CHAPTER 1

Developments of the Current Financial Crisis

THE ENVIRONMENT BEFORE THE SUMMER OF 2007

Around the summer of 2008, many journals carried articles featuring the "one-year anniversary" of the current crisis and reviewing its developments. While there might be no strict definition, many cited the so-called "Paribas shock," which occurred in July 2007, as the start of the crisis. This was the shock caused by the big French bank, BNP Paribas, which stopped calculating prices and redemption of some financial products sold by affiliated funds over its counter because some fund products included securitized products related to subprime loans.

Even before the summer of 2007, however, there were some reports that something was wrong in the market for so-called subprime loans in the US. For example, US regulators jointly announced a somewhat unusual caution against declining discipline in subprime loan origination in March 2007. Moreover, there was a report that the US subsidiary of HSBC made a huge provision for subprime loans, and decided on the closure of its US business in February 2007.

Around the same time came the news that many US non-banks specializing in subprime loan origination faced solvency problems. News indicating ominous changes in the US subprime loan market gradually increased from late 2006 to the beginning of 2007.

Still, many experts in this area actually regarded this issue as local to the US, and a very specific market problem until about June 2007. The US subprime loan market had been growing very rapidly over recent years, and consequently reached a relatively huge size. Still, it was small in size compared with the prime mortgage market (about a little more than 10 percent at the end of 2006, as shown in figure 1.1). Besides, the subprime loan market is very special, dealing with households that are usually not

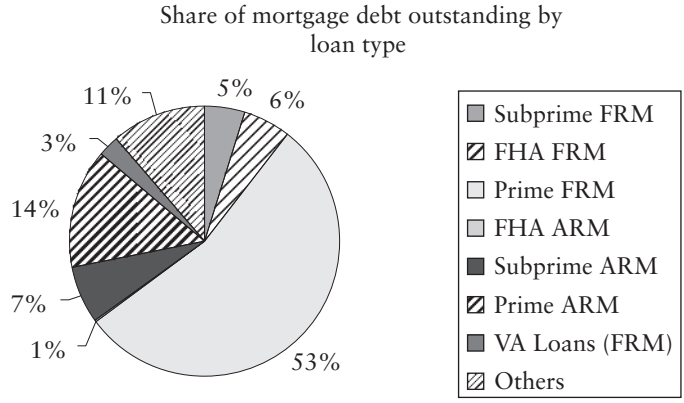


Figure 1.1 Subprime loan share of the US mortgage market
Source: Duncan and Verg (2007) based on material from the MBA 2006Q3 National Delinquency Survey

accepted by ordinary banks. Moreover, only a few non-banks that had aggressively originated reckless loans faced serious solvency problems at that time.

So the US perception of this crisis in the beginning stage up to the middle of 2007 was that it was surely a big problem particularly from the social justice point of view, but not so serious for the whole financial system, or from a macroeconomic point of view.

THE SUMMER OF 2007: PRELUDE

This type of observation changed dramatically around July 2007. First came the "Paribas shock." In addition, major global rating agencies announced a series of downgrades of securitized products around the same time. It was indeed a shock because all the major rating agencies at once started to downgrade products that were previously rated "AAA" or "AA," or "ultra safe."

These events gradually changed the characteristics of the crisis from a problem in the US subprime loan market to a problem of subprime loan-related "securitization," or a global problem for investors who invested in these products.

Another notable event was the report of a problem for a small German financial institution, IKB, on July 30. According to the report, this bank suffered huge losses because of its investments in securitized products

related to subprime loans. Even though it is a small institution, this news was shocking enough to many financial experts (particularly bank regulators) because the subprime loan problem had long been believed to be a problem for non-banks, and now had for the first time clearly been recognized in the banking system, which was supposed to be supervised by regulators.

Clearly, the problem was no longer just a problem of the US market. In Germany, another bank called Sachsen LB also became substantially bankrupt due to its own structured investment vehicle (SIV), which was heavily exposed to subprime loan markets.

In the midst of a series of these unbelievable failures, financial institutions had started to doubt even the credit of their counterparties in the money market. The consequence of this was the emergence of gridlock, or the evaporation of liquidity in short-term money markets, where banks provide funds to other banks. This problem first became serious in Europe and then in the US, particularly after August 2007. A symbolic event of this liquidity crisis was the failure of a British bank called Northern Rock.

