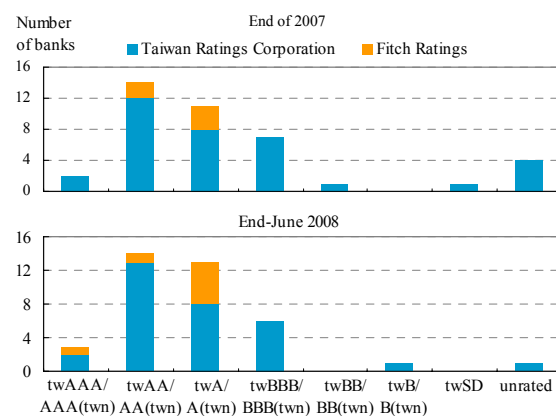
**Chart 4.17 Credit rating indices of rated domestic banks**



Note: End-of-period figures.

Sources: CBC, Taiwan Ratings Corporation, and Fitch Ratings.

**Chart 4.18 Distribution of credit ratings of rated domestic banks**



Note: Credit rating “twSD” refers to selective default.

Sources: CBC, Taiwan Ratings Corporation, and Fitch Ratings.

<sup>37</sup> The credit rating index is an asset-weighted average rating score of rated domestic banks, measuring the overall creditworthiness of those banks on a scale from 1 (weakest) to 100 (strongest). The rating score for banks is determined according to their long-term issuer ratings from Taiwan Ratings Corporation or national long-term ratings from Fitch Ratings.

<sup>38</sup> The term “loan” herein refers to amounts lent by local business units of domestic banks to their customers. It excludes interbank lending.

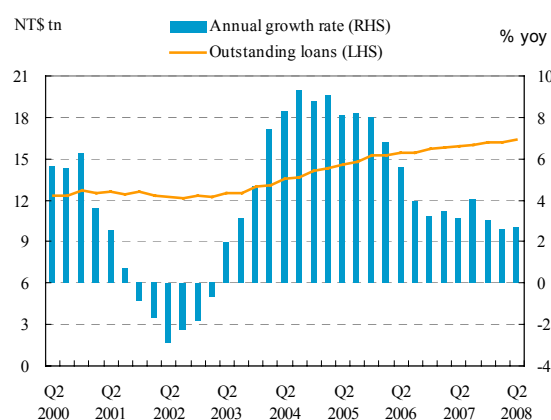
### Risk on real estate-related loans increased

As of the end of June 2008, the outstanding real estate-related loans<sup>39</sup> of domestic banks reached NT\$6.45 trillion and accounted for 35.50% of total loans. In addition, the real estate secured credit extended by domestic banks amounted to NT\$9.1 trillion, or 47.69% of the total, slightly up from the end of the previous year (Chart 4.20). Among individual banks, eleven had ratios of real estate secured credit to total credit of over 60%, reflecting a high concentration of credit exposure in the real estate market. Despite the fact that the NPL ratio of real estate-related loans remains at a lower level, the credit risk of banks may rise in the future because the borrower's debt repayment capacity would be undermined by some adverse developments, such as a downturn in the real estate market, sluggish economic growth, and the continuous wave of expiration for the grace period for high leveraged loans.

### Loans to SMEs made up a considerable share

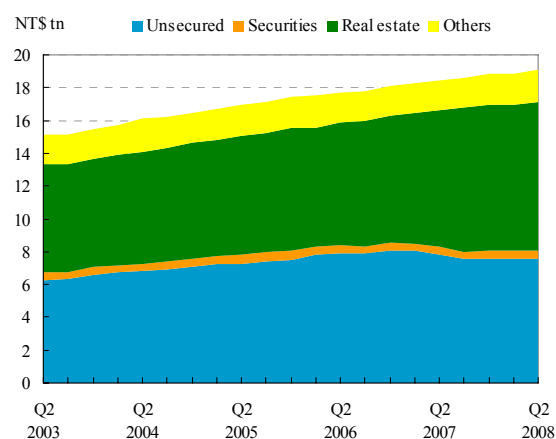
The outstanding corporate lending of domestic banks stood at NT\$7.32 trillion at the end of June 2008, with loans to the manufacturing sector accounting for the largest share (44.62%). Within the manufacturing category,<sup>40</sup> loans to electronics and machinery-related industries accounted for the biggest proportion (NT\$1.5 trillion, or 47.00%<sup>41</sup>), and the percentage was slowly rising (Chart 4.21). In addition, analyzed by type of corporate loan borrowers, domestic banks' loans to small and medium-sized enterprises (SMEs) stood at NT\$3.17 trillion, registering a high 41.99% of

Chart 4.19 Outstanding loans of domestic banks and annual growth rate



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

Chart 4.20 Credits by type of collaterals of domestic banks



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

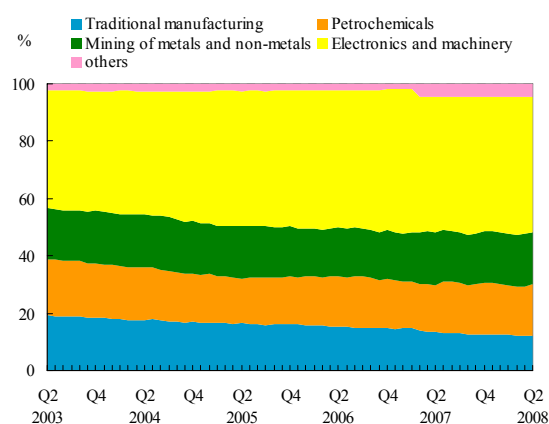
<sup>39</sup> The term "real estate-related loans" includes loans for construction, house purchases, and house refurbishments.

<sup>40</sup> Loans to the manufacturing sector are divided into four categories by industries, including electronics and machinery-related industries, mining of metals and non-metals related-industries, petrochemicals related-industries and traditional manufacturing industries. The remainder is classified as "others."

<sup>41</sup> The production value of electronics and machinery-related industries accounts for 37.45% 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.

total corporate lending at the end of June 2008 (Chart 4.22). Among loans to SMEs, the amount supported by the Small and Medium Enterprise Credit Guarantee Fund of Taiwan (SMEG) reached NT\$517.5 billion, or 16.05% of the total, while the guaranteed amount and guarantee coverage percentage stood at NT\$333.7 billion and 64.48%, respectively. The prevailing global economic slowdown and elevated raw material costs, coupled with the more conservative attitude toward banks' credit policies, may cause a rise in business risk for the corporate sector, particularly posing a far greater challenge to SMEs as they tend to be less transparent in financial disclosure and weaker in loss tolerance. As the business sector is one of the main driving forces of Taiwan's economic growth, and the SMEs in particular serve as a pivotal foundation of Taiwan's economy, the government continues to support enterprises (especially SMEs) in funding through bank loans. However, banks should focus more on strengthening the effectiveness of risk management and ensuring operational performance as well as keeping in line with the government policy.

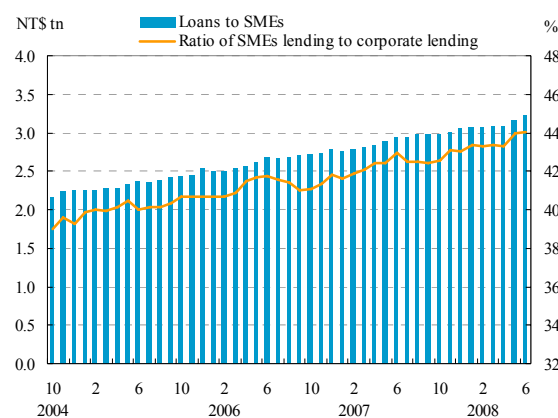
**Chart 4.21 Loans to the manufacturing sectors by domestic banks**



Note: End-of-period figures.

Source: CBC.

**Chart 4.22 Outstanding loans to SMEs in domestic banks**



Source: FSC.

### *Equity risk was on the rise, but interest and foreign exchange risk were on the decline*

Calculated on the basis of market information at the end of September 2008, the estimated value-at-risk (VaR) for market exposures<sup>42</sup> of domestic banks over a ten-day period stood at NT\$130 billion, dropping significantly from the end of March 2008. Among the market risks, interest rate risk once reached to a peak as the volatility of long-term bonds shot up, but then

<sup>42</sup> The VaR (Value at Risk) with each category of risks for the test period as estimated by multivariate historical simulation model for foreign exchange risk, constant correlation generalized autoregressive conditional heteroscedasticity model for interest rates risk, and quantile autoregression model for equity risk are presented in this report, given that a confidence level is 99% using a holding period of ten 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 1 October 2007 - 30 September 2008 for exchange rates, 26 September 2007 - 30 September 2008 for interest rates, and 28 September 2007 - 30 September 2008 for stock prices).



decreased appreciably after the interest rate turned to a stable level at the end of September 2008. Meanwhile, the foreign exchange rate risk also diminished sharply due to a reduction both in position held and volatility of the US dollar against the NT dollar. The equity risk of domestic banks, despite a drop in the net positions of equity securities, eventually rose due to an increasing expansion of stock market fluctuations (Table 4.3).

**Table 4.3 Market risk in domestic banks**

Units: NT\$ bn; %

Types of market risk	Items	End-March 2008	End-Sep. 2008	Changes	
				Amount	%
Foreign Exchange	Net position	90.9	87.6	-3.3	-3.63
	VaR	6.5	3.1	-3.4	-52.31
	VaR/net position	7.15	3.54		-3.61
Interest rate	Net position	2,833.8	3,058.9	225.1	7.94
	VaR	184.6	64.3	-120.3	-65.17
	VaR/net position	6.51	2.10		-4.41
Equity	Net position	559.1	525.4	-33.7	-6.03
	VaR	59.1	62.6	3.5	5.92
	VaR/net position	10.57	11.91		1.34
Total VaR		250.2	130.0	-120.2	-48.04

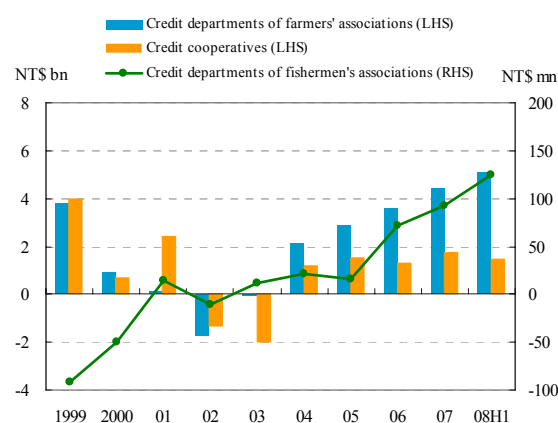
Note: Figures for net position of respective market risks are end-June 2008.  
Source: CBC.

As of the end of September 2008, the effects of VaR for exchange rates, interest rates, and stock prices upon capital adequacy ratios were 0.01, 0.06, and 0.28 percentage points,<sup>43</sup> respectively. Assuming that the above-mentioned risks are mutually independent and occur simultaneously, market risk would cause a change of 0.35 percentage points in the capital adequacy ratio of the domestic banks as a whole, and the current ratio would fall to 10.33% from 10.68%.<sup>44</sup>

#### 4.1.2 Community financial institutions

Profitability in every category of community financial institutions (which include credit cooperatives, credit departments of farmers'

**Chart 4.23 Pre-tax net income of community financial institutions**



Sources: CBC and CDIC.

<sup>43</sup> To avoid double counting, the regulatory capital required for market risks is deducted from the effects of VaR on the capital adequacy ratio.

<sup>44</sup> The term "capital adequacy ratio" used herein is based on the regulatory capital which has deducted unamortized deferred losses on the sale of NPLs.

associations and credit departments of fishermen's associations) continued to grow in the first half of 2008, coupled with an improvement in asset quality and higher capital adequacy ratios in most institutions. However, some individual institutions still showed a need for further improvement.

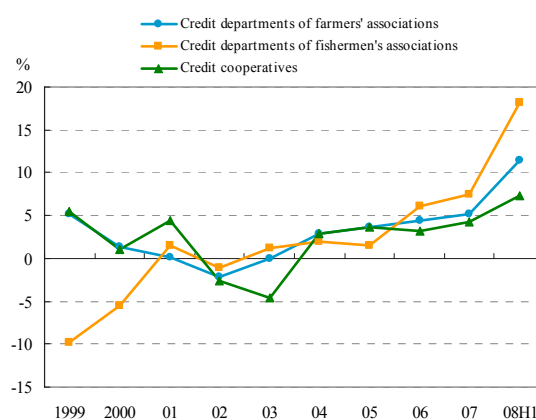
### ***Profitability continued to grow***

All categories of community financial institutions not only posted positive earnings in the first half of 2008, but also surpassed their performance over the same period in 2007. Net income before tax in the first half of 2008 was NT\$1.4 billion at credit cooperatives, NT\$5.1 billion at the credit departments of farmers' associations, and NT\$120 million at the credit departments of fishermen's associations (Chart 4.23). The average ROE also improved significantly. Among those institutions, the highest ROE was registered by the credit departments of fishermen's associations (18.24%), followed by the credit departments of farmers' associations (11.47%) and credit cooperatives (7.28%) (Chart 4.24).

### ***Asset quality remained satisfactory at credit cooperatives and continuously improved in the credit departments of farmers' associations and fishermen's associations***

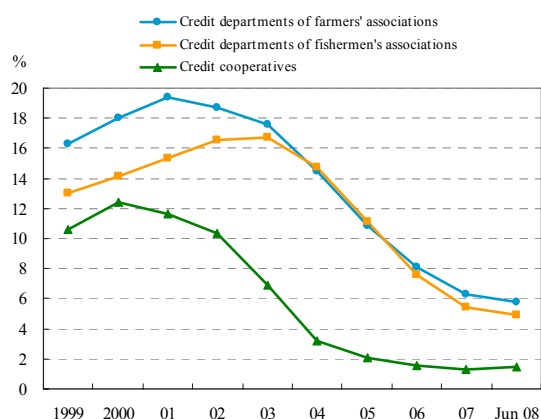
The average NPL ratio at credit cooperatives registered 1.44% at the end of June 2008, slightly higher than the figure at the end of 2007, but asset quality remained satisfactory. The average NPL ratios for the credit departments of farmers' and fishermen's associations were still high at 5.81% and 4.90%, respectively (Chart 4.25). Among the credit departments of farmers' and fishermen's associations, some institutions suffering high NPL ratios need to be further improved.

