# II. The global financial crisis: its unfolding and policy responses

With its roots in the subprime crisis originating in the United States (US) in August 2007, global financial turmoil deepened to unprecedented levels during 2008. Following the bankruptcy of Lehman Brothers, the crisis deteriorated further. Compared to past crises, the current one lingered on as the bailout measures adopted did not achieve the initially expected results.

The crisis spread rapidly from the housing market to financial institutions and financial markets in the US. With the flourishing of globalization, it spilled from the US to other advanced countries and then to emerging and developing economies. The adverse consequences incurred were not confined to the financial sector but gradually spread to the real economy, which in turn caused repercussion effects on the financial sector, thus forming a vicious feedback loop.

The far-reaching impact of the crisis has caused various countries to adopt unprecedented bailout measures, including eased monetary and expansionary fiscal policies. The promotion speed, application span, implementation frequency, and special measures undertaken during these emergent times have rarely been seen in the history of financial crisis management. This chapter summarizes the development and causes of the crisis, its impacts on global finance and economies as well as the policy measures adopted in selected countries.

## 2.1 The development and causes of the crisis

### *2.1.1 How the crisis evolved*

The current global financial crisis originated from the US subprime mortgage problems. US housing prices underwent a prolonged period of huge rises from 2000 to mid-2006 before gradually turning downward. Owing to the decline of house prices, together with rising interest rates from 2004 onwards, mortgage burdens continued to grow and began to affect many subprime mortgage borrowers. These borrowers were faced with the difficulty of refinancing and the predicament of insolvency. Default cases rose rapidly, leading to increased foreclosures and in some cases contributed to the failure of mortgage banks.

The subprime debacle was initially confined to the US, and the proportion of subprime mortgages to the total value of general housing loans was also limited.[2] However, because of liberal financial innovation, as well as the prevalence of the originate-to-distribute business model, subprime mortgages were packaged through securitization into multiple complex structured products, such as asset-backed securities (ABS) and collateralized debt obligations (CDO). Such financial products not only heightened the risks but also distributed them to investors in other countries via highly efficient global capital markets, and thereby caused the crisis to quickly spread beyond the US and spill over to other parts of the world.

In mid-2007, the credit spread of structured credit derivatives noticeably widened, arousing investors' concerns over the potential losses incurred by financial firms which had heavily invested in mortgage-linked structured products. The subsequent impact confronted the financial firms with losses from depreciated asset valuations and brought about the tough process of de-leveraging. Credit crowding out occurred in the asset-backed commercial paper (ABCP) market, pushing up interest rates and exposing the issuers to the problem of refinancing their bills at maturity. The credit spreads of ABS and CDO continued to widen, and credit rating organizations downgraded those rated companies significantly. The crisis increasingly spread to all financial markets. Subsequent to October 2007, many large European and American firms, including hedge funds, investment banks, commercial banks and insurance companies, registered huge losses related to subprime securities investments. Moreover, some large financial firms were forced to place the assets and liabilities of heavily-in-loss structured investment vehicles (SIV) back on their balance sheets, causing losses to expand significantly.

From 2008 onwards, many banks in European countries and the US were faced with the immense pressure of raising capital and reducing leverage due to increasing losses and decreasing capital adequacy. In particular, those financial firms relying heavily on wholesale funding were subject to more severe pressures because of the drastic rise in inter-bank lending rates. Though the European and American central banks actively injected funds into the financial markets from August 2007 onwards, the effect of theses injections was simply to relieve the demand for shorter-term funds owing to the augmentation of counterparty risk, whereas inter-bank interest rates for periods longer than three months remained at high levels.

[2] The proportion of outstanding balances of subprime mortgages to general housing loans as of the end of 2006 was about 15%. If Alt-A mortgages superior to subprime mortgages in credit quality are added together, the proportion then becomes about 27%.

The worsening trend of the US housing market continued in 2008. Default in repayment was not only limited to subprime mortgages, but also extended to other credit activities, including Alt-A mortgages, prime mortgages, commercial real estate mortgages, and consumer lending. The default rates of these loans were also rising. Along with the proliferation of mortgage defaults, the financial losses of the two US government-sponsored enterprises (GSE), Fannie Mae and Freddie Mac, which engaged in issuing and guaranteeing mortgage-backed securities, continued increasing. Coupled with the extremely high leverage levels of these enterprises, markets became concerned regarding their repayment ability, causing the stock prices of the two enterprises to slump, and investors to incur huge losses. As the scale of the mortgage-backed securities issued by these two enterprises was very vast, their collapse would have led to a further contraction of mortgage markets, a steep rise in mortgage rates and further declines in house prices, causing wide ranging negative impacts on the economy. These enterprises eventually prompted the Federal Housing Finance Agency to step in and take over on 7 September 2008. Both enterprises were provided with capital and financing by the US Treasury. These policy actions increasingly mitigated market concerns.

The bankruptcy protection filed by Lehman Brothers on 15 September 2008, raised the anxiety of many financial firms over counterparty losses, and in turn led to the malfunction of global banks' financing networks. American International Group (AIG) – the global insurance giant – was impacted by AIG Financial Products Corp. (AIGFP)[3], one of its subsidiaries, which transacted bulky credit default swaps (CDS) and was on the verge of bankruptcy from suffering huge losses. The failing group prompted the US government to inject US$85 billion for an emergency bailout, temporarily mitigating its financial crisis. Moreover, major money market funds were faced with floods of redemption orders from their investors, and some of the funds collapsed. Thus, market concerns about whether financial firms relying on wholesale funding would be able to survive or not heightened. These factors aroused strong, swift and broad market reactions, risky assets sold off, overnight inter-bank lending rates surged, the spread of interest rate swaps widened, credit spreads of CDS jumped, and global stock markets dropped. The shocks gradually spilled over from the financial sector to the real sector, thereby causing economic recessions in most advanced and developing countries.

[3] The headquarters of AIGFP is located in London, UK, which is staffed with 377 employees. The company transacted bulky CDS deals and provided insurance against the default of the mortgage assets of banks to earn high premiums. Subsequent to the financial crisis, the company, buffeted by the sharply declining value of mortgages-backed securities, was forced to supplement its collateral; hence, causing a downward drag on the finances of the parent company. AIG announced that the CDS department incurred a loss of US$350 million in the third quarter of 2007, and then losses of US$25 billion in 2008.