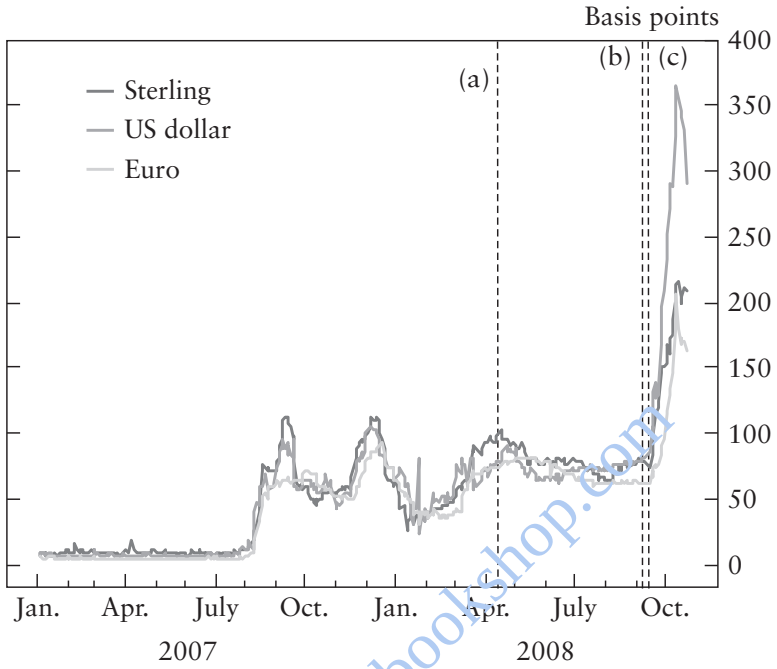
Northern Rock is a middle-sized British bank with assets of £17 billion ($34 billion), mainly engaged in mortgage loans. This bank's special business model of originating mortgage loans with wholesale funding, however, came under the spotlight partly because of its rapid growth. Northern Rock fell into a liquidity trap not because of its direct exposure to subprime loans, but because of its business model itself.

So, after the summer of 2007, the subprime loan problem turned from a local non-bank problem into a global banking problem through global financial institutions' investments in subprime-related securitized products, and then into a liquidity problem for banks, which were plagued by a distrust of each other in the market without any certain asset impairment information.

AFTER THE SUMMER: CONTINUOUS SURPRISES

These issues, particularly the liquidity turmoil, was temporarily contained, mainly thanks to the joint liquidity provision by major countries' central banks (see figure 1.2). At that time, banks and regulators expected that the announcement of banks' P/L during the second and third quarters could bring further turmoil up to the end of the year, but at the same time they hoped that this would be followed by the return of stability at the beginning of 2008.

Around that time, all financial experts expected that the delinquency and default rates of subprime loan markets were likely to rise during the



Spread of three-month Libor to three-month overnight indexed swap rates. Data to close of business on October 20, 2008.
(a) April 2008 Report.
(b) Fannie Mae and Freddie Mac taken into conservatorship.
(c) Lehman Brothers Holdings files for Chapter 11 bankruptcy protection.

Figure 1.2 Three-month interbank rate and policy rate
Source: BOE (2008b)

course of 2008. Provided that the problem was limited to the US subprime loan market, however, many agreed that financial institutions in general had enough capital to overcome it.

One optimistic idea after another fell victim to events after the summer of 2007. Actually, market participants' distrust expanded from subprime loan-related products to others that were only indirectly related to subprime loans. Moreover, they started to distrust products that were likely to be affected by the financial system, whose problems were revealed by the crisis. For example, problems arose from the loss of confidence in rating agencies, and from the imperfect model behind the design of securitized products.

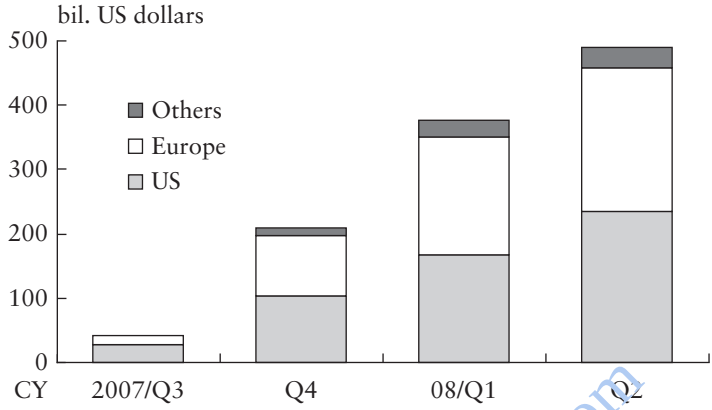


Figure 1.3 Subprime-related losses of major financial institutions
Source: Bloomberg, L.P.