**Chart 4.24 ROE of community financial institutions**



Sources: CBC and CDIC.

**Chart 4.25 NPL ratio of community financial institutions**



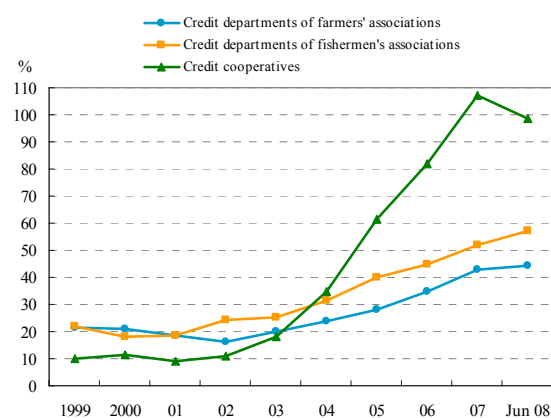
Note: End-of-period figures.  
Sources: CBC and CDIC.

The NPL coverage ratio at credit cooperatives reached 98.52% at the end of June 2008, which was the highest among community financial institutions, reflecting sufficient reserve provisions. The ratios at the credit departments of farmers' and fishermen's associations stood at 44.30% and 56.92%, respectively (Chart 4.26), reflecting an upward trend, but still registered at a lower level compared to all categories of deposit institutions.

### *Capital adequacy ratios slightly increased at credit cooperatives*

At the end of June 2008, the average capital adequacy ratio at credit cooperatives increased to 12.68% contributed by their earnings, slightly higher than the 12.50% registered at the end of 2007. There were no updated data for the credit departments of farmers' associations and fishermen's associations at the end of June 2008<sup>45</sup> as these financial institutions are required to calculate their own capital adequacy ratio on a yearly basis in accordance with applicable regulations (Chart 4.27).

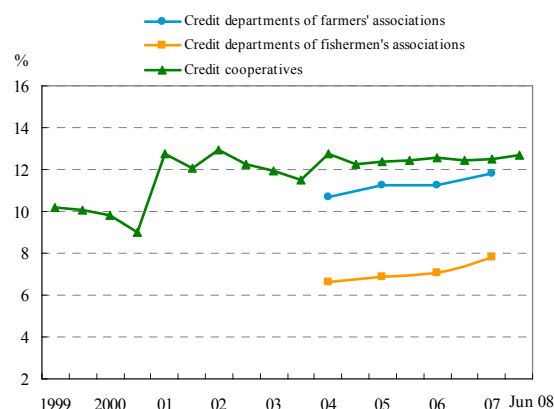
**Chart 4.26 NPL coverage ratio of community financial institutions**



Note: End-of-period figures.

Sources: CBC and CDIC.

**Chart 4.27 Capital adequacy ratio 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.

<sup>45</sup> The average capital adequacy ratios at credit departments of farmers' associations and fishermen's associations were 11.82% and 7.84%, respectively. The ratio at the credit departments of fishermen's associations was below the statutory minimum of 8%. Among individual institutions, some credit departments of farmers' associations and fishermen's associations had insufficient capital, but with their smaller scale, the impact on the average capital adequacy ratio of all deposit-taking institutions was limited.

## 4.2 Non-deposit taking financial institutions

### 4.2.1 Life insurance companies

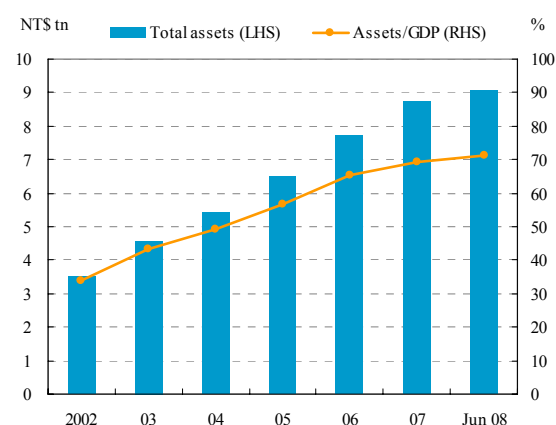
The asset size of Taiwan's life insurance companies increased slowly, while they showed huge losses of NT\$77 billion in the first half of 2008. Although the depreciation of the NT dollar was expected to significantly reduce the losses on foreign exchange positions in 2008 Q3, the deepening global financial crisis and plummeting stock prices may continue to undermine future profitability. The average risk-based capital (RBC) ratio declined sharply, exerting the pressure of capital injection on some companies. Among the top three insurers, the credit ratings for Cathay Life and Shin Kong Life remained stable. In contrast, Nan Shan Life was downgraded to AA (tw) amid the adverse impact stemming from the financial crisis at its parent company, the AIG Group, and once experienced a surge of termination of insurance policies and an increase in policy collateral lending. However, the disturbance was eased following active measures taken by the company and the government, as well as a capital injection of NT\$47.2 billion from the parent company.

#### *Total assets increased slowly*

The total assets of life insurers reached NT\$9.04 trillion, equivalent to 71.38% of annual GDP at the end of June 2008, while the year-on-year growth rate rose at a slower pace, down to 9.09% from 12.70% at the end of 2007 (Chart 4.28). Compared to 2007, the increase was mainly supported by a surge of investments in domestic securities along with the continued growth of insurance products held in segregated custody accounts.<sup>46</sup>

The structure of Taiwan's life insurance market changed slightly. As of the end of June 2008, twenty-three domestic life insurers held a 98.87% market share by assets, while seven foreign life insurers commanded a share of only 1.13%. The top three life insurers held a combined market share of 56.94% and 46.20% in terms of assets and premium income, respectively, reflecting high market concentration.

**Chart 4.28 Total assets of life insurance companies**



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

<sup>46</sup> When a life insurer sells a product held in segregated custody accounts, the amount of insurance coverage offered under the policy is booked both under "insurance product assets held in segregated custody account" and "insurance product liabilities held in segregated custody account."

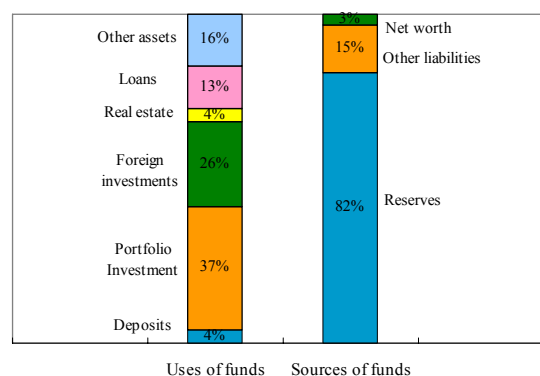
### ***Funds invested in domestic securities increased the most***

Securities investments and loans constituted the two main uses of funds by life insurers at the end of June 2008, with 37% of funds invested in domestic securities, 26% in foreign securities, and only 13% in loans. As to sources of funds, various policy reserves constituted 82%, while net worth accounted for 3% of funds (Chart 4.29). Affected by the deteriorating foreign investment environment and an optimistic perspective on the development of the cross-strait relationship, investment in domestic securities registered a marked increase of NT\$186.8 billion, or 5.89%, from the end of 2007, whereas that in foreign securities only increased slightly by NT\$18.2 billion, or 0.78%. Other assets and liabilities also continued to account for a growing share of insurer balance sheets due to the rapid growth of insurance products held in segregated custody accounts.

### ***Poor operating performance in the first half of 2008***

Life insurers as a whole registered a considerable loss of NT\$77 billion in the first half of 2008 (Chart 4.30), posting a substantial year-on-year decrease of NT\$126.9 billion, or 254.21%, in net income before tax. This was mainly led by sizable foreign exchange losses on the positions of foreign investments due to the appreciation of the NT dollar, as well as the enormous loss recognition of investments in US subprime mortgage-related products. Average ROE and ROA also turned negative, registering -43.53% and -1.73%, respectively (Chart 4.31), indicating that overall operating performance was poor. The foreign exchange losses on the positions of foreign investment were expected to shrink significantly as the NT dollar exchange rate has depreciated gradually since the second half of 2008, reaching the level seen at the end of 2007. Nevertheless, average return on investment was only 3.24% in the first half of 2008, lower than the 3.78% registered in 2007, reflecting the deterioration in

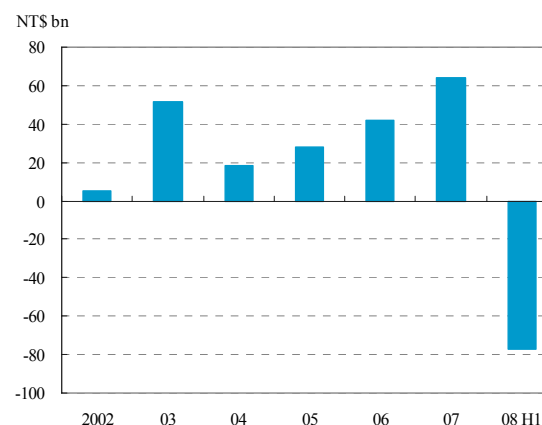
**Chart 4.29 Sources and uses of funds in life insurance companies**



Note: Figures are as of end-June 2008.

Source: FSC.

**Chart 4.30 Pre-tax net income of life insurance companies**



Source: FSC.

the negative interest rate spread. Moreover, the deepening global financial crisis and falling stock prices since September 2008 may continue to erode future profitability.

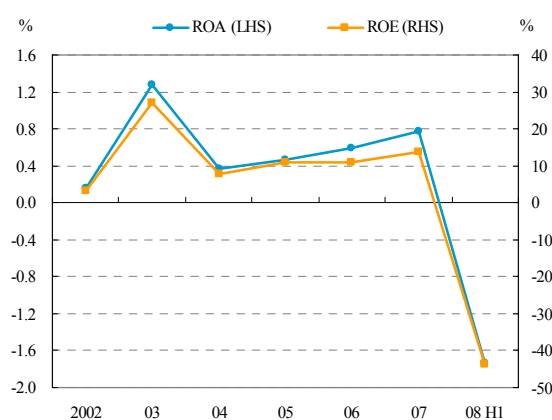
### **Average RBC ratio decreased considerably**

Affected by the huge losses in the first half of 2008, the average RBC ratio<sup>47</sup> for life insurers decreased considerably from 263.29% at the end of 2007 to 162.37% (below the statutory minimum standard of 200%) at the end of June 2008. There were seven companies with a ratio of over 300% and eleven under the statutory minimum (Chart 4.32). The total assets of these latter firms accounted for 33.55% of the total assets of all life insurers, and some of these companies faced the pressure of capital increase.<sup>48</sup>

### **Credit ratings for the top three life insurers remained at twAA or AA (tw) above**

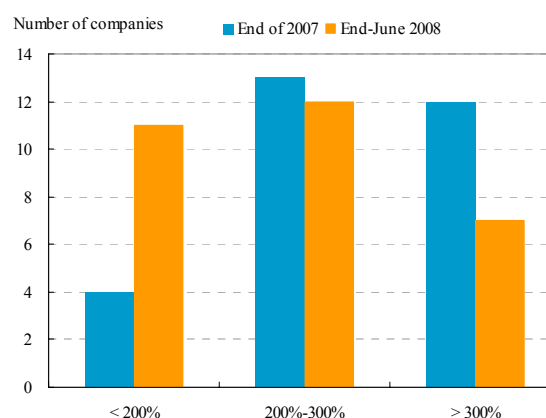
Of Taiwan's twenty-three domestic life insurers, only twelve<sup>49</sup> are rated by credit rating agencies. Among the top three insurers, Cathay Life and Shin Kong Life were rated at twAAA and twAA, respectively, signifying an extremely strong or strong ability to meet their financial commitments, whereas Nan Shan Life was downgraded from AAA(twn) to AA(twn)<sup>50</sup> amid the unfavorable impact stemming from the financial crisis in its parent company, the AIG Group. In the meantime, three insurers were listed on CreditWatch

**Chart 4.31 ROE & ROA of life insurance companies**



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

**Chart 4.32 RBC ratio of life insurance companies**



Source: FSC.

<sup>47</sup> 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%.

<sup>48</sup> In view of the global impact of the financial crisis and to maintain the operating function of RBC and the stability of the domestic insurance market, the FSC amended the capital system of the insurance industry in October and November 2008, respectively. The main content included: (1) additional issuance of bonds with a capital nature can be included in equity capital, and a relaxation of bonds with a capital nature and preferred stock of a liability type may be included in the limit of equity capital; (2) relaxation of the funds invested in bonds with a capital nature or preferred stock of a liability type of the insurance industry that need not be deducted from equity capital before the end of 2009; (3) the special reserve of major events may be included in equity capital; and (4) equity capital can recognize an unrealized gain or loss of 20% for stock and equity-related funds of domestic or foreign investment. The above amendments apply only until the end of 2009.

<sup>49</sup> 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, Antai Life, and First-Aviva Life.

<sup>50</sup> Ratings prefixed with "tw" are from the Taiwan Ratings Corporation, while ratings suffixed with "(twn)" are from Fitch Ratings.

negative.<sup>51</sup> This was mainly led by the fact that Taiwan Life faced the suspension of its scheduled capital increase, while Antai Life and Fubon Life both faced uncertainty in the consolidated capital levels and integrated risks of their respective conglomerates after Antai Life was acquired by Fubon Life. The rating outlook for the other six domestic life insurers was either stable or positive.