### 2.1.2 The root causes of the financial crisis

The causes of the financial crisis are complex and intertwined. To summarize current international perspectives, the crisis can be attributed mainly to six fundamental causes:

#### Excessive global liquidity undermined investors' vigilance to risks

The macroeconomic background of the financial crisis is the so-called "Great Moderation" whereby the global economy entered a prolonged period of low and stable inflation along with high and stable economic growth. During the period, the fast growing and rapidly accumulated savings in many emerging countries as well as wealth accumulation in crude oil- and raw materials-producing countries resulted in a glut of global liquidity and increased the demand for financial products, especially low risk ones (such as US government bonds), leading to an excess demand, and persistently sliding real interest rates.

Furthermore, the speedy growth of global liquidity was encouraged by the Fed easing monetary policy in response to the IT bubble burst, Japan continuing its zero-interest rate policy, and the Euro area implementing a loose monetary policy. Excessive global liquidity reduced investors' sense of risk and made them pour funds into risky assets, leading to a rise in asset prices, a decline of risk-premiums and the formation of a bubble phenomenon in credit and asset markets. Consequently, subprime mortgages' risks remained mostly unnoticed until the housing market slump in 2007.

#### "Originate-to-distribute" model precipitated a lapse in the credit approval process

The development of financial engineering and financial innovation prompted the prevalence of the "originate-to-distribute" model. Mortgage banks originated mortgages and then sold them to investment banks. The investment banks subsequently re-packaged the mortgages into products such as ABS and CDO through securitization to sell to global institutional investors. After transferring the credit risk of mortgages, the main source of originators' profits came from the sale of the mortgages and service fees charged. Because the profits were based on the volume of mortgages, instead of the quality, loose credit approval standards to augment volume became common. The result was that the subprime market grew substantially and the credit quality of loans dropped noticeably.

### Information asymmetry and principle-agent problems existed in securitization

Asset securitization allows banks to liquidate illiquid loans and offers an opportunity for risk to be traded. It provides banks with more channels to avert risk, but also suffers from some serious shortcomings. Firstly, the information of the loan collateral and the underlying borrowers' credit remain with the originating institutions and do not actually transfer to the special purpose vehicles (SPV), thereby possibly making the SPV unaware of the relevant information and risks behind securitization. Secondly, when selling the securitized products, asset managers may not play the role of agent well, leading investors to buy risky products without being fully aware of their risks.

### Conflict of interest and model bias at credit rating agencies emerged

The intent of credit rating is not only to determine the risk weights stipulated in Basel II, but also to be used as a basis for risk management and investment decision making by many financial institutions. Nevertheless, a conflict of interest exists as the credit rating agencies charge bond issuers. This conflict has intensified when credit rating agencies not only provided rating services but also offered design and consultancy services for securitized products for the same clients, which included providing these clients with the service of how to structure securities to get the best possible credit rating.

In addition, credit rating agencies could not completely acquire the relevant information behind the asset pools and thus a bias of pricing models when rating the securitized products occurred. Furthermore, the agencies played dual roles of designing securitized products and pricing models at the same time, which led to a lack of objectivity of the models. Moreover, the credit rating models designed by the agencies only covered credit risk, neglecting other risks such as market risk and liquidity risk.

### Risk management at financial institutions was outpaced by financial innovation

Following the persistent innovation of financial engineering, subprime mortgages were packaged into structured credit products. However, these products' structures were sophisticated and lacked historical information, and financial institutions can only rely on mathematical models to assess and manage risks. The various assumptions of the assessment models were built upon the foundation of financial stability and sufficient market liquidity. Once the financial system became unstable and liquidity dried up, the risk management methodologies ceased to function.

Furthermore, many financial institutions did not aggregate and manage the risks related to subprime mortgages including investing in financial products (e.g. ABS and CDO), providing liquidity facilities, exposing to counterparty risk and taking reputational risk in their sponsored structured investment vehicles. As these institutions were not aware of the high concentration of the risks of subprime mortgages, it led to a series of losses in the wake of the crisis

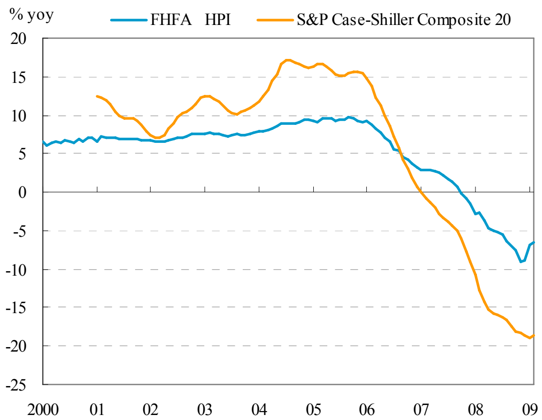
### *Fair value accounting and Basel II led to pro-cyclical operations by financial institutions*

Fair value accounting and Basel II have a procyclicality effect on the economy. When the economy booms, the fair value of assets increases, the leverage ratios of financial institutions decline and the capital adequacy ratios rise. Thus, financial institutions are able to borrow more funds to amplify their assets, producing a positive feedback loop and making the economy much more prosperous. In contrast, when the economy enters a downturn, banks tighten their asset holdings, leading to a much more distressed economy. Such procyclicality increases operating pressure of financial institutions in a downturn and financial system instability.

## 2.2 Impact on global finance and economy

The financial crisis originating from industrialized countries caused severe impacts on their economies and financial systems. It spilled over to emerging and developing economies and formed a global financial and economic calamity. In the financial sector, financial institutions suffered huge losses, non-performing loan ratios continued to climb, credit spreads remained at high levels, and stock markets fluctuated sharply. In the real sector, economies entered deep recessions, consumer confidence plummeted, unemployment rates climbed, and deflation risks elevated.