By some measures, we can view those as a result of speculative transactions by some market participants, which tried to capitalize on the others' misfortune. Such volatile market movements should surely offer precious chances for some market participants to gain huge profits. While even aggressive agitation by market participants cannot easily cause such a quasi-panic situation in the ordinary environment, they could easily do so in an environment in which all the participants had lost their confidence in its long-established conventions. In other words, the shock was too big to be reacted to normally.

This "confidence debacle" included the buy-back of certain assets once believed to be detached from the balance sheet for reputational reasons. Moreover, this included frequent changes in accounting methods, which led to the expansion of financial institutions' losses. In this environment, against prior expectation, the losses of globally active financial institutions became bigger quarter by quarter (see figure 1.3). In this process, the US's fifth-biggest investment bank, Bear Sterns, faced a liquidity squeeze and was finally bailed out by the New York Federal Reserve.

The objects of the market's attack were then further expanded to other securitized products, including CDOs (securitized products backed by other securitized products backed by subprime loans) and monoline insurance companies (US insurance companies that specialize in financial guarantees). These were previously mainly engaged in the insurance of municipal bonds, but in recent years had expanded rapidly into the insurance of structured

products (including CDOs), leveraged loans, and government-sponsored enterprises (GSEs) such as Fanny Mae and Freddie Mac.

They were not necessarily affected by the performance of subprime loans. Some were just inspired by the association with subprime loans or securitization (e.g. ordinary mortgage loans including prime loans or highly leveraged transactions). Or some were businesses that were inherently defective but had not long been noticed thanks to the financial bubble (e.g., monoline insurers and GSEs).

This expansion of attack objectives was actually encouraged by the general worsening of the US macroeconomy. With hindsight, the financial experts' optimism seen in the summer of 2007 was conditional on very naïve assumptions that the market turmoil would be limited mainly to the US subprime and highly leveraged loan markets, and that subsequent shocks to profits of major financial institutions would be limited to declines from historic record levels. There was surely a serious problem for the stability of the financial system, but it would not necessarily wreck the macroeconomy itself.

This type of logic was also observed in Japan just after the debacle of the financial bubble in the 1990s. The events that followed again rebutted this somewhat optimistic logic observed in the US, however. The problems in the mortgage loan markets spread from subprime to prime loans. Moreover, the economic slump also went beyond the financial and real estate sectors to the whole macro-level, as private consumption became sluggish and the service and durable goods manufacturing industries felt the pinch.

THE SUMMER OF 2008 AND AFTER: FULLY FLEDGED CRISIS

The series of events after the summer of 2008 were dramatic enough for many still to remember them vividly. The US Congress finally approved then Treasury Secretary Paulson's proposal to inject public funds into the GSEs on July 26, and then the Treasury effectively nationalized them on September 7. The total budget to buy their preferred stocks was set at $200 billion, which suddenly more than doubled the size of the government's liability (the total outstanding debt issued by the two GSEs was more than the outstanding amount of the government bonds.).

Given that a large part of the GSEs' issued securities was owned by foreign financial institutions and central banks (see table 1.1), this reaction of the US government was very understandable. From the foreign investors' point of view, GSEs have long been equal to the US government. This means that defaults of the GSEs could trigger fear of default of the US government itself. This would surely be a disaster to be avoided by any means.