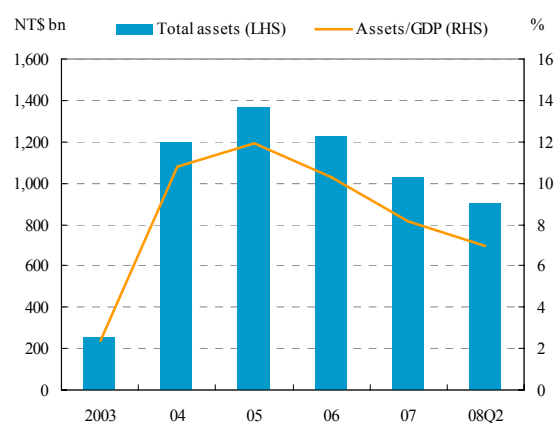
### 4.2.2 Bills finance companies

The total assets of bills finance companies continued to contract in the first half of 2008. At the same time, profitability declined with asset quality remaining satisfactory and average capital adequacy ratios in excess of regulatory minimum requirements. Affected by the global financial crisis, bills finance companies were vulnerable to the risk of deterioration in the quality of credit extensions secured by stocks as Taiwan stock prices declined sharply after September 2008. It also led to some of companies with greater exposure to liquidity risk. Besides, the bills issuance market was likely to shrink, having a negative influence on expanding bills business.

#### Assets continued to contract

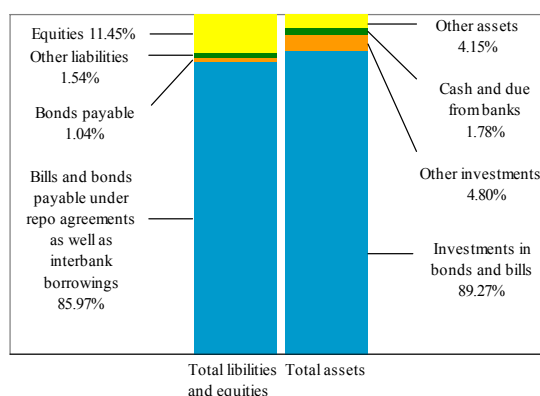
The total assets of bills finance companies continued to decline and stood at NT\$900.6 billion, equal to 7.11% of annual GDP, as of the end of June 2008 and decreased by 12.60% year on year (Chart 4.33), mainly driven by two factors. The first factor was that two bills finance companies (Chinaturst Bills Finance and Hua Nan Bills Finance) were merged respectively by their affiliated banks, and the second factor was that some bills finance companies' assets shrank. The three largest bills finance companies (Mega Bills

**Chart 4.33 Total assets of bills finance companies**



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

**Chart 4.34 Asset/liability structure of bills finance companies**



Note: Figures are end-June 2008.  
Source: FSC.

<sup>51</sup> CreditWatch highlights the potential direction of a short- or long-term rating. The “positive” designation means that a rating may be raised; “negative” means a rating may be lowered; and “developing” means that a rating may be raised, lowered, or affirmed.

Finance, International Bills Finance, and China Bills Finance) commanded market shares by assets of 26.88%, 23.39%, and 18.72%, respectively, for a combined market share of 68.99%. No other firm had a market share as high as 10%.

As for asset / liability structure, investments in bonds and bills accounted for 89.27% of total assets, an increase of 1.44% compared to the end of 2007, indicating a more considerable concentration in the uses of funds, while bills and bonds payable under repo agreements as well as interbank borrowings accounted for 85.97% of liabilities, a slight increase of 0.63 percentage points compared to the end of 2007, indicating that the sources of funds were mostly short-term (Chart 4.34).

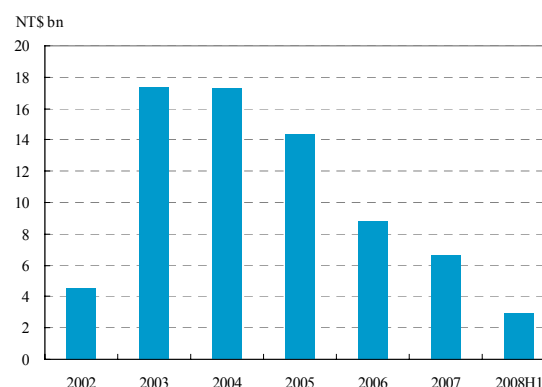
### ***Overall profitability continued to deteriorate***

Bills finance companies posted net income before tax of NT\$2.93 billion in the first half of 2008, a decrease of NT\$0.44 billion, or 12.96%,<sup>52</sup> year on year (Chart 4.35), showing that profitability continued to deteriorate. At the same time, however, ROE and ROA changed little, reaching 5.50% and 0.61%, respectively, due to the obvious reduction in equity and assets (Chart 4.36).

### ***Capital adequacy ratios rose higher than statutory requirements***

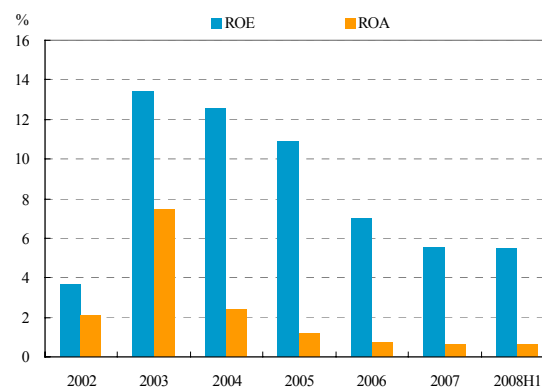
The average capital adequacy ratio of bills finance companies reached 12.88% at the end of June 2008, slightly higher than the figure recorded at the end of the previous year, as all companies had a ratio above 10%, higher than the statutory minimum of 8%. The average

**Chart 4.35 Pre-tax net income of bills finance companies**



Source: CBC.

**Chart 4.36 ROE & ROA of bills finance companies**



Notes: 1. ROA = net income before tax / average assets.  
ROE = net income before tax / average equity.  
2. Ratios for 2008 H1 are annualized.

Source: CBC.

<sup>52</sup> Excluding the factor of two merger cases (Chinatrust Bills Finance Corp.-Chinatrust Commercial bank and Hua Nan Bills Finance Corp.-Hua Nan commercial bank), bills finance companies posted net income before tax as of the first half of 2008, a further decrease of 17.61% compared with the same period last year.



Tier 1 capital ratio was 14.50%, slightly lower than the figure recorded at the end of the previous year. The average ratio of debt to equity slid to 7.74 times as of the end of June 2008, down from 8.33 times at the end of 2007 (Chart 4.37) as a result of a marked reduction in debt, reflecting improved leverage.

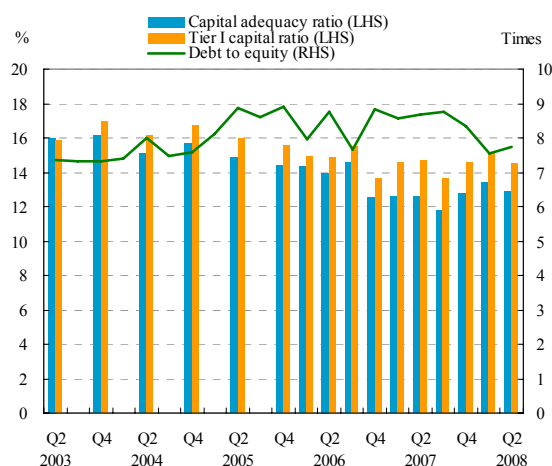
### *The risk of stock-secured credit increased*

The guaranteed advances ratio and non-performing credit ratio<sup>53</sup> for the guarantee business were down to 1.45% and 1.23%, respectively, at the end of June 2008, lower than the figure recorded at the end of the previous year. Overall, the quality of credit assets at bills finance companies remained satisfactory (Chart 4.38). However, the outstanding amount of stock-secured credit was NT\$74.7 billion at the end of 2007, accounting for 19.67% of total credit. With the high level of stock-secured credit and the recent sharp falls in the stock market, bills finance companies might not fully preserve their rights owing to the deep decline in the value of pledges of stocks. The risk of related credit extension could increase.

### *Liquidity risk of some companies increased*

Investments in bonds and bills constituted nearly 90% of the assets of bills finance companies as of the end of June 2008. Bonds, in particular, accounted for about 50% (Chart 4.39). An apparent mismatch in asset-liability maturity persisted, with short-term interbank loans and repos making up over 86% of funding sources. As a result of the global financial crisis,

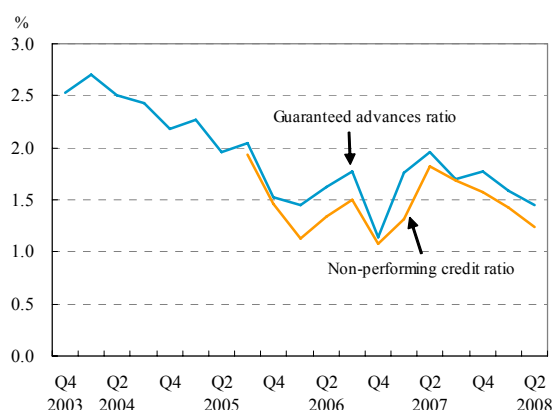
**Chart 4.37 Capital adequacy ratio of bills finance companies**



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

Source: CBC.

**Chart 4.38 Guaranteed advances ratio of bills finance companies**



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

Source: CBC.

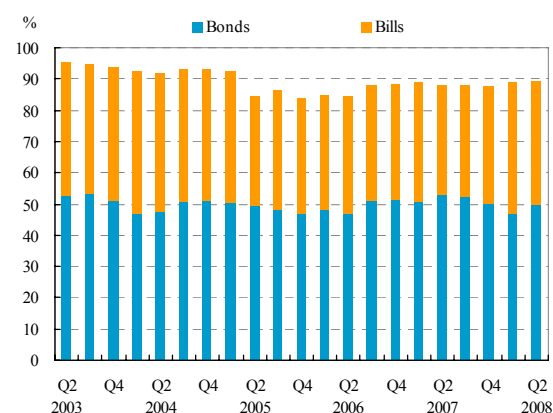
<sup>53</sup> Non-performing credit for guaranteed advances refers to those guaranteed advances that are more than three months overdue.

financial institutions in Taiwan became cautious and conservative in lending to bills finance companies after September 2008. Bills finance companies were exposed to higher liquidity risk as funding from the interbank call-loan market was dramatically reduced.

***The shrinking of supply in bills finance market may have a negative effect on future business***

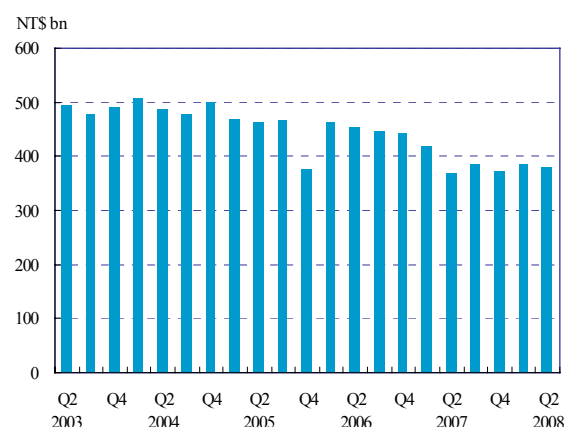
The outstanding balance of commercial paper guaranteed by bills finance companies gradually declined and remained at a low level. This figure was NT\$379.5 billion at the end of June 2008, up 1.71% from the end of the previous year (Chart 4.40). With slightly weakened confidence in Taiwan's financial market resulting from the global financial crisis, a number of bills finance companies found it somewhat difficult to obtain financing from the interbank call-loan market. In response to a condition of such tight liquidity, they appeared to reduce the credit lines of their customers or to reluctantly issue new bills as commercial paper guarantees came due. If this situation persists, the supply in bills finance market would be reduced, thereby affecting the future business of bills finance companies.

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



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

**Chart 4.40 Outstanding of CP guarantees**



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

## 5. Financial infrastructure

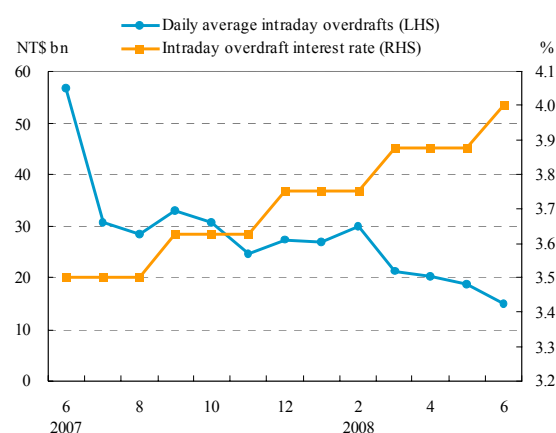
### 5.1 Measures to increase efficiency of payment and settlement systems

#### *CBC Interbank Funds-Transfer System*

To ensure the sound operation of the CBC Interbank Funds-Transfer System (CIFS), the CBC adopted the Real-Time Gross Settlement (RTGS) mechanism in September 2002. Meanwhile, the CBC also provides intraday overdraft facilities to prevent financial institutions from temporary intraday liquidity shortage and thus to resolve gridlock<sup>54</sup> in the RTGS system.