**Chart 2.1 Annual growth rates across house price indices in the US**

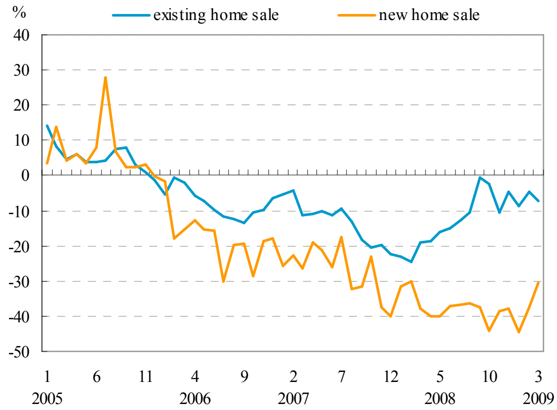



Sources: Federal Housing Finance Agency and S&P.

### *Housing market weakened and both prices and volumes declined*

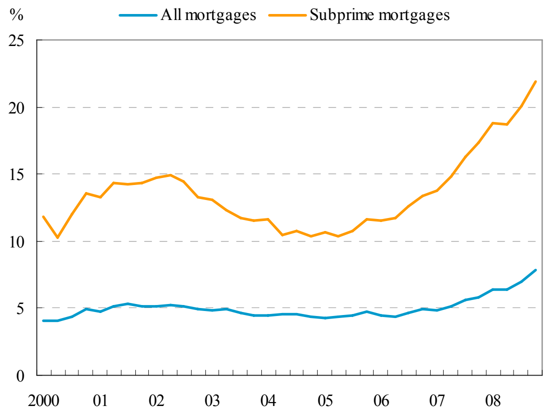
Easy monetary policy in the US between 2001 and 2004, combined with the housing boom and the myth that house prices would not fall, as well as substantially loosened credit conditions by mortgage lending institutions, caused a surge in house prices. However, the housing market began to show signs of weakness as early as 2006. Chart 2.1 shows that the annual growth rates across house price indices in the US declined noticeably from 2006, and turned to negative growth from 2007 onwards. Chart 2.2 shows that the annual growth rates of new and existing home sales in the US started to trend downward from December 2005, of which the growth rate of new home sales declined continuously to hit -48.2% in January 2009 compared with the same month the previous year. Nevertheless, it is worth noting that the annual growth rates of both US house price indices and home sales improved slightly from January 2009 onwards.

**Chart 2.2 Annual growth rates of new and existing home sales in the US**




Source: Bloomberg.

**Chart 2.3 Non-performing loan ratios of US banking institutions' mortgages**




Source: Bloomberg.

## *Financial institutions suffered serious losses and financial markets sank into chaos*

### *Financial institutions incurred huge losses*

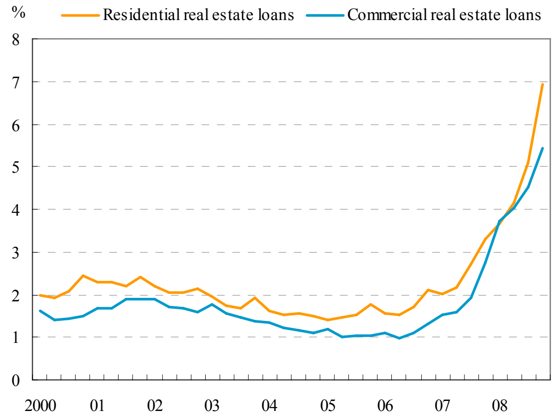
The shock of the subprime debacle not only pushed up the non-performing loan ratios of financial institutions (Chart 2.3 & 2.4) and made them tighten their credit standards[4] (Chart 2.5), but also spilled over to the securitized assets backed by mortgages because of the operating model of funding from securitization. A lack of confidence and a sell-off of assets

[4] The credit standards of financial institutions in the US were somewhat relaxed from January 2009.

caused asset prices to drop precipitously. Additionally, financial institutions incurred huge losses due to the stop loss mechanism and fair value accounting principles. The uncertainty of the severity of losses further pressed market confidence and resulted in credit strains where liquidity hoarding prevailed and banks short of liquidity found it difficult to get funding. Financial institutions were faced with severe liquidity and credit risks.

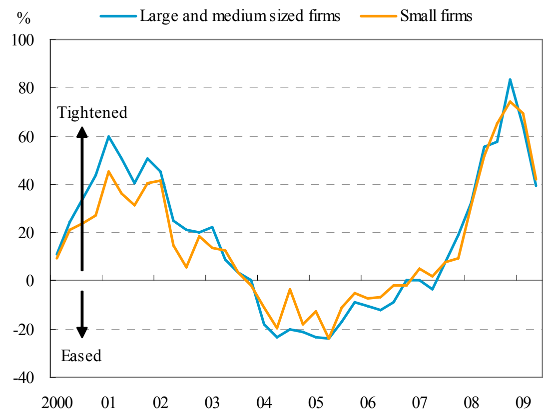
The International Monetary Fund (IMF) continued to raise the loss estimates suffered by global investors who held US-originated assets. It estimated the loss at about US$2.7 trillion[5] in April 2009. Several large US international financial institutions unable to withstand the huge losses, such as Bear Sterns, Merrill Lynch, Citigroup and AIG Group, sought support from the Fed or the US Treasury for emergency funding, bailouts or merger with other institutions. Some investment banks, such as Goldman Sachs and Morgan Stanley, applied to transform into bank holding companies. Some financial giants collapsed and filed for bankruptcy, most notably Lehman Brothers.

**Chart 2.4 Non-performing loan ratios of US commercial banks**




Note: Non-performing loans refer to loans with delinquent payment of interest and principle for over three months.
Source: Fed.

**Chart 2.5 Credit standards of US financial institutions**



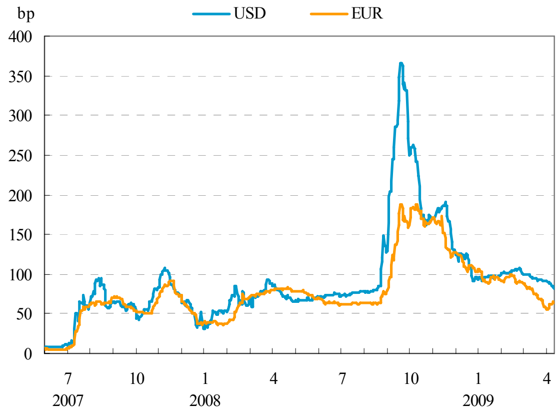

Source: Fed, "Senior Loan Officer Opinion Survey on Bank Lending Practices".