Table 1.1 Outstanding GSE-issued securities (at end of June 2007)

GSE-related securities		$5.3 trillion
	Agency bonds	$1.6 trillion
	RMBS	$3.7 trillion
Owned by foreign investors		$1.3 trillion
	Chinese	$370 billion
	Japanese	$228 billion
Owned by the three Japanese megabanking groups		¥4.7 trillion
Owned by top four Japanese insurance companies		more than ¥4 trillion

Source: Reuters reports 2008

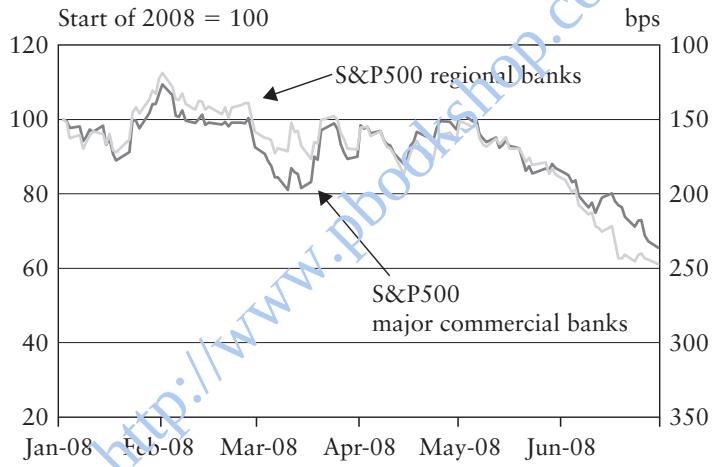


Figure 1.4 Share prices of the US financial sector
Source: Bloomberg, L.P.

Even this historical bailout could not stop the progress of the crisis though. The failure of a US representative investment bank, Leman Brothers in raising funds in the market in the same week had further amplified the mutual distrust in the US and European markets (as shown in figure 1.2), and escalated the attacks against their share prices (see figure 1.4). The result is a long unforgettable event of massive restructuring of the US financial system that took only a week.

After the fifth-biggest US investment bank, Bear Stearns, disappeared in March 2008, the third- (Merrill Lynch) and fourth- (Lehman Brothers) biggest also went under during the weekend of September 13 and 14 (Merrill Lynch was bought by Bank of America and Leman Brothers went bust). The remaining two (Goldman Sachs and Morgan Stanley) were also forced to set up bank holding companies, which would be supervised by the Federal Reserve Bank (FRB). Also, Morgan Stanley raised capital from Tokyo Mitsubishi UFJ, indicating a stronger alliance between banks.

Some similarities can be seen with the Japanese banking crisis, in which Sanyo and Yamaichi Securities went bankrupt, Nikko Securities fell under the umbrella of foreign bank's capital, Daiwa Securities established a strong alliance with a Japanese megabank, and only Nomura Securities remained distinct from the banks. Indeed, events in the US reminded us of the vulnerability of their business models, that is, high leverage and wholesale funding.

The shock did not only hit investment banks. In the same week that two investment banks had disappeared, the US government announced a bailout package for the US's biggest insurance company, AIG, which faced the risk of downgrading by rating agencies. The then-decided total amount of the FRB's bridge loan reached a maximum $85 billion, which accounted for about 10 percent of the FRB's total assets at that time. (The FRB's outstanding assets was about $900 billion in September 2008, but increased rapidly to reach more than $2 trillion in December 2008). This amount was also more than double the FRB's capital of the time ($41 billion).

For those who knew the developments after the summer of 2008, all these figures were no longer any surprise (a sign of surprise fatigue, maybe). Still, these events indicated an historic first turnaround in the FRB's policy to maintain the soundness of the central bank's balance sheet.

In 1985, FRB of New York once provided liquidity of $24 billion for the Bank of New York (BONY), which suffered from computer system troubles and a subsequent cash drain of $32 billion. It is said that the FRB of New York worked through the night to assess the values of all the assets held by BONY, including its real estate, to ensure that the collateral was big enough to cover the FRB's exposures. Meanwhile, the FRB provided a few times more than this to AIG, a company that is not directly supervised by the FRB. Naturally, it is difficult to assess the value of collateral covering such a huge risk taken by the FRB.

Indeed, this FRB lending to AIG was a straight loan without any collateral based on Article 13(3) of the Federal Reserve Act. This lending is normally understood to be used only for emergency purposes, and even in such a case, the government usually guarantees the lending. This time, however, the government announced only the "plan" to purchase AIG preferred securities corresponding to 80 percent of its capital. In other words, the FRB

was forced to make its decision even before ensuring that there was security provided to the government for its lending.