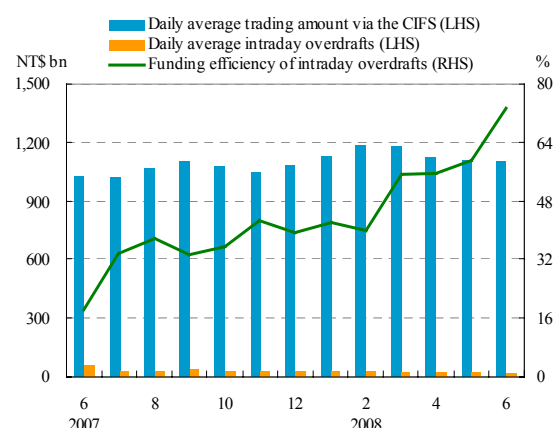
To avoid excessive use of intraday overdraft facilities and, in turn, prompt financial institutions to control intraday overdraft facilities and proactively manage daily funding, the CBC charges interests on intraday overdrafts.<sup>55</sup> The intraday overdraft usage of financial institutions gradually decreased with the rising interest rate, reflecting that the interest-charging policy has functioned as intended. The daily average overdrafts decreased from NT\$56.7 billion in June 2007 to NT\$15 billion in June 2008 (Chart 5.1). However, the decrease in intraday overdraft has not influenced the processing of transactions by the CIFS. The daily average trading amount via the CIFS increased from NT\$1.03 trillion in June 2007 to around NT\$1.1 trillion in June 2008. The ratio of daily average trading amount via the CIFS to daily average intraday overdraft amount indicates that the funding efficiency arising from intraday overdrafts has significantly increased (Chart 5.2).

**Chart 5.1 Intraday overdraft amount and interest rate in the CIFS**



Source: CBC.

**Chart 5.2 Transactions and intraday overdraft via the CIFS**



Source: CBC.

<sup>54</sup> The RTGS processes payments in real time. When a financial institution fails to send funds in time (but funds will be sent before the book is closed) for its payable transaction, the transaction will be rejected or queued and, in turn, affect the receiving bank. If the delayed payment brings about insufficient funds in the receiving bank's account, the payable transaction of the receiving bank will also be put off. The chain reaction, resulting from deadlocks on funds between the sender and the receiver, is called "gridlock."

<sup>55</sup> The intraday overdraft interest is assessed at the CBC's rate on accommodations with collateral, on the amount of overdraft per minute.

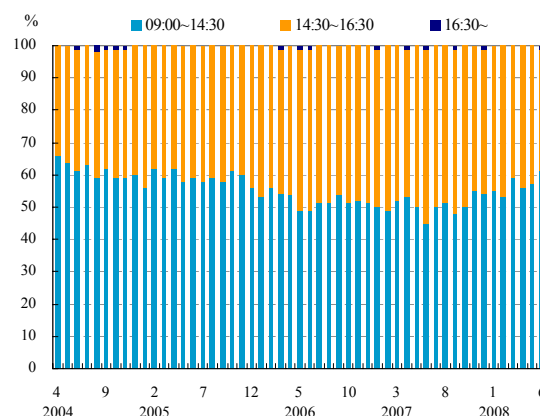
### ***Bills Central Depository and Clearing System***

Aiming at the immobilization of physical bills, Taiwan launched the Bills Central Depository and Clearing System (BCDC) in April 2004, replacing physical delivery of bills by way of book-entry. Also, in order to effectively eliminate settlement risk, a delivery versus payment (DVP) mechanism was implemented by linking up the BCDC and the CIFS.

Before implementation of the BCDC, most transactions in the secondary bills market were settled after 3:30 p.m. since market participants formerly procured funding after noon. After the adoption of the BCDC, thanks to the linkage of the BCDC and the CIFS that allows transactions to be settled on a DVP basis, the share of settlements completed before 2:30 p.m. has reached 56% (Chart 5.3), and thus the efficiency of bills settlements has effectively improved.

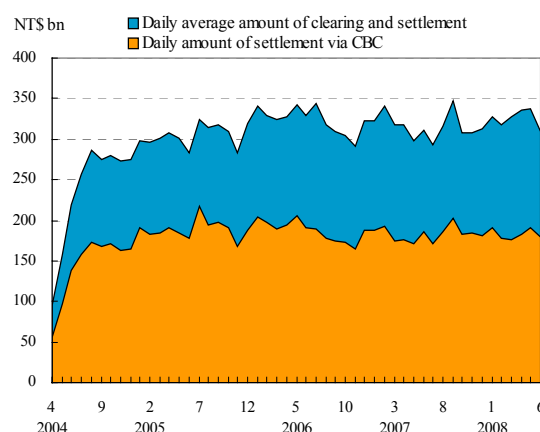
The BCDC also contains the bundling module,<sup>56</sup> aiming to ease funding pressure on bills finance companies. The daily clearing and settlement of bills via the BCDC averaged around NT\$320.1 billion in 2007, among which NT\$183.8 billion was settled by the CBC. Since daily funds settled by the CBC only accounted for 57% of the total trading amount (Chart 5.4), the BCDC did have the benefit of conserving liquidity.

**Chart 5.3 Distribution of bills settlements completion time**



Source: Taiwan Depository & Clearing Corporation.

**Chart 5.4 Transactions via the BCDC**



Source: Taiwan Depository & Clearing Corporation.

<sup>56</sup> The bundling module allows bilateral net settlement positions settled between every bilateral combination (i.e. bills finance company vs. investor, bills finance company vs. clearing bank, and bills finance company vs. bills finance company).

## **5.2 A series of policy tools for financial stabilization and economic vitalization launched**

The subprime debacle in the US triggered global financial crisis and the risk of economic slowdown, which spilled over into Taiwan's domestic financial system and, in turn, macroeconomic activity. In order to stabilize the local financial system and boost the economy, the government actively implemented the Economic Vitalization Package (detailed in Box 2), which is comprised of numerous measures to secure financial stability and invigorate the economy. Among these measures, the policy tools related to financial stabilization have exerted positive effects that led the financial system to gradually recover from instability, whereas it takes time for the desired outcomes promoted through the tools targeting economic stimulation to emerge. The major measures for stabilizing the financial system are listed as follows:

### **5.2.1 Implementation of eased monetary policy**

#### ***Lowering policy rates and deposit reserve ratios***

For the sake of lifting domestic demand and ensuring sufficient market liquidity, the CBC loosened its monetary policy stance and successively lowered its policy rates (i.e. discount rate, accommodation rate with collateral, and accommodation rate without collateral) four times from September to November 2008, with a range totaling 0.875 percentage points. In the same period of time, the reserve ratios for banks' demand deposits and time deposits were also reduced by 1.25 percentage points and 0.75 percentage points respectively, releasing a fund of approximately NT\$200 billion into the banking system. Domestic banks are also allowed to pledge certificates of deposit (CDs) issued by the CBC or re-deposits with the CBC as collaterals to get accommodations from the CBC whenever they are in need of funding, or to early terminate the deposits/re-deposits.

#### ***Carrying out expansion of repo facility operations***

Referring to foreign central banks' responses to market liquidity issues, the CBC passed a resolution to expand repo facility operations at the Board of Directors' Meeting on 25 September 2008 with a view to sufficiently providing financial institutions with the funds they require. Major contents of the mechanism include:

- Participating counterparties in repo facility operations are broadened to include all

securities firms and insurance companies.

- The term of facility is extended to within 180 days from 30 days.
- CBC-issued CDs are recognized as an eligible operational instrument.
- Financial institutions can submit the application for repo facility operations based on their funding demand in addition to participating in the operations pursuant to the CBC's announcement.

### **5.2.2 Adoption of interim blanket deposit guarantee**

With an aim to stabilize the local financial system, anchor depositors' confidence, and enhance the soundness of financial institutions, the government announced a measure to provide a blanket guarantee of deposits on 7 October 2008, which is effective from 1 November 2008 until the end of 2009. Under this measure, deposits with financial institutions participating in the deposit insurance scheme (such as banks and community financial institutions) are fully covered. The scope of coverage has been broadened to involve foreign-currency deposits, interbank deposits, as well as interbank call loans, which were not insured previously. The Financial Supervisory Commission (FSC), along with the Ministry of Finance (MOF) and the CBC, jointly issued the Measures to Support Blanket Guarantee of All Bank Deposits, which set forth, among others, relevant legal foundation, applicable counterparties, insurance coverage, and special premium charge. In step with the package approach, the FSC will strengthen the supervision of the financial conditions and business operations of financial institutions. The institutions shall be punished seriously if their operations violate relevant laws and regulations during the implementation. Those which do not comply with supervisory authorities' improving requirements within a specific period of time will be duly disposed of in accordance with the Banking Act and relevant laws.

### **5.2.3 Initiation of the approaches to stabilizing stock markets**

The local stock market dropped under the influence of the global stock calamity. To help reverse the market's slump, the government launched multiple approaches, which mainly consist of:

- Halving the securities transaction tax;
- Temporarily resuming the ban on short-selling 150 listed shares below the previous

day's closing price, suspending from short-selling for borrowed and margin stocks, and narrowing the sagging range of share prices;<sup>57</sup>

- Encouraging TWSE- or OTC-listed companies to buy back their shares as treasury stocks, and their directors to purchase their company's shares; and
- Urging state-owned financial institutions and the four government-managed funds (i.e. the Civil Service Pension Fund, the Labor Pension Fund, the Labor Insurance Fund, and the Postal Savings Fund) to purchase under-valued low-priced stocks of well performing companies.

#### **5.2.4 Aiding enterprises and individuals to get loans from banks**

With a view to facilitating enterprises and individuals to obtain loans, various measures have been undertaken as follows:

- The Ministry of the Interior carried out the Allocating an Additional NT\$200 Billion for Preferential Home-Purchase Loans Program and raised individual borrowers' credit line and increased the subsidy of interest payments.
- The MOF, CBC, FSC, the Ministry of Economic Affairs (MOEA), and the Council for Economic Planning and Development (CEPD) jointly organized a Task Force on Facilitating Enterprises to Obtain Operational Funds, which helps solve financing problems for SMEs and large enterprises.
- Borrowers who are granted preferential housing loans promoted by the Executive Yuan (Cabinet) can apply for the extension of the terms of their loans or for the deferred payment on their principals. The Bankers' Association also published a guideline for banks coping with the postponed repayment of housing loans by involuntarily unemployed workers.
- The SMEG adopted numerous approaches that include but are not limited to increasing the percentage and line of guarantees in order to share banks' credit risk. The government will additionally appropriate at least NT\$6 billion to replenish the credit guarantee fund in 2009.

---

<sup>57</sup> Please refer to Box 2 with regard to the period of implementing the approaches related to the stock market.

## Box 2

### Economic Vitalization Package in Taiwan

Impacted by the global financial crisis, the growth of the local economy slowed perceptibly. In order to revive the domestic economy and solidify the foundation of long-term economic development, the government launched the Economic Vitalization Package in September 2008. This package is drawn up from three basic policy directions on “stimulating consumption,” “vitalizing investment and accelerating construction,” and “stabilizing financial markets and promoting exports.” The government is pushing forward ten concrete policy measures which comprise: (1) looking after the disadvantaged; (2) encouraging consumption; (3) promoting employment; (4) offering preferential housing loans; (5) strengthening public construction; (6) promoting private investment; (7) stabilizing financial and stock markets; (8) enhancing financing to SMEs; (9) expanding exports; and (10) pursuing tax reform. It is forecasted that the package can spur domestic investment and consumption totaling at least NT\$1 trillion. Moreover, focusing on the policy of “stimulating consumption,” in November 2008, the government further put forth a new measure to distribute consumer vouchers to reverse the flagging economy and increase domestic demand. These measures have been implemented successively, key items of which are summarized as follows:

#### *1. Stimulating consumption*

##### **1.1 Looking after the disadvantaged**

- Implementing subsidy measures to continue caring for the disadvantaged.

##### **1.2 Encouraging consumption**

- Subsidizing the purchase of energy-saving lights and home appliances;
- Relaxing restrictions on the use of National Travel Cards;
- Promoting the use of energy-saving LED lights;
- Subsidizing the purchase of electric-powered and low-polluting vehicles, and the replacement of old vehicles, by members of the general public; and
- Expecting to distribute consumer vouchers in January 2009.

##### **1.3 Promoting employment**

- Relaxing the Regulations for Subsidizing and Awarding Employers for Hiring



Unemployed Workers;

- Helping young people obtain employment;
- Conducting temporary special projects for raising living quality or promoting social welfare;
- Encouraging enterprises to invest in staff training; and
- Providing temporary work opportunities to increase employment.

## ***2. Vitalizing investment and accelerating construction***

### **2.1 Providing preferential housing loans**

- Allocating an additional NT\$200 billion for the provision of preferential home-purchase loans;
- Helping young families buy or change houses because of having a child or children with housing loans of zero interest rate for the first two years;
- Continuing the provision of interest subsidies for home-purchase and home-refurbishment loans; and
- Providing rent subsidies for those without the means to purchase a home.

### **2.2 Strengthening public construction**

- Actively encouraging private participation in public construction and urban renewal;
- Acting with the utmost urgency to promote foreign and mainland Chinese investment in public construction projects in Taiwan;
- Specially executing and accelerating the implementation of an NT\$240 billion budget for large-scale public construction projects; and
- Speeding up the execution of the Program for Strengthening Local Construction to Expand Domestic Demand.

### **2.3 Promoting private investment**

- Implementing a five-year tax-exemption for new or increased investment before year-end 2009;
- Promoting a program for the preferential sale of land in industrial parks;

- Raising tax deduction rates for enterprises purchasing and installing energy-saving equipment or investing in new and clean energy technology;
- Increasing the funding, raising the upper limits, and extending the duration of preferential loans to encourage the upgrading of the tourism industry;
- Actively guiding the implementation of major private investment projects amounting to NT\$4 trillion within four years;
- Encouraging insurance companies to participate in the national major construction projects;
- Rationally releasing government-owned land in order to reduce investors' land use costs; implementing the four years rent-free and six years at half-rent scheme for leasing out government-owned land;
- Expanding efforts to attract international investors, and planning the 2008 Taiwan Business Alliance Conference; and
- Pushing for the amendment to the Statute Governing the Establishment and Management of Free Trade Zones, setting up a single window, and strengthening inducements for foreign investors.