[5] The IMF revised upward the estimated losses of US-related assets several times, from an amount of US$945 billion dollars in April 2008 to US$1.4 trillion in October 2008, to US$2.2 trillion in January 2009, and to 2.7 trillion in April 2009. If added with the losses of European- and Japanese-related assets, then the IMF-estimated losses in April 2009 would reach US$4.1 trillion.

## Financial markets lapsed into chaos

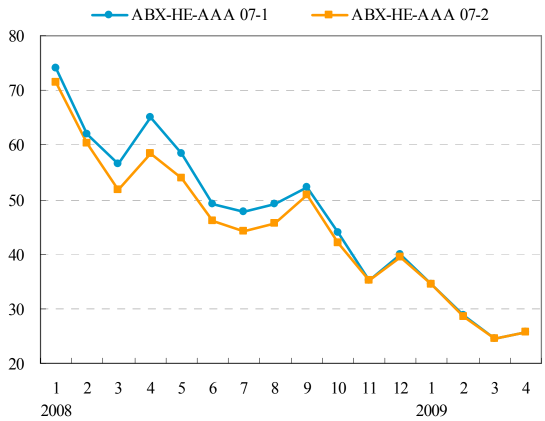
The availability of funds tightened, leading to a rise in interest rates, especially short-term rates. Chart 2.6 shows that the gap between the three-month LIBOR rate and three-month overnight index swaps (OIS) rate widened sharply in the wake of the occurrence of the financial crisis in August 2007, and reached a peak of 366 bps on 11 October 2008. Although the gap between the two rates was lower than 100 bps from March 2009 onwards, it was still higher than the level prior to the financial crisis. The asset-backed securities index (ABX) also noticeably declined, indicating that the value of relevant assets shrank and the risks elevated (Chart 2.7). Moreover, the financial crisis made the scale of US financial markets contract significantly; for example, the ABCP outstanding balances atrophied from an amount of US$1,210 billion in July 2007 to a mere US$610 billion in April 2009 (Chart 2.8).

**Chart 2.6 Three-month spreads between LIBOR and OIS**




Source: Bloomberg.

**Chart 2.7 Movements of the ABX Indices**




Source: Bloomberg.

The financial crisis also resulted in sharp stock market fluctuations. Chart 2.9 shows that the indices of the stock markets in the US, Japan, Europe and emerging Asian countries all declined until mid-March 2009.

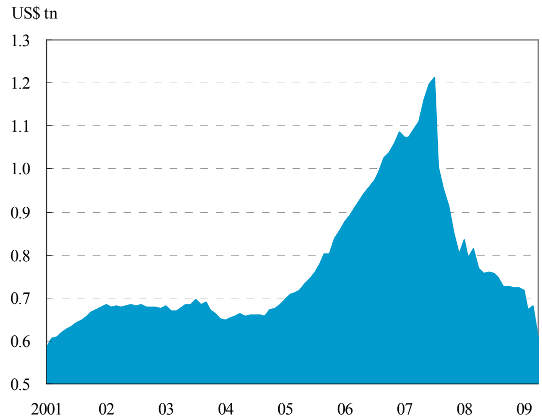
## The economy receded seriously and deflation risk elevated

### *The economy receded seriously*

The subsequent repercussions of the financial crisis caused a serious global recession. Chart 2.10 shows that the economies of the US, UK, Japan and Europe started to manifest negative growth in the third or fourth quarter of 2008. Accordingly, the IMF constantly adjusted downward its estimates of economic growth. In April 2009, it forecasted global economic growth for 2009 would be -1.3%, sliding drastically from the pre-crisis 5.2% recorded for 2007. Economic growth in the US was forecasted to sharply drop to -2.8% for 2009 from 2.0% for 2007.

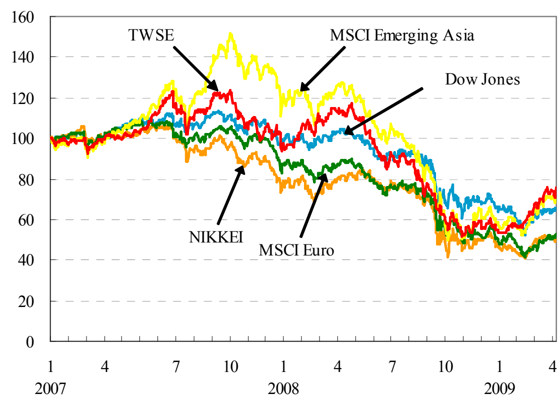
As the economies of most emerging and developing countries are mainly export-driven, their economic growth was also adversely affected due to the spill-over effects of the economic recessions in industrialized countries. The IMF forecasted the economic growth rates of these economies would sharply drop to 1.6% for 2009 from 8.3% for 2007.

**Chart 2.8 Outstanding balances of US ABCP**




Source: Fed.

**Chart 2.9 Trend of global major stock indices**




Note: 2007/1/2=100.
Source: Bloomberg.

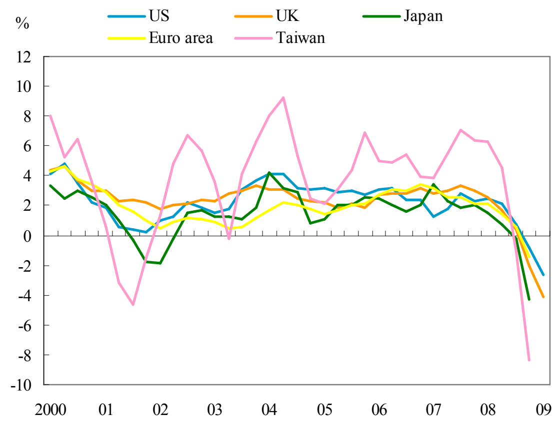
### *Consumer confidence waned*

The lack of confidence is one of the key factors aggravating and prolonging the financial crisis. Many governments have implemented policies to restore confidence. Regretfully, confidence has been slow to return while many uncertainties remain. The consumer confidence indices surveyed by the University of Michigan and the Conference Board revealed that consumer confidence continued to dive, and the index surveyed by the latter was nearly half of that by the former. This showed extreme pessimism about the economic prospects (Chart 2.11). A similar phenomenon of downcast consumer confidence ailed the UK and Germany. In the UK, the consumer confidence index slid to a level of -35 in February 2009 from -7 in January 2007, while the index in Germany dropped to 71 from 99 over the same period. However, except for Germany, the US and the UK showed encouraging signs indicating that their consumer confidence indices stopped falling and appeared to rebound. The indices of both the University of Michigan and the Conference Board rose to a level of 68.3 and 39.2 in April 2009, respectively, while the index for the UK went up to -27.