### ***3. Stabilizing financial markets and promoting exports***

#### **3.1 Stabilizing financial and stock markets**

- Halving the securities transaction tax for half a year with the draft amendment to the Securities Transaction Tax Act to be forwarded to the Legislative Yuan for deliberation;
- Coordinating the funding support needed by banks to continue conducting corporate financing operations and avoid tightening the supply of credit to companies that are operating normally but facing temporary difficulty;
- Organizing a Task Force on Facilitating Enterprises to Obtain Operational Funds to help those that are assessed to be viable to apply for participation in the disciplinary debt negotiation mechanism coordinated by the Bankers' Association;
- Giving the green light to Qualified Domestic Institutional Investors (QDIIs) from mainland China wishing to invest in Taiwanese securities and futures; and
- Continuing to implement the following measures for revitalizing the stock market:

- Prohibiting short-selling below the closing price on the previous trading day (from 22 September to 3 October 2008) of 150 listed shares, suspending short-selling for borrowed and margin stocks (from 1 October to 31 December 2008), and narrowing the range of price fall to 3.5% (from 13 October to 24 October 2008), in order to mitigate stock market fluctuations;
  - Organizing numerous fora for policy interpretation to propagate the fact that Taiwan's economic fundamentals remain sound;
  - Encouraging investment trust companies to raise domestic stock funds for investment in the stock market, company directors to purchase their companies' stocks, and well performing companies to buy back their stocks as treasury stocks;
  - Encouraging banks, securities firms, and insurance companies to make good use of their funds by investing in good quality stocks that have fallen excessively in price;
  - Revising the threshold at which financial holding companies may buy back their shares to hold as treasury stocks from a minimum capital adequacy ratio of 110% to 105%; and
  - Encouraging state-owned institutions to conduct their own evaluation and purchase of low-priced stocks of well performing companies, and urging the four government-managed funds to continuously exert the function of stabilizing the stock market, in order to reinforce investor confidence.
- Enforcing a blanket deposit guarantee measure until the end of 2009;
  - Implementing various monetary easing measures to sufficiently inject liquidity to the market; and
  - Providing funding support to commercial banks whose home-purchase lending is facing a shortage of funds or bordering on the upper limit prescribed by Article 72-2 of the Banking Act through simplifying the procedure for issuance of financial debentures, expediting the approval of applications for securitized housing loan products (mortgage bonds), and coordinating with Chunghwa Post Co. to provide postal savings deposits to supplement banks' deposit base for the provision of home-purchase loans.

### 3.2 Enhancing financing to SMEs

- Implementing the Program for Strengthening Domestic Bank Financing of SMEs, and increasing the loan percentage and amount of the guarantees provided by the SMEG; and
- Carrying out the Micro-enterprise Startup Loan Program and the “Phoenix” Program of Small Business Startup Loans for Women, along with the provision of comprehensive business startup consultation and guidance, to help women and middle-aged and older people set up micro-businesses.

### 3.3 Expanding exports

- Executing continuously the plan for expanding overseas export markets, setting targets for growth of at least 10% in the second half of 2008 and 14% in 2008; and
- Diversifying export markets and especially pursuing expansion in emerging markets, and planning to accomplish the Global Market Expansion Plan.

### 3.4 Pursuing tax reform

- Implementing the income tax credit for middle- and low-income families, and raising the exemption of individual income tax and other deductions; and
- Lowering the estate tax and gift tax rate to 10% and the income tax for general profit-seeking enterprises.

### 5.3 Taiwan’s amendment to fair value accounting standards based on recent international trends

Fair value accounting standards (Box 3) reflect current market conditions, enhance comparability of values of financial instruments purchased at anytime, and provide transparent and important information to financial statement users. However, recent market illiquidity due to the subprime mortgage crisis forced financial instruments to be measured by models instead of market prices, in turn increasing the uncertainty of fair value measurements. This not only raised concerns about vague classifications of the fair value hierarchy<sup>58</sup> of financial instruments stipulated by the US accounting standards, but also caused the stock prices of many corporations to slump when they disclosed large amounts of unexpected

<sup>58</sup> Refer to “The Definition of Fair Value” in Box 3.

losses according to fair value accounting standards. As a result, market fluctuations intensified and global investors started to panic. This is the reason that the reliability of fair value accounting and its impacts on financial statements were criticized. As required by the US\$700 billion Bailout Act passed by the US Congress in October 2008, the Securities and Exchange Commission should submit study reports on fair value accounting standards<sup>59</sup> at the beginning of 2009, in line with the Emergency Economic Stabilization Act. The International Accounting Standard Board was also concerned with the drastic changes in the international financial conditions recently and amended International Accounting Standards No. 39 (IAS 39) and International Financial Report Standard No.7 (IFRS 7) on 13 October 2009, which relaxed fair value accounting reclassification limitations.<sup>60</sup>

Since Taiwan's Statement of Financial Accounting Standards No. 34, Financial Instruments: Recognition and Measurement (Taiwan's SFAS 34), was adopted with reference to IAS 39, and local corporations were damaged by the unfavorable international economic situation, the Accounting Research and Development Foundation in Taiwan, referring to the newest amendments to IAS 39 and IFRS 7, published the second amendment to Taiwan's SFAS 34 in October 2008. The second amendment states that, in limited circumstances, trading purpose non-derivative financial assets may be reclassified into other categories, and available-for-sale financial assets may be reclassified into the loans and receivables category. It also allowed retrospective application of the amendment starting from 1 July 2008. Besides, the amendment required corporations to disclose the following information in the current and subsequent periods when reclassification was made: (1) the book values and fair values of all reclassified assets; (2) the changes in fair value recognized in profits or losses, or stockholders' equity adjustments in each period if the financial asset was not reclassified; and (3) the incomes and expenses recognized as profits and losses after reclassifications.

---

<sup>59</sup> Key issues addressed by the report include: (1) the effects of fair value accounting standards on a financial institution's balance sheet; (2) the impacts of such accounting practice on bank failures in 2008; (3) the impacts of such accounting standards on the quality of financial information available to investors; (4) the process of developing accounting standards used by the FASB; (5) the advisability and feasibility of modifications to fair value accounting standards; and (6) alternatives to those provided in SFAS 157.

<sup>60</sup> Originally, according to IAS 39, reclassifications of financial assets or liabilities classified as the fair value through profit or loss category upon initial recognition were not permitted in subsequent periods. The International Accounting Standard Board approved amendments to the standards of reclassifications on 15 October 2008. The changes included: (1) financial derivatives can not be reclassified into other categories; (2) if upon initial recognition, financial instruments have been designated as the fair value through profit or loss category, they can not be reclassified into other categories; (3) if a financial asset, which is not within the previously mentioned scope, is no longer held for the purpose of selling in the near term, and is subject to meeting specified criteria, it is permitted to be reclassified into other categories.

**Box 3****Introduction to fair value accounting standards*****1. The definition of fair value***

According to International Accounting Standards No. 32 (IAS 32) and Taiwan's Statement of Financial Accounting Standards No. 36 (Taiwan's SFAS 36), "Financial Instruments: Disclosure and Presentation," fair value represents the amount for which an asset could be exchanged and a liability could be settled in an arm's-length, orderly transaction between knowledgeable and willing parties. IAS 39 and Taiwan's SFAS 34 "Financial Instruments: Recognition and Measurement" have further mandated that quoted market prices in an active market are strong evidence of fair values. If the markets for financial instruments are not active, however, valuation methodologies may be employed. The acceptable methodologies include the prices generated by recent market transactions (or referring to the current fair value of another instrument that is substantially the same), discounted cash flow analysis, and option pricing models.

Moreover, in order to improve the consistency and comparability of fair value measurements and disclosures, the US released SFAS 157 in 2006, which clearly specified that fair value is, at measurement date, the price to be received or paid in an orderly transaction between market participants when selling the asset or transferring the liability. Based on the prioritization of inputs used to measure fair value, the statement established a hierarchy of fair value methodologies, which comprised three levels:

- Level 1: financial instruments with observable, quoted prices in active markets should be measured at the quoted prices. This level carries the best quality of fair value information.
- Level 2: those financial instruments with observable inputs for identical or similar assets or liabilities in markets (e.g. infrequently traded corporate bonds or government bonds that have no quoted prices or trade infrequently, but can be referred to market values of similar securities) should measure their fair values by introducing the observable inputs into the models.
- Level 3: for financial instruments with unobservable inputs for the assets or liabilities (e.g. asset-backed securities), fair values can be measured based on the assumptions, made by the reporting entity, with the best information available (which may include the reporting entity's own data) and are estimated by mathematical valuation models.

## 2. Pros and cons of fair value accounting

<i>pros</i>	<i>cons</i>
<p data-bbox="233 490 635 524"><b><i>Fair value is more predictable</i></b></p> <p data-bbox="233 589 751 1003">A fair value of financial instruments represents market expectations and assessments as to the amount, time, and uncertainties of such instruments' future cash flows. It takes elements that affect market values, such as interest rates, exchange rates, credit, and demand and supply into consideration. Hence it is more predictable.</p> <p data-bbox="233 1068 687 1193"><b><i>Increasing comparability among financial instruments with similar economic characteristics</i></b></p> <p data-bbox="233 1258 751 1576">Fair value information normally reflects judgments on the current value of expected future cash flows for related financial instruments in the financial market, which allows comparability among financial instruments with similar economic characteristics.</p> <p data-bbox="233 1641 735 1769"><b><i>Consistency with approaches of financial risk management and beneficial to performance evaluations</i></b></p> <p data-bbox="233 1834 719 1910">Fair values reflect the latest values of financial instruments. This accounting</p>	<p data-bbox="817 490 1351 573"><b><i>Reliability of fair value measurements is relatively low</i></b></p> <p data-bbox="817 638 1358 1099">Financial instruments without market prices, due to an inactive market or exhausted liquidity, should be valued by models. However, the high uncertainty on the parameters, hypothesis and estimation deviations introduced by valuation models, and the lack of definite measurement indicators for evaluation calibrations have raised concerns about the reliability of fair value measurements.</p> <p data-bbox="817 1164 1273 1247"><b><i>Lack of comparability of financial statements among peers</i></b></p> <p data-bbox="817 1312 1358 1774">The classifications of financial instruments in fair value accounting standards are based on corporate intentions and capabilities. As a result, various corporations who hold similar financial instruments will have inconsistent bases for subsequent measurements owing to the classification differences. This could undermine the comparability of financial statements among peers.</p>

approach helps to set and control stop-loss limits for financial risk managements, and evaluate the corporate internal performance. It is also beneficial for external financial statement users to objectively evaluate the performance of corporations.

***Financial reports are presented more fairly***

Financial derivatives are generally off balance sheet transactions. As fair value accounting standards require corporations to recognize effects of changes in fair value in order to reflect off balance sheet risks on time, the financial reports can be presented more fairly.

***Increasing the volatility in the financial statements and enhancing effects of procyclicality***

The volatility in the financial statements with fair value measurements will be increased when unrealized profits or losses are instantly recognized on income statements or balance sheets. Also, if corporations distribute surplus to shareholders based on the unrealized gains from assets revaluations or from liability reductions, their financial structures will be impaired. Moreover, fair value accounting is mainly applicable to the measurement of financial assets, while most financial liabilities are recognized at amortized costs. The inconsistent accounting approaches between financial assets and liabilities will lead to a procyclical effect. For example, during economic recessions, fair value measurements will enable a drastic reduction of corporate values and even trigger the contagion effect.

***Measurements of fair value can be manipulated easily***

As market values of financial instruments are easily manipulated, fair value may fail to reflect the real values. This could erode the quality of financial statement information.



## IV. Non-financial sectors

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

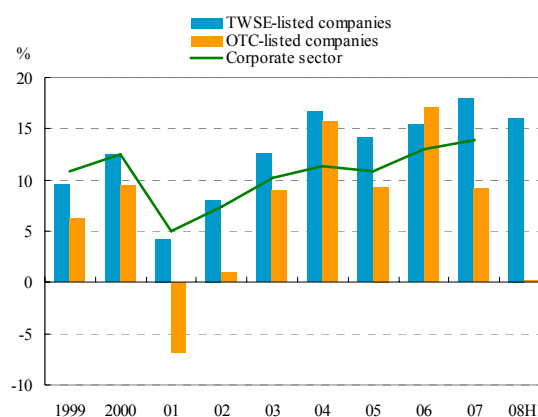
### 6. Corporate sector

The corporate sector's<sup>61</sup> profitability was strengthened, while its financial structure and solvency continued improving in 2007. The quality of corporate lending also remained satisfactory. In the first half of 2008, however, the impacts of skyrocketing international commodity prices, slowing global economic growth, and increasing operational costs in China could undermine the profitability, financial health, and short-term solvency of both TWSE-listed and OTC-listed companies,<sup>62</sup> which might increase their default risks.

#### *Profitability decreased in the first half of 2008*

In line with expanding exports, rebounding domestic demand, and steady growth in the industrial and service sectors in 2007, profitability in the corporate sector kept improving when ROE reached 13.09%. Profitability at TWSE-listed companies sustained an upward trend, while OTC-listed companies slid dramatically due to lower gross profit margins in the electronics sector. In the first half of 2008, the corporate sector faced several challenges arising from

**Chart 6.1 Return on equity in corporate sector**



Notes: 1. Return on equity = net income before interest and tax / average equity.

2. Figures for 2008 H1 have been annualized. The ROE of the OTC-listed companies in 2008 H1 was only 0.12%.

Sources: JCIC and TEJ.