### *Unemployment rates trended upward*

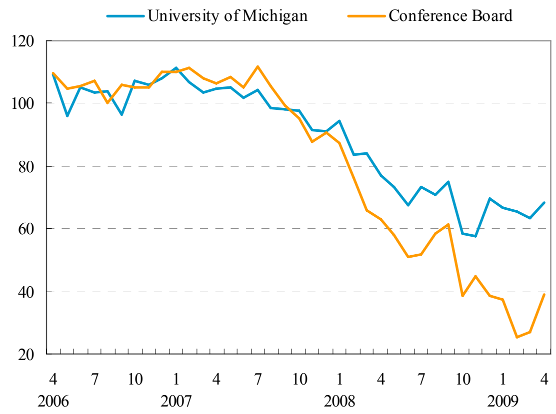
The financial crisis caused a decline in real output, leading to the most severe post-war economic recession. Under the threat of serious losses, financial institutions and corporations resorted to a series of large-scale layoffs, leading to noticeable increases in unemployment rates in various countries. Chart 2.12 shows that the unemployment rates in the advanced industrialized countries, such as the US, UK, Japan and Europe, climbed significantly after the second half of 2008, and the rates both in the US and the Euro area reached highs of more than 8% in March 2009. Emerging economies were also faced with the problem of drastic increases in unemployment. Data from the International Labor Organization indicated that the unemployed population in emerging economies in 2008 increased by 8 million people with their combined unemployment rate hitting 5.9%. The data also forecasted that the unemployed would increase by 32 million people in 2009.

**Chart 2.10 Economic growth rates of various countries**




Source: Bloomberg.

**Chart 2.11 US consumer confidence indices**




Source: Bloomberg.

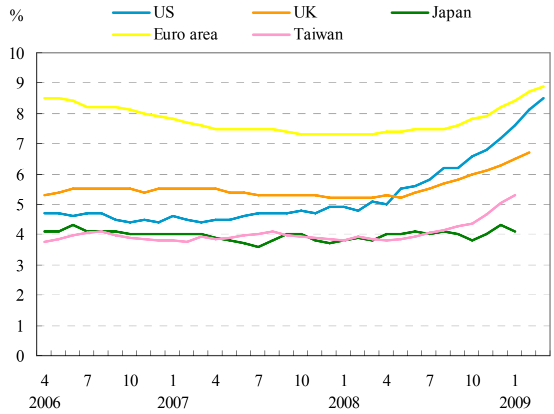
### *Deflation risk elevated*

Gloomy consumer confidence, rising unemployment rates and severe economic recession resulted in a noticeable shrinkage of individual incomes. The annual growth rates of consumer price indices declined (Chart 2.13), and deflation risk in various countries ascended. The IMF published its forecasted data in April 2009, which showed the annual growth rate of the consumer price index for the advanced economies declined to a low of -0.2% for 2009 from 3.4% for 2008, while the rate for emerging and developing countries descended to 5.7% from 9.3%.

## Monetary policy confronted with stern challenges

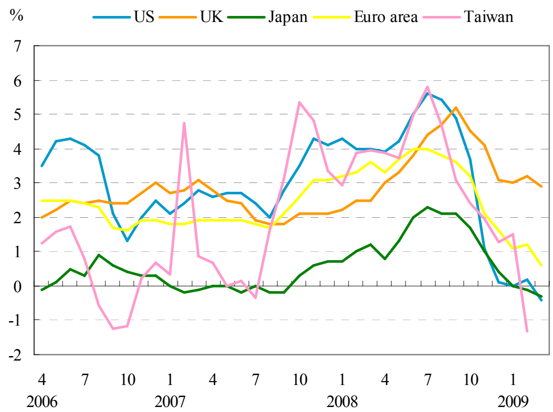
To respond to the financial crisis, the central banks in various countries not only implemented traditional monetary policies, such as lowering policy rates, but also promoted a series of emergency measures, including eased collateral requirements, numerous innovative policy tools and direct financing to non-financial institutions. This somehow reflected the limitations in the operations of traditional monetary policy and the experience that successful monetary policy operations in the past seemed to be insufficient to tackle this financial crisis. The reason behind this is that financial markets experienced structural changes in the past few decades, and the main financial intermediation in some countries (such as the US) has shifted from a bank-based into a market-based one. And banks, in order to respond to market changes, adjusted their traditional funding model of taking deposits, and adopted a securitization model or raised funds from the wholesale fund market. Whatever alterations banks adopted impacted directly on the bank-based design of the monetary policy framework and its transmission mechanism. Central banks proceeded to review the above-mentioned issues in order to be better prepared should a similar crisis occur in the future.

**Chart 2.12 Unemployment rates of various countries**




Source: Bloomberg.

**Chart 2.13 Consumer price indices in various countries**




Source: Bloomberg.

## 2.3 Measures to stabilize the financial system and revitalize the economy in major countries

In response to the impact stemming from the financial crisis, many countries have adopted a succession of measures designed to stabilize financial markets and to revitalize the economy via expansionary fiscal policies.

### 2.3.1 Measures to stabilize the financial system

In an attempt to relieve the credit crunch caused by the US subprime mortgage crisis, a number of central banks cut policy rates to ease credit market strains. On 8 October 2008, the Fed and five leading central banks took a coordinated action to lower interest rates. In addition to conventional interest rate policies, central banks in major countries implemented an array of the so-called non-conventional policies to inject funds into financial markets.

Furthermore, national governments in major countries actively implemented a series of policy measures to enhance the soundness of financial institutions' balance sheets so as to facilitate their on-going operations, including: (1) providing guarantees for deposit and non-deposit debt of financial institutions; (2) strengthening the capital structure of individual financial institutions; and (3) revitalizing financial institutions' assets (Table 2.1).

**Table 2.1 Measures to enhance the soundness of financial institutions' balance sheets in selected countries**

| Measure | Country |
|---|---|
| 1. Guarantees for deposit and non-deposit debt of financial institutions | |
| (1) Guarantee on deposits | |
| · Blanket guarantee on deposits | US (non-interest bearing deposits), Germany, Singapore, Hong Kong |
| · Raise insurance amount on deposits | US (interest bearing deposits), UK, South Korea |
| (2) Guarantee on non-deposit debts | |
| · Guarantee on inter-bank call loans | Germany |
| · Guarantee on bill/bond debts issued by banks | US, UK |
| 2. Strengthen financial institutions' capital structures through stock purchases or direct capital injections. | US, UK, Germany, Switzerland |
| 3. Revitalize financial institutions' assets | |
| (1) Guarantee on financial institutions' loans or other assets. | US, UK, Japan |
| (2) Enhance credit guarantee facilities for small and medium enterprises. | US, UK, Japan, South Korea |

Source: Official government websites in selected countries.

Meanwhile, the G-7, the IMF and the European Union (EU) undertook large-scale cooperative and coordinated actions. The IMF, in an effort to assist members devastated by the financial crisis, has provided special financing of up to US$50 billion to Ukraine, Hungary, Iceland, Pakistan, Latvia, Belarus, El Salvador, Serbia and Armenia since November 2008. In February 2009, Japan committed to loan up to US$100 billion to IMF for supplementing its financial resources, which in turn will assist its members to weather the current global crisis. The April 2009 G-20 summit members also agreed to treble resources available to the IMF to US$750 billion.

The current financial crisis originated from the US. This, together with the fact that the US and the UK are both key international financial centers and pivotal derivatives market hubs, has led to a more severe impact on the financial markets and financial institutions in these two countries. The following summarizes the main measures undertaken by the governments of these two countries to stabilize their financial systems.

### *US measures to stabilize the financial system*

The Fed has taken an easy monetary policy stance since September 2007. It has cut the federal funds target rate ten times to reach the level of 0.0%~0.25% and used innovative funding facilities[6] to increase market liquidity. It also signed currency swap agreements with fourteen foreign central banks, including Australia, Brazil, Canada, Denmark, the UK, the EU, Japan, South Korea, Mexico, New Zealand, Norway, Switzerland, Sweden, and Singapore, to mitigate the elevated pressures stemming from financial turbulence in the short-term US dollar funding market. On 18 March 2009, the Fed announced that it would purchase up to US$750 billion of agency mortgage-backed securities, US$100 billion of agency debt, and US$300 billion of long-term treasury securities.

In October 2008, the Fed and the US Treasury coordinated to take the first round of financial relief measures, including the Troubled Asset Relief Program (TARP) and the Temporary Liquidity Guarantee Program (TLGP). The Obama administration in February 2009 announced the second round of relief measures – the Financial Stability Plan (FSP) – due to concerns over the continued occurrence of substantial losses by financial institutions.

[6] The new funding facilities aim to inject liquidity into financial institutions and specific credit markets, which include Term Auction Facility (TAF), Term Securities Lending Facility (TSLF), Primary Dealer Credit Facility (PDCF), Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), Commercial Paper Funding Facility (CPFF), Money Market Investor Funding Facility (MMIFF) and Term Asset-Backed Securities Loan Facility (TALF).

### *Troubled Asset Relief Program (TARP)*

In mid-September 2008, Lehman Brothers filed for bankruptcy protection, and both Citibank and American International Group (AIG) were in financial distress. In response, the House of Representatives on 3 October 2008, passed the Emergency Economic Stabilization Act of 2008 (EESA), aiming at stabilizing financial markets. Under the Act, the US Treasury was authorized to launch the TARP within the budget limit of US$700 billion.

The primary focus of the TARP was initially to purchase troubled assets from financial institutions. But difficulties in assessing the value of impaired assets, and concerns over persistent and sizeable losses in some financial institutions, caused the Treasury to set up a voluntary Capital Purchase Program (CPP) as part of the TARP and spend up to $250 billion to provide direct capital injections into financial institutions. Through this program, the Treasury has injected capital into major institutions such as AIG, Citibank and Bank of America since October 2008.

### *Temporary Liquidity Guarantee Program (TLGP)*

In addition to purchases of stakes in banks through capital injection, the Federal Deposit Insurance Corporation (FDIC), on 14 October 2008, launched the TLGP with intent to strengthen depositors' and investors' confidence. Under the program, the FDIC offers a three-year guarantee for newly-issued senior unsecured debt of eligible institutions on or before 30 June 2009[7]. Furthermore, it also provides a guarantee for non-interest bearing deposit transaction accounts held at FDIC-insured institutions[8]. The deposit guarantee will expire on 31 December 2009.

### *Financial Stability Plan (FSP)*

Due to concerns over deficiencies in the TARP, the Treasury put in place the FSP so as to improve weaknesses in previous relief measures, to strengthen the financial system, to lay the foundation for economic recovery and to support the feeble real estate market. The FSP consists of six major financial initiatives (Table 2.2) with a scale of up to US$2 trillion to address the troubled assets problem and mitigate credit strains.

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[7] On 17 March 2009, the Board of Directors of the FDIC voted to extend the debt guarantee part of the TLGP from 30 June 2009 through 31 October 2009.

[8] On 3 October 2008, the FDIC temporarily raised the insurance amount on interest-bearing deposits from US$100,000 to US$250,000 per depositor before the implementation of the TLGP.