<sup>61</sup> The corporate sector data are from the corporate financial report database operated by the Joint Credit Information Center.

<sup>62</sup> The data for TWSE-listed and OTC-listed companies are from the Taiwan Economic Journal co., excluding that for financial and insurance companies and emerging stock-listed companies.

recognition of employee bonuses as expenses, appreciation of the NT dollar, skyrocketing international commodity prices, slowing growth in the global economy, and sluggish consumer demand brought about by inflation. Impacted by those unfavorable factors, the profitability of both TWSE-listed and OTC-listed companies began to shrink. ROE for TWSE-listed companies became declined to 16.01% from 18.03% in 2007, while ROE for OTC-listed companies sharply fell to 0.12% from 9.21% in 2007 due to significant losses suffered by the semiconductor sector (Chart 6.1).

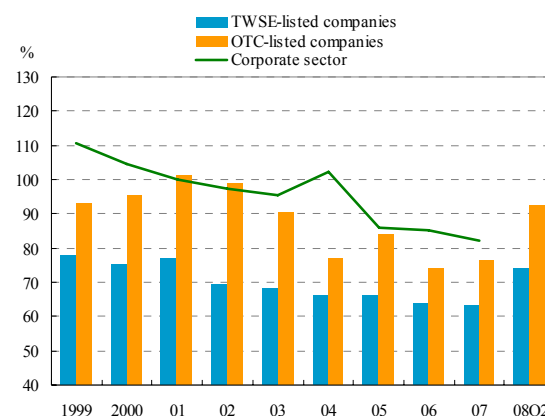
### ***Financial structure aggravated***

The financial structure of the corporate sector continued to improve as average leverage ratios declined to 82.20% in 2007. The average leverage ratio of TWSE-listed companies was on a downward trend, while that of OTC-listed companies turned to rise owing to an increase in long-term liabilities. The average leverage ratios for both TWSE-listed and OTC-listed companies were lower than the average ratio for the corporate sector as a whole. In the first half of 2008, the financial structures of both TWSE-listed and OTC-listed companies became aggravated. The average leverage ratios for TWSE-listed companies and OTC-listed companies rose dramatically to 74.09% and 92.54%, respectively, as a consequence of a significant increase in short-term liabilities (Chart 6.2).

### ***Short-term debt servicing capacity eroded***

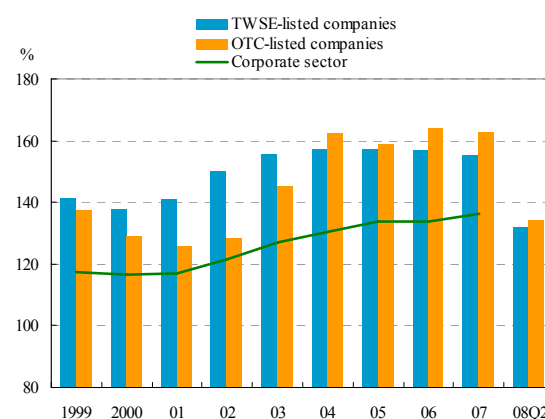
Supported by a declining debt level and increasing profitability, the debt servicing capacity for the corporate sector as a whole kept improving in 2007, as the average current ratio climbed to 136.31% and the average cash flow ratio rose to 26.99%. The figures for both TWSE-listed companies and OTC-listed companies were well above those for the corporate

**Chart 6.2 Leverage ratio in corporate sector**



Note: Leverage ratio = total liabilities / equity.  
Sources: JCIC and TEJ.

**Chart 6.3 Current ratio in corporate sector**

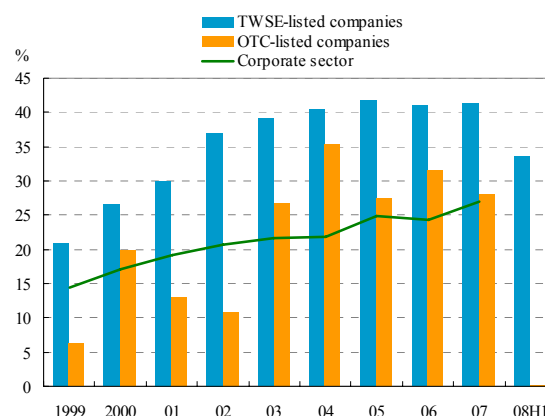


Note: Current ratio = current assets / current liabilities.  
Sources: JCIC and TEJ.

sector. In the first half of 2008, the average current ratios for both TWSE-listed and OTC-listed companies began to decline noticeably and stood at 132.15% and 134.08%, respectively, as of the end of June 2008. This was mainly because the sharp rise in oil and commodity prices added the need for working capital, thus raising current liabilities. Even if the average cash flow ratio of TWSE-listed companies declined significantly, their short-term debt servicing capacity remained satisfactory because they still held sufficient cash equivalents as compared to their assets. The average cash flow ratio of OTC-listed companies, however, registered a significant drop to 0.17% on a dramatic decline in profitability. This showed that their debt servicing capacity, with net cash flows from operational activities to cover short-term debts, was weakening and thus called for special attention (Chart 6.3, 6.4).

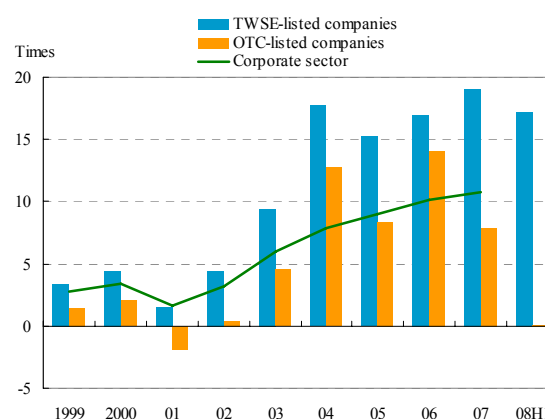
The average interest coverage ratio for the corporate sector as a whole ascended to 10.78 times in 2007, reflecting continued improvement in the interest covering capacity. The average interest coverage ratio of TWSE-listed companies rose to 19.08 times, well above that of the corporate sector, while that of OTC-listed companies dramatically fell to 7.89 times due to a contraction in profitability, but their interest servicing capacity remained sufficient. In the first half of 2008, the average interest coverage ratio of TWSE-listed companies fell to 17.19 times due to a decline in earnings, while that of OTC-listed companies dropped substantially to 0.08 times because of considerably lower profits in 2007 the same period. The short-term debt servicing capacity of OTC-listed companies weakened as earnings may be insufficient to cover interest servicing requirements (Chart 6.5).

**Chart 6.4 Cash flow ratio in corporate sector**



Notes: 1. Cash flow ratio = net cash flows from operational activities / current liabilities.  
 2. Cash flow ratio of OTC-listed companies in 2008 H1 was only 0.17%.  
 Sources: JCIC and TEJ.

**Chart 6.5 Interest coverage ratio in corporate sector**



Notes: 1. Interest coverage ratio = income before interest and tax / interest expenses.  
 2. Interest coverage ratio for OTC-listed companies in 2008 H1 was only 0.08 times.  
 Sources: JCIC and TEJ.

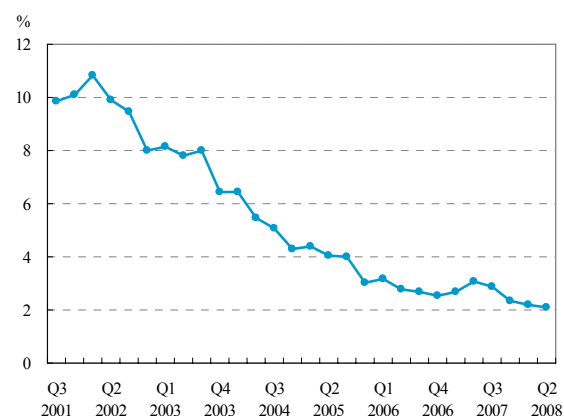
***The credit quality of loans to the corporate sector remained satisfactory, but default risk rose***

The non-performing ratio of loans to the corporate sector kept falling to 2.11% in June 2008 (Chart 6.6), demonstrating that its credit quality remained satisfactory. Thereafter, however, profitability of the corporate sector might be undermined by several adverse factors, including increasing downside risks to domestic economic growth, declining consumer expenditures due to inflation, and a heavy slump in stock market prices, as well as increasing commodity prices and rising operational costs in China. In addition, affected by the global credit crunch arising from the US subprime crisis, domestic financial institutions became more conservative in extending credit. Enterprises with an unsound financial structure, or SMEs with insufficient transparency in financial reporting might face the pressure of rising financing costs and increasing refinance difficulty, thus increasing their default risk.

## 7. Household sector

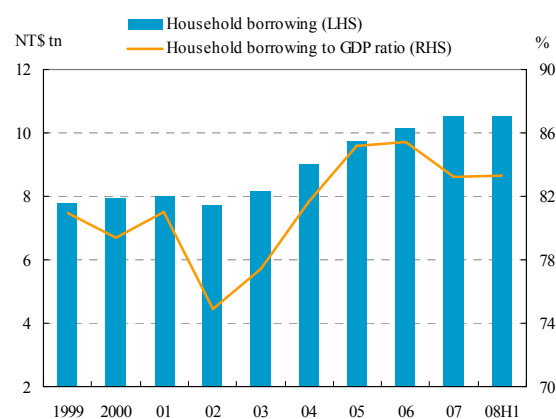
For the household sector, prior to the end of June 2008, borrowing growth moderated and short-term debt servicing capacity strengthened, but debt burdens remained heavy. The credit quality of loans to households continued to be satisfactory. Thereafter, the assets and real income of households might be undermined as the global stock market slumped, domestic economic growth declined, and the unemployment rate rose. Furthermore, debt repayment pressures for borrowers increased as their interest-only periods of high loan-to-value mortgages successively expired. These joint developments could have adverse impacts on the credit quality of loans to households.

**Chart 6.6 NPL ratio of corporate loans**



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

**Chart 7.1 Household borrowing to GDP**



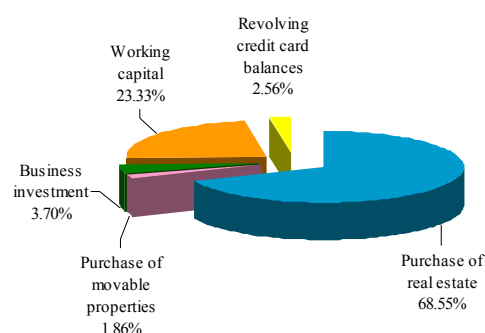
Note: Household borrowing data are end-of-period figures.  
Sources: CBC, JCIC and DGBAS.

### Growth in household borrowing decelerated

By the end of June 2008, total household borrowing<sup>63</sup> reached NT\$10.55 trillion (Chart 7.1) on year-on-year growth of 1.65%, down from 11% in 2004 and lower than the 3.29% registered at the end of 2007. This was a result of the slowing growth in real estate loans due to the sluggish housing market. The single largest share of household borrowing went for the purchase of real estate (68.55%), followed by working capital loans<sup>64</sup> (23.33%), while revolving balances on credit cards accounted for only 2.56% (Chart 7.2). Compared to the end of 2007, all shares of loans declined, excluding loans for purchasing real estate, which continued to rise.

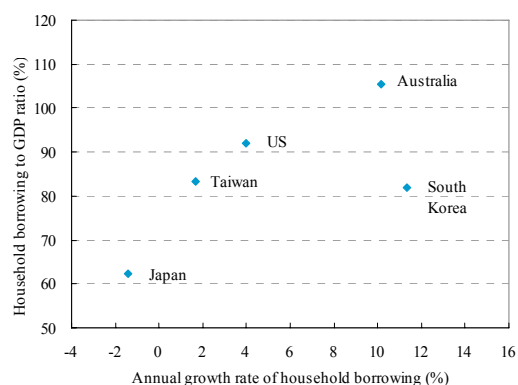
The ratio of household borrowing to GDP was 83.34% as of the end of June 2008, growing slightly by 0.10 percentage point in the first half of the year, mainly due to a much slower pace in GDP growth (Chart 7.1). Compared to other Asian countries, the US, and Australia, total household borrowing in Taiwan grew at a faster annual rate than in Japan, 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, about the same as in South Korea, but higher than in Japan (Chart 7.3).

Chart 7.2 Household borrowing by purpose



Note: Figures are end-June 2008.  
Sources: CBC and JCIC.

Chart 7.3 Household indebtedness in selected countries



Note: Figures are end-June 2008.  
Sources: Fed, BEA, BOJ, Cabinet Office of Japan, BOK, ABS, IMF, DGBAS, CBC, and JCIC.

<sup>63</sup> 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.

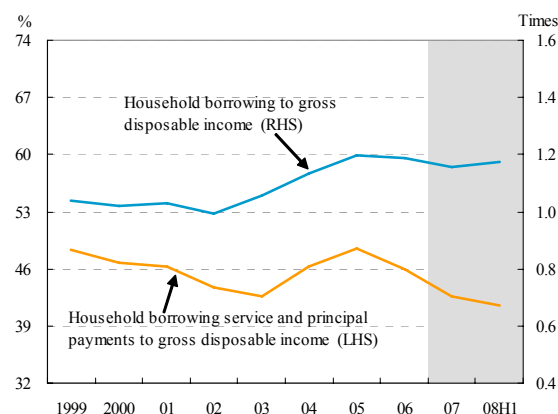
<sup>64</sup> The term “working capital loans” includes outstanding cash card loans.

### Household debt burden remained heavy

As of the end of June 2008, the ratio of household borrowing to gross disposable income<sup>65</sup> increased to 1.17 times, slightly higher than the 1.16 times seen at the end of 2007, reflecting the continued heavy household debt burden. Nevertheless, the household debt servicing ratio declined to 41.48% from 42.56% in 2007, the lowest since 1999. Although long-term real estate borrowing continued to grow, short-term household borrowing slowed and even contracted, alleviating the pressures from principal and interest payments in the near future. This indicated that household debt servicing capacity continued to improve gradually (Chart 7.4).

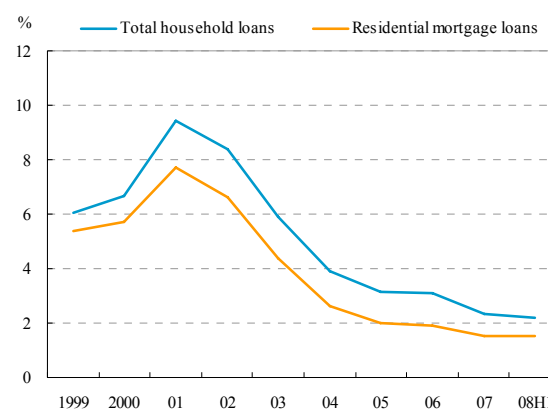
The household NPL ratio<sup>66</sup> continued falling to 2.18% as of the end of June 2008, the lowest in nine years. This came about primarily because the non-performing ratio for residential mortgage loans, accounting for the largest share of loans to households, remained low (Chart 7.5). The credit quality of loans to households remained satisfactory. Thereafter, the slumping global stock market, slowing domestic economic growth, declining real income, and the rising unemployment rate might reduce household assets and real income. In addition, debt repayment pressure for borrowers strengthened as their interest-only periods of high loan-to-value mortgages successively expired. These joint developments may adversely impact the quality of loans to households.

Chart 7.4 Household debt servicing ratio



Note: Gross disposable income in shadow area is CBC estimate.  
Sources: CBC, JCIC and DGBAS.

Chart 7.5 NPL ratio of household loans



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

<sup>65</sup> Gross disposable income = disposable income + rental expenses + interest expenses. Gross household disposable income in 2007 and the first half of 2008 were estimated using parameters based on DGBAS data for household disposable income and national disposable income and by carrying out "linear interpolation," which yielded better results through "trend detection" (e.g. performance under various interpolations, such as nearest, linear, spline, pchip, and cubic interpolation).

<sup>66</sup> Household NPL ratio excludes data from the Remittances & Savings Department of Chunghwa Post Co. and all securities firms.

## 8. Real estate market

Rising prices but falling transaction volumes, coupled with a climbing house vacancy rate and generally tighter lending standards on the part of banks, exerted increasing downward pressure on the real estate market.

### *Real estate market cooled off*

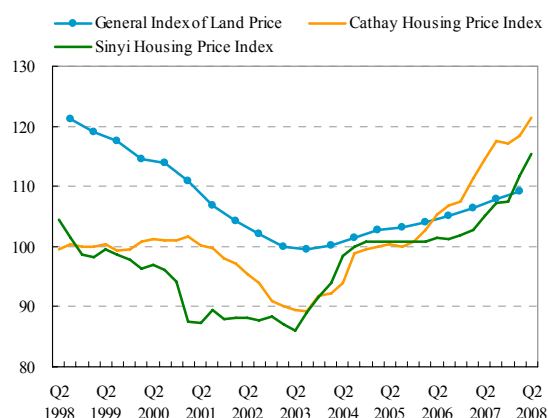
Taiwan's real estate cycle indicator<sup>67</sup> rose slightly in 2008 Q2 but remained under a yellow/blue light,<sup>68</sup> representing a slowdown in the real estate market (Chart 8.1). As for real estate cycle composite indicators, the composite index of leading indicators<sup>69</sup> continued dropping in the first two quarters of 2008, while the composite index of coincident indicators<sup>70</sup> rose sharply in 2008 Q2 but remained lower than the figure in the same quarter of 2007. Most real estate firms, moreover, expected a downturn in the real estate market for the coming two quarters. All these developments indicated that the real estate market turned to cool off.

Chart 8.1 Real estate cycle indicators



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

Chart 8.2 Land and house price indices



Note: Land price index is released semiannually (i.e. March and September).

Sources: MOI, Cathay Real Estate, and Sinyi Real Estate.

<sup>67</sup> The data of real estate cycle indicators are from "Quarterly Report of Taiwan Real Estate Cycle Indicators," which is issued by the Architecture and Building Research Institute, MOI, and the Taiwan Real Estate Research Center, National Chengchi University, on a quarterly basis.

<sup>68</sup> The real estate cycle indicators show five outlooks with different colored lights. A red light indicates a "heated market," a yellow/red light indicates a "moderately heated market," a green light indicates a "stable market," a yellow/blue light indicates a "moderately declining market," and a blue light indicates a "sharply declining market."

<sup>69</sup> The real estate cycle composite indicators comprise six composite indices, i.e. composite indices of leading indicators, coincident indicators, investment indicators, production indicators, trade indicators, and usage indicators. 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.

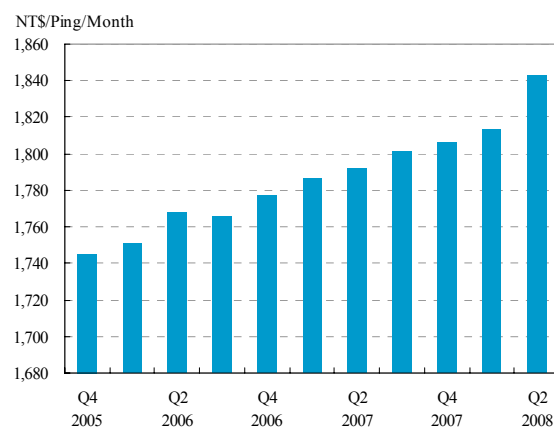
<sup>70</sup> The composite index of coincident indicators is made up of the following six components: undeveloped land transaction index, base lending rate, construction permit floor space, standard unit price for new construction projects, new loans for property purchases, and housing occupancy rate.

### *Real estate prices continued rising even as transaction volumes contracted.*

Led by rising construction costs and optimism about cross-strait developments, real estate prices continued to climb in the first half of 2008. The Taiwan Area Land Price Index reached 109.13 in March 2008, increasing by 1.19% from the previous September. The Sinyi House Price Index (for existing buildings) registered 115.39 in 2008 Q2, while the Cathay House Price Index (for new construction) stood at 121.49, increasing by 7.44% and 3.76%, respectively, as compared to the end of the previous year (Chart 8.2). The prices for existing buildings rose at a higher pace, mainly because of the expanding demand for cheaper existing buildings and the comparative effect due to the higher prices for new construction. In step with the appreciation of real estate, rental rates also increased steadily, coupled with office building rentals in Taipei City climbing to NT\$1,843 per ping (3.3 square meters) per month in 2008 Q2, up 2.05% from the end of 2007 (Chart 8.3).

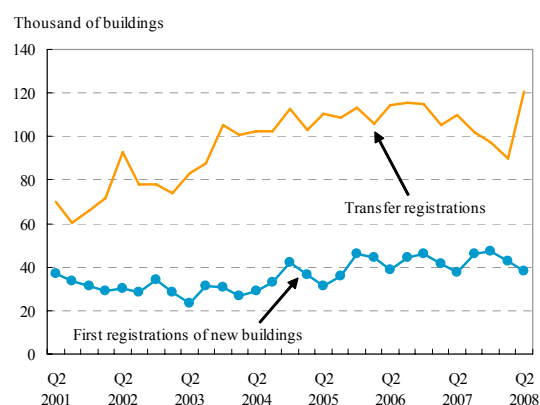
With regard to transactions, transfers of building ownership registered 211,000 units in the first half of 2008, dropping by 2.02% year on year (Chart 8.4). During this period, transaction volumes posted a significant decline in the first quarter but then turned to increase rapidly in the second quarter, stimulated by the presidential election and the lifting of limitations on real estate investments from China. Nevertheless, market activities cooled off again from June as Taiwan's stock market began to slump. In addition, first-time ownership registrations decreased quarter by quarter in the first half of 2008, but the total volume remained at 80,000 units, slightly increasing by 1.63% year on year.

**Chart 8.3 Average office rental rate in Taipei**



Source: Colliers International "Taipei Office Market Overview."

**Chart 8.4 Building ownership registrations**



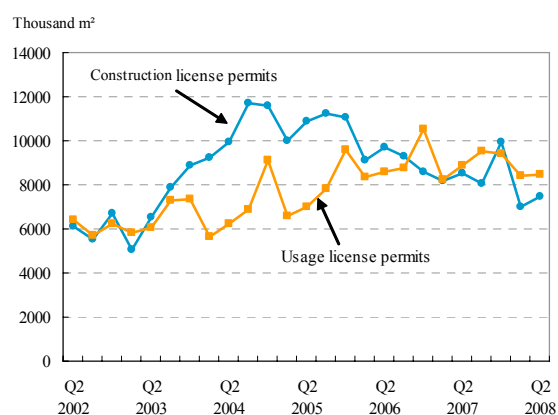
Source: Monthly Bulletin of Interior Statistics, MOI.



***New residential property supply expanded, and vacancy rate climbed***

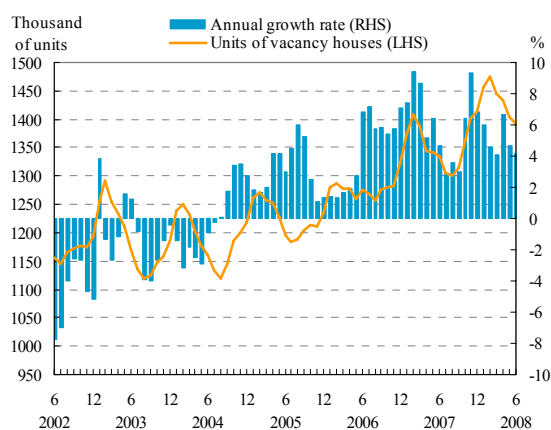
Total floor space, represented by construction license permits, decreased by 13.60% in the first half of 2008, with residential real estate experiencing the biggest drop of 17.06%, showing that builders remained conservative on new construction investment. As to total floor space, represented by usage license permits, the figure decreased by 1.18% year on year (Chart 8.5), mainly due to the contraction by 2.49% for commercial real estate, although residential real estate increased slightly by 0.22%. The total volume of new residential property in the first half of 2008, however, reached 59,000 units, indicating increasing downward pressure on the real estate market as the supply of new residential property continued to expand. In addition, the average number of vacant residential properties<sup>71</sup> continued increasing in the first half of 2008 and reached 1.43 million units, rising by 5.04% year on year (Chart 8.6).

**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.

<sup>71</sup> Vacant residential properties are estimated by the number of units which consume less power than the minimum service charge from the Taiwan Power Company.

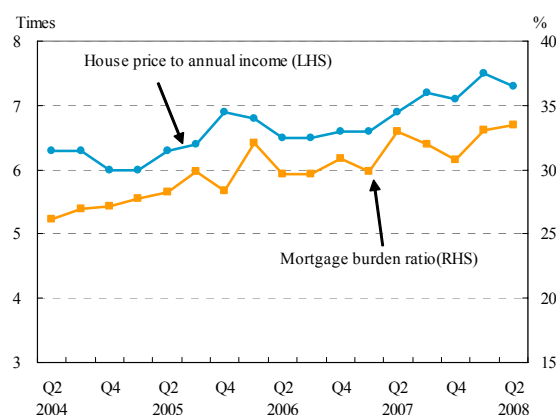
### ***Higher house price to income ratio increased the burden for homebuyers***

The rising house prices brought a heavier cost burden for homebuyers. The average mortgage burden ratio and the house price to income ratio in 2008 Q2 reached 33.5% and 7.3 times, respectively, both higher than the figures for the same period of the previous year (Chart 8.7). The cost burden was heaviest in Taipei City, where the mortgage burden ratio and the price to income ratio stood at 41.9% and 8.9 times, respectively. Additionally, the composite score for house price confidence<sup>72</sup> rose sharply to reach above 120 points in 2008 Q1, supported by optimism over the presidential election, but then fell back to below 90 points in Q2 as the global stock market slumped and domestic economic performance was worse than expected. This reflected the trend that homebuyers were becoming more conservative about future house price movements (Chart 8.8).

### ***Growth in real estate lending declined significantly, while mortgage interest rates were expected to decline***

The outstanding real estate-related loans granted by banks<sup>73</sup> continued to grow in the first half of 2008, but at a much slower pace. In June, year-on-year growth in loans for house-purchases and house-refurbishments declined to 4.47%, and construction loans dropped dramatically to 8.91% (Chart 8.9), mainly due to a more cautious lending stance for real estate loans by banks

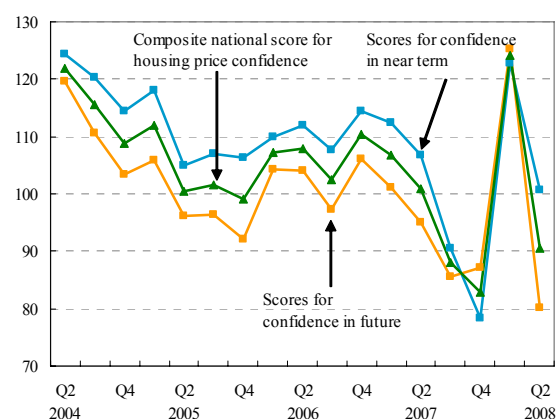
**Chart 8.7 House price to income ratio & mortgage burden ratio**



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 house price confidence**



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

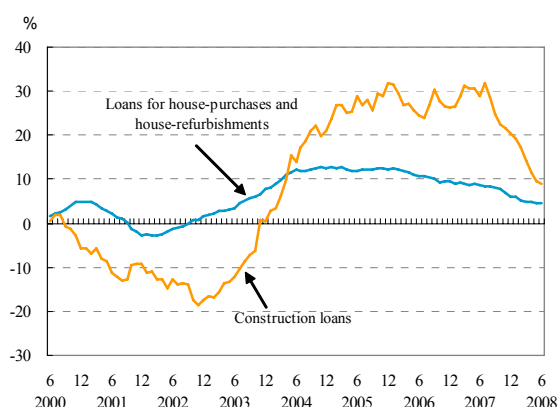
<sup>72</sup> The house price confidence scores, released by the Council for Economic Planning and Development, range from 0 to 200. A score of 100 indicates that the number of people expecting prices to rise is equal to the number of those expecting the opposite, while a score above 100 indicates that 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.