**Table 2.2 US Financial Stability Plan**

| Item | Measure | Content |
|---|---|---|
| 1 | Financial Stability Trust | 1. Requiring major financial institutions to undergo a comprehensive stress test. Firms that fail to pass the assessment are eligible to obtain capital from the Capital Assistance Program (CAP), while any investment made by Treasury under the CAP will be placed in a new entity of the Financial Stability Trust.<br>2. Increasing transparency and disclosure of exposures on the balance sheets of financial firms. |
| 2 | Public-Private Investment Fund | 1. On a scale of up to US$500 billion ~ US$1 trillion.<br>2. Putting public and private capital side-by-side to purchase troubled assets, and in turn lead to restoring the financial sector to normal operation.<br>3. Target: (1) nonperforming loans; (2) troubled asset-backed securities. |
| 3 | Consumer and Business Lending Initiative | Expanding the reach of the Term Asset-Backed Securities Loan Facility (TALF), coupled with a bold expansion of its size up to US$ 1 trillion from US$200 billion, to enhance the effectiveness of the stimulus for consumer and business lending. |
| 4 | Transparency and Accountability Agenda -Including Dividend Limitation | 1. All firms that intend to use government funds through the FSP are required to submit a plan of how they strengthen their lending capacity and commit to participate in mortgage foreclosure mitigation programs.<br>2. All firms that receive new capital assistance are restricted from paying common dividends, repurchasing shares and pursuing acquisition. |
| 5 | Affordable Housing Support and Foreclosure Prevention Plan | 1. Driving down overall mortgage rates through the Fed's purchase of government-sponsored enterprise (GSE) mortgage-backed securities and GSE debt.<br>2. Committing US$50 billion from the TARP to enable monthly payment reductions and loan modifications for distressed mortgage borrowers. |
| 6 | A Small Business and Community Lending Initiative | 1. Use of the Consumer and Business Lending Initiative to finance AAA- rated Small Business Administration (SBA) loans.<br>2. Temporarily raising the guarantee for SBA loans to 90%; reducing fees for SBA lending; and less burdensome processing of loan applications. |

Source: The US Department of the Treasury.

## UK measures to stabilize the financial system

Against the backdrop of the US subprime mortgage crisis spreading to the UK, and with a view to addressing a deterioration in liquidity and asset quality, the Bank of England (BOE) has acted to boost market liquidity by cutting policy rates nine times to 0.5% since December 2007, and by creating an array of new funding facilities[9].

In addition, for the sake of preventing spillovers from the financial crisis and easing the credit constraints of the banking industry, Her Majesty's Treasury (the Treasury) announced the first round of bailouts in October 2008, including the Bank Recapitalisation Scheme and the Credit Guarantee Scheme (CGS). These relief measures, however, were far from effective as most of the government's funds were still kept in the banking system with the result that they failed to play their role of financial intermediary. Consequently, in January 2009, the Treasury launched the second round of relief measures, which included the Asset Purchase Facility (APF), the Asset Protection Scheme (APS), and extending the CGS application period and expanding its scope of guarantee.

### *Bank Recapitalisation Scheme*

On 8 October 2008, the Treasury introduced the Bank Recapitalisation Scheme requiring eight major financial institutions to have a buffer of capital above the minimum requirement. A recapitalisation fund worth £50 billion will be used by the Treasury to inject capital into those large firms unable to raise required funds from the market. On 13 October 2008, the Treasury announced that it would spend £37 billion to make capital investments in the Royal Bank of Scotland (RBS), Lloyds TSB and HBOS through purchases of common shares and preferred shares. In November 2008, the UK government announced the establishment of UK Financial Investments Limited (UKFI) designed to manage all the government's share holdings in banks to safeguard the interests of taxpayers.

### *Credit Guarantee Scheme (CGS)*

In addition to capital injections through purchases of shares, and in order to restore public and investor confidence in banks, the Treasury further announced on 13 October 2008, that it would implement the CGS, which aims to expand the coverage of debt guarantees from deposit debts (£50,000 per bank per depositor) to non-deposit debts (such as certificates of

[9] The measures include the Special Liquidity Scheme (SLS) allowing banks to temporarily swap their high quality but illiquid mortgage-backed and other securities for UK treasury bills from the Bank of England with the aim of improving banks' liquidity positions. This scheme expired on 30 January 2009, and was replaced by the Discount Window Facility and Asset Purchasing Facility (APF).

deposit and commercial paper), to ensure that banks have sufficient funds to maintain normal lending operations. On 15 December 2008, the Treasury announced an extension of the guarantee period under the CGS to being effective from April 2012 until April 2014.

***Asset Purchase Facility (APF)***

The BOE was authorized by the Treasury to purchase a range of high quality government bonds and private sector assets through the implementation of the APF, with the aim of increasing the money supply and relieving the strain in capital markets. The losses incurred on the BOE's operation of the APF, wherever possible, will be subsidized by the Treasury.

***Asset Protection Scheme (APS)***

The Treasury launched the Asset Protection Scheme to provide protection against losses on banks' eligible troubled assets with the intent to make financial institutions more willing to lend and continue their normal lending operations. A fixed proportion of losses, incurred on future loss events related to protected assets, will remain with banks and the government will cover 90% of the remaining losses.

***Extending application period for CGS and widening its scope of guarantees***

In the face of tightening credit conditions in banks, the Treasury promulgated to extend the application period for the CGS to 31 December 2009, from 9 April 2009, and widen the reach of credit guarantees to AAA- rated asset-backed securities, with a view to reinforcing the scheme.

### 2.3.2 Measures to revitalize the economy

The IMF, in response to spillovers from the financial crisis to the real economy, appealed to national governments to undertake vigorous fiscal policies to bolster weakening aggregate demand. Since 2008, the US, UK and major Asian countries have actively implemented expansionary fiscal policies and launched a variety of macroeconomic stimulus packages, including: (1) offering tax cuts or tax rebates to stimulate private consumption; (2) expanding public expenditures; (3) promoting employment; and (4) supporting the housing market. The scale of these packages exceeds 2% of GDP in their corresponding countries (Table 2.3).

### The US

In addition to tax cuts of up to US$100~150 billion in the Emergency Economic Stabilization Act of 2008, President Barack Obama signed the 2009 American Recovery and Reinvestment Bill into law on 17 February 2009, with measures included in the bill worth US$787.2 billion, or 5.5% of GDP. The bill mainly consists of public expenditure, tax relief and protection of the vulnerable, with shares of 39.2%, 36.6% and 24.2%, respectively.