<sup>73</sup> The term "bank" in this section includes domestic banks (including medium business banks) and the local branches of foreign banks.

and a shrinking loan-to-value ratio for housing loans. In 2008 Q2, the housing market turned to warm up after the presidential election, while the monthly total of new mortgage loans granted by Taiwan’s top five banks<sup>74</sup> increased markedly and reached NT\$49.9 billion in June. Mortgage interest rates rose steadily, reflecting the CBC’s rate hiked and reached 2.80% in June 2008. Nevertheless, they were expected to decline in the near future as the CBC began to cut interest rates from September 2008 (Chart 8.10).

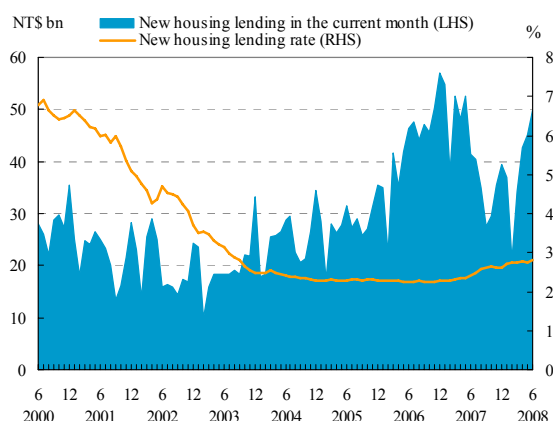
The asset quality of real estate-related loans in domestic banks remained satisfactory, with their average NPL ratio remaining low at 1.43% as of June 2008. Even though banks adopted stricter lending standards for real estate-related loans, the default risk in these loans might have increased, as a result of a heavier debt repayment pressure for borrowers caused by the cooling real estate market, expiring interest-only periods of high loan-to-value mortgages, the rising unemployment rate, and slowing domestic economic growth.

**Chart 8.9 Annual growth in housing and construction loans**



Source: CBC.

**Chart 8.10 New mortgage loans – amount & interest rate**



Source: CBC.

<sup>74</sup> 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.

## Appendix: Financial soundness indicators

Table 1: Domestic Banks

Unit: %

Items	Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
<b>Earnings and profitability</b>							
Return on assets (ROA)		0.22	0.64	0.30	-0.06	0.28	0.39
Return on equity (ROE)		3.52	10.25	4.74	-0.94	4.32	5.84
Net interest income to gross income		66.86	62.60	66.11	68.34	66.38	68.09
Non interest expenses to gross income		46.35	46.59	47.84	51.21	54.07	55.51
Gains and losses on financial instruments to gross income		15.87	10.13	11.49	12.63	9.08	8.75
Personnel expenses* to non-interest expenses		-	-	-	55.37	55.93	56.75
Spread between lending and deposit rates (basis points)		2.63	2.30	2.22	1.91	1.72	1.70
<b>Asset quality</b>							
Non-performing loans to total loans		6.08	3.82	2.24	2.15	1.83	1.55
Provision coverage ratio		22.68	30.14	50.06	62.26	64.07	67.36
<b>Capital adequacy</b>							
Regulatory capital to risk-weighted assets		10.29	10.87	11.23	10.87	10.80	10.87
Tier 1 capital to risk-weighted assets		10.00	10.25	10.37	9.88	8.50	8.28
Capital to total assets		6.17	6.28	6.45	6.19	6.42	6.57
Non-performing loans net of provisions to capital		51.76	30.61	15.28	15.16	12.22	10.26
<b>Liquidity</b>							
Customer deposits to total loans		117.69	118.10	118.70	119.41	117.98	116.72
Liquid assets* to total assets		-	-	-	-	10.59	10.70
Liquid assets* to short-term liabilities		-	-	-	-	15.66	15.85

Table 1 : Domestic Banks (cont.)

Unit: %

Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
<b>Credit risk concentration</b>						
Household loans to total loans	42.65	44.89	46.51	46.74	46.59	45.99
Corporate loans to total loans	42.07	41.30	41.60	43.02	43.90	44.74
Large exposures to capital	-	-	137.32	144.28	136.85	132.46
Gross asset positions in financial derivatives* to capital	-	-	-	5.28	10.35	11.50
Gross liability positions in financial derivatives* to capital	-	-	-	4.79	5.44	7.83
<b>Sensitivity to market risk</b>						
Net open position in foreign exchange* to capital	-	-	-	3.11	5.02	4.72
Foreign-currency-denominated loans* to total loans	-	-	-	13.44	15.57	15.47
Net open position in equities* to capital	-	-	-	28.63	30.88	28.31
Foreign-currency-denominated liabilities* to total liabilities	-	-	-	19.86	22.20	21.81

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

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

3. The data of "return on equity" and "return on assets" in the first half of 2008 are annualized.

Table 2: Non-financial Corporate Sector

Units: %, Times

Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
<b>Total liabilities to equity</b>						
Corporate sector	95.27	102.15	86.10	85.21	82.20	-
TWSE-listed companies	68.03	66.37	66.06	64.06	63.20	74.09
OTC-listed companies	90.48	76.67	84.03	74.13	76.48	92.54
<b>Return on equity</b>						
Corporate sector	10.18	11.36	10.88	13.04	13.90	-
TWSE-listed companies	12.64	16.67	14.13	15.43	18.03	16.01
OTC-listed companies	8.97	15.69	9.26	17.06	9.21	0.12
<b>Net income before interest and tax / interest expenses (times)</b>						
Corporate sector	6.03	7.89	8.97	10.10	10.78	-
TWSE-listed companies	9.45	17.72	15.25	16.95	19.08	17.19
OTC-listed companies	4.55	12.72	8.38	14.06	7.89	0.08

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

2. The data of "return on equity" in the first half of 2008 are annualized.

**Table 3: Household Sector**

Unit: %

Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
Items						
Household borrowing to GDP	77.43	81.66	85.22	85.45	83.24	83.34
Borrowing service and principal payments to gross disposable income	42.66	46.23	48.41	46.01	42.56	41.48

Note: Figure for 2007 disposable income is CBC estimate.

**Table 4: Real Estate Market**

Unit: %

Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
Items						
Land price index	99.62	101.52	103.24	105.09	107.85	109.13
Residential real estate loans* to total loans	-	-	-	29.14	30.14	29.80
Commercial real estate loans* to total loans	-	-	-	10.74	11.84	11.74

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: %

Year / half-year (end of period)	2003	2004	2005	2006	2007	2008 H1
Items						
The turnover ratio of trading value in stock market	190.82	177.46	131.36	142.20	153.28	78.18
The monthly average turnover ratio in bond market	-	135.40	215.69	140.58	74.65	61.56

Notes: 1.The turnover ratio in terms of trading value in stock market is the accumulative figure of the period.

2.The monthly average turnover ratio in bond market is the average figure of the period. 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 June 2008 include Bank of Taiwan, Land Bank of Taiwan, Taiwan Cooperative Bank, First Commercial Bank, Hua Nan Commercial Bank, Chang Hwa Commercial Bank, Citibank Taiwan, The Shanghai Commercial & Savings Bank, Taipei Fubon Commercial Bank, Cathay United Bank, The Export-Import Bank of the Republic of China, Bank of Kaohsiung, Mega International Commercial Bank Co., Agricultural Bank of Taiwan, China Development Industrial Bank, Industrial Bank of Taiwan, Taiwan Business Bank, Standard Chartered Bank (Taiwan), Taichung Commercial Bank, King’s Town Bank, 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, E. Sun Commercial Bank, Cosmos Bank, Bowa Bank, Taishin International Bank, Ta Chong Bank, Jih Sun International Bank, Entie Commercial Bank, Chinatrust Commercial Bank, and Chinfon Commercial Bank, amounting to 38 banks.
  2. The domestic banks’ related indicators are calculated 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 Asset 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 three 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 six 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 three 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 three months.
- Total loans: Total loans include bills purchased, discounts, accrual and non-accrual loans, but excluding interbank loans.

### **1.2.2 Provision coverage ratio**

This indicator is to analyze the provision policy for loan 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.
- Capital: same as 1.3.3.

### **1.6.4 Foreign-currency-denominated liabilities to total liabilities**

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

- Foreign-currency-denominated liabilities: the liabilities that are payable in foreign currency, or in domestic currency but with the amounts to be paid linked to a foreign

currency.

- Total liabilities: the total amounts of current, non-contingent liabilities, and the liabilities positions in financial derivatives.

## **2. Non-financial corporate sector indicators**

### **2.1 Total liabilities to equity**

This indicator is a leverage ratio 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

- Net income before interest and tax: same as 2.2.
- 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

---

<b>ABS</b>	Australian Bureau of Statistics
<b>AIG</b>	American International Group
<b>APRA</b>	Australian Prudential Regulation Authority
<b>BCDC</b>	Bills Central Depository and Clearing System
<b>BEA</b>	Bureau of Economic Analysis
<b>BI</b>	Bank Indonesia
<b>BICRA</b>	Banking Industry Country Risk Assessment
<b>BIS</b>	Bank for International Settlements
<b>BNM</b>	Bank Negara Malaysia
<b>BOJ</b>	Bank of Japan
<b>BOK</b>	Bank of Korea
<b>BOT</b>	Bank of Thailand
<b>BSI</b>	Banking System Indicator
<b>CAR</b>	capital adequacy ratio
<b>CBC</b>	Central Bank of the Republic of China (Taiwan)
<b>CD</b>	certificate of deposit
<b>CDIC</b>	Central Deposit Insurance Corporation
<b>CEPD</b>	Council for Economic Planning and Development
<b>CIFS</b>	CBC Interbank Funds-Transfer System
<b>CP</b>	commercial paper
<b>CPI</b>	consumer price index
<b>DGBAS</b>	Directorate-General of Budget, Accounting and Statistics of Executive Yuan
<b>DJ</b>	Dow Jones index
<b>DVP</b>	delivery versus payment
<b>EU</b>	European Union
<b>EUR</b>	Eurocurrency

---

<b>FED</b>	Federal Reserve System
<b>FHA</b>	Federal Housing Administration
<b>FSC</b>	Financial Supervisory Commission
<b>FSS</b>	Financial Supervisory Service
<b>G7</b>	group of seven
<b>GBP</b>	Great Britain Pound
<b>GDP</b>	gross domestic product
<b>GNP</b>	gross national product
<b>GTSM</b>	GreTai Securities Market
<b>HKMA</b>	Hong Kong Monetary Authority
<b>IAS</b>	International Accounting Standards
<b>IASB</b>	International Accounting Standards Board
<b>IFRS</b>	International Financial Reporting Standards
<b>IMF</b>	International Monetary Fund
<b>JCIC</b>	Joint Credit Information Center
<b>LHS</b>	left-hand scale
<b>LIBOR</b>	London Interbank Offered Rate
<b>MAS</b>	Monetary Authority of Singapore
<b>MOEA</b>	Ministry of Economic Affairs
<b>MOI</b>	Ministry of Interior
<b>MOF</b>	Ministry of Finance
<b>MPI</b>	Macro-prudential Indicator
<b>MSCI</b>	Morgan Stanley Capital International index
<b>NPL</b>	non-performing loan
<b>OMO</b>	open market operation
<b>OTC</b>	over-the-counter
<b>QDII</b>	Qualified Domestic Institutional Investor
<b>qoq</b>	quarter-on-quarter
<b>RBC</b>	risk-based capital
<b>RHS</b>	right-hand scale
<b>ROA</b>	return on assets
<b>ROE</b>	return on equity
<b>RTGS</b>	Real-Time Gross Settlement



<b>S &amp; P</b>	Standard & Poor's
<b>SFAS</b>	Statement of Financial Accounting Standards
<b>SMEs</b>	small and medium-sized enterprises
<b>SMEG</b>	Small and Medium Enterprise Credit Guarantee Fund of Taiwan
<b>TAIEX</b>	Taiwan Stock Exchange Weighted index
<b>TEJ</b>	Taiwan Economic Journal Co., Ltd
<b>TWSE</b>	Taiwan Stock Exchange Corporation
<b>VaR</b>	value at risk
<b>UBS</b>	Union Bank of Switzerland AG
<b>VAT</b>	value added tax
<b>WPI</b>	wholesale price index
<b>yoy</b>	year-on-year

# Financial Stability Report

---

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

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

Tel: 886-2-2393-6161

<http://www.cbc.gov.tw>

**Editor: Department of Financial Inspection**

**Central Bank of the Republic of China (Taiwan)**

**Publishing Frequency: Semiannually**

**Publishing Date: December 2008**

**First Issue Date: June 2008**

**Distributors:**

**Government Publication Bookstore (Songjiang Store)**

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

Tel: 886-2-2518-0207

**Government online bookstore:** <http://www.govbooks.com.tw>

**Wunan Cultural Plaza Bookstore (Taichung Main Store)**

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

Tel: 886-4-2226-0330

**Printed by: Jhen Da typesetting printing company**

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

Tel: 886-2-2396-5877

**Price: NT\$300**

**GPN: 2009703514**

**ISSN: 2071-8519**

---

All rights reserved. Reproduction in whole or in part without permission from the publisher is prohibited.