### Other Countries

Since September 2008, the UK government has carried out a series of stimulus measures, including Homeowners Support Package (£1 billion), Economic Stimulus Package (£20 billion), and Infrastructure Plan (£10 billion). Meanwhile, some advanced countries (e.g. Japan and Germany) and emerging Asian countries (e.g. China, South Korea, and Singapore) have also successively introduced wide-ranging economic stimulus plans in an effort to boost domestic economic growth.

**Table 2.3 Economic stimulus in selected countries**

| Country | Measure | Release date | Amount | Total amount to GDP (%) | | Time frame | Content |
|---|---|---|---|---|---|---|---|
| US | The American Recovery and Reinvestment Act of 2009 | 2009/2 | US$787. 2 billion | 5.54 | (5.5) | 2 years | The act will spend up to: (1) US$308.5 billion, or 39% of total funds, in public expenditure, infrastructure, science and education; (2) US$288.3 billion, or 37% of total funds, for providing tax cuts to individuals and corporations; and (3) US$190.4 billion, or 24% of total funds, for direct payment in individual, household and medical insurance. |
| | National Service Bill | 2009/3 | US$5.7 billion | | (0.04) | 5 years | To provide a US$5.7 billion fund within five years for: (1) helping the poor; (2) improving education; (3) promoting energy efficiency; (4) enhancing health care; and (5) looking after veterans. |
| UK | Homeowners Support Package | 2008/9 | £ 1 billion | 2.2 | (0.1) | 1 year | Includes: (1) reducing the thresholds of housing tax breaks; (2) offering interest-free mortgages for first-time, low-income home buyers; and (3) offering a “sale and rent back” option for those who can not sustain their mortgages. |
| | Economic Stimulus Package | 2008/11 | £ 20 billion | | (1.4) | 2 years | Includes: (1) tax cuts; (2) assistance for low-income families; and (3) expansion of public expenditure. |
| | Private Finance Initiative Infrastructure Project | 2009/1 | £ 10 billion | | (0.7) | 2 years | Includes: (1) rebuilding or refurbishing thousands of national schools in different levels and in turn to create 100,000 job opportunities for the construction industry; (2) deploying environmentally-friendly infrastructure, including renewing rail networks and increasing investment in environmentally-friendly industries; and (3) making a wide range of investments in optical fiber networks. |
| Germany | The first economic stimulus plan | 2008/11 | € 32 billion | 3.4 | (1.3) | 2 years | Includes: (1) providing tax exemptions for car buyers; (2) subsidizing the refurbishment of home appliances aiming to promote energy efficiency; (3) financing to SMEs; and (4) implementing public infrastructure construction. |

| Country | Measure | Release date | Amount | Total amount to GDP (%) | | Time frame | Content |
|---|---|---|---|---|---|---|---|
| | The second economic stimulus plan | 2009/1 | €50 billion | | (2.1) | 2 years | The package focuses on public infrastructure. It also includes: (1) tax cuts; (2) reducing health insurance premiums; and (3) offering special support to car manufacturers. |
| Japan | Comprehensive immediate policy package | 2008/8 | ¥2 trillion | 5.3 | (0.3) | 2 years | Includes: (1) lessening the medical burden of the elderly; (2) supporting the working capital of SMEs; and (3) establishing disaster contingency plans. |
| | Measures to support people's daily lives | 2008/10 | ¥5.9 trillion | | (1.2) | 2 years | Includes: (1) providing households with fixed-sum benefits; (2) reinforced measures for non-regular employees; (3) supporting nursing for children and the elderly; (4) reducing the highway toll; and (5) providing tax incentives for enterprises to encourage investment in energy-saving and new energy equipment. |
| | Immediate policy package to safeguard people's daily lives | 2008/12 | ¥4 trillion | | (0.8) | 2 years | Includes measures to: (1) support employment; (2) pursue tax reform; and (3) support people's daily lives. |
| | Policy package to address economic crisis | 2009/4 | ¥15.4 trillion | | (3.0) | 1 year | Includes: (1) establishing a social safety net for dispatched workers; (2) supporting financing for enterprises; (3) promoting solar power generation; (4) improving medical services; and (5) assisting local governments to develop regional economies. |
| China | Measures to increase domestic demand and stimulate economic growth | 2008/11 | RMB 4 trillion | 12.0 | | 2 years | Includes: (1) expanding low-income housing; (2) improving rural infrastructure; (3) reinforcing major infrastructure for railways, highways and airports; (4) enhancing health, culture and education; (5) improving ecological environment; (6) pursuing science and technology innovation, and industrial structure adjustment; and (7) pushing post-earthquake rebuilding. |
| South Korea | Economic stimulus package | 2008/11 | 14 trillion won | 10.1 | (1.5) | 1 year | Includes: (1) revitalizing local economies; (2) promoting industrial investment through tax preference and regulatory reform; (3) animating the housing market; and (4) assisting SMEs and low-income families. |

| Country | Measure | Release date | Amount | Total amount to GDP (%) | | Time frame | Content |
|---|---|---|---|---|---|---|---|
| | Green economic stimulus package | 2009/1 | 50 trillion won | | (5.6) | 4 years | To create new jobs through the development of the green business sector, such as energy-saving industry, low carbon transport and green building. |
| | Supplementary budget for job creation | 2009/3 | 28.9 trillion won | | (3.0) | 1 year | Includes: (1) creating employment opportunities; (2) supporting SMEs; (3) revitalizing local economies; (4) developing potential industries; and (5) supporting the livelihoods of low-income families. |
| Singapore | Growth dividends and GST subsidy | 2008/11 | S$5.06 billion | 10.1 | (2.1) | 5 years | Includes: (1) dispensing additional growth dividends of up to S$1.06 billion to Singaporean citizens, while low-income families will receive more; and (2) providing S$4 billion for the subsidy of the goods and services tax (GST) over five years. |
| | Resilience Package | 2009/1 | S$20.5 billion | | (8.0) | 2 years | Includes: (1) offering job training and preventing unemployment; (2) providing loans by banks; (3) providing subsidies and preferential taxes for corporations; (4) supporting households; and (5) investing in infrastructural construction, education, and medical and health care. |

Sources: IMF, World Bank and official websites in selected countries.