After the failures of investment banks and insurance companies, the market again targeted banks. In this process, the US's biggest savings and loan bank, Washington Mutual, failed, and was taken over by JP Morgan Chase. Also, the sixth-biggest US bank, Wachovia, which bought a Californian mortgage company in 2006, suffered from the accompanying nonperforming loans, and was finally taken over by Wells Fargo.

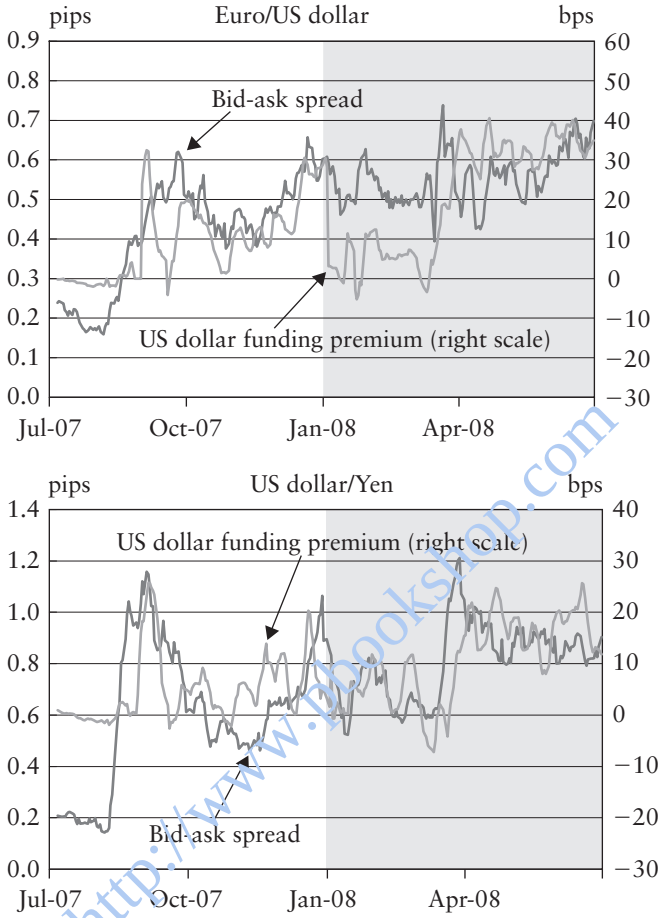
All these events forcefully pushed the US government to take more draconian steps, including mobilization of all available measures to stabilize the financial system. The Emergency Economic Stabilization Act, which includes the measures of purchasing nonperforming loans and of injecting capital into financial institutions, was first voted down by Congress and scorned by the world, but later, on October 3, 2008, finally approved.

With this new act, the government first planned to buy nonperforming assets up to a maximum $700 billion from financial institutions, but then also decided to inject capital into financial institutions, which finally crowded the original buying plan out of the budget. As a result, some roles of buying up risk assets of the private sector had shifted from the government to the central bank, FRB, which announced that it would embark on purchasing various mortgage-related assets. The government also provided guarantees for further losses arising from nonperforming loan assets detached from the balance sheets of financial institutions, thereby saving the use of its budget while accepting the risks.

The repercussions of this financial turmoil naturally spread after the summer of 2008 from the US to European countries, and also to Asian countries including Japan. First, liquidity evaporated in the short-term financial markets in many countries, and interbank rates rose sharply. This was particularly true of dollar markets against the background of the huge dollar funding needs of some European banks (see figure 1.5).

To calm this turmoil, the central banks of major countries, including the Bank of Japan, jointly took some stabilization measures. In addition to the increase in liquidity provision to the markets, some central banks, including the Bank of Japan, kickstarted their domestic currency lending with dollar asset collateral or dollar lending.

It was not only the short-term money markets that were at the mercy of the turmoil. Indeed, many financial institutions in Europe defaulted or were rescued by the public authorities because of their liquidity problems. For example, after the tenth-biggest bank in Denmark, Roskilde Bank, defaulted in August 2008; a large British bank, HBOS, was forced to be sold to Lloyds TSB; and another British bank, Bradford & Bingley, was partially nationalized. Moreover, Belgium and its neighboring countries' authorities injected



Note: 5-day moving average. US dollar funding premium indicates the spread between the FX swap implied US dollar rate and US dollar LIBOR.

Figure 1.5 Dollar funding premium
Source: Bloomberg, L.P. Meitan tradition

capital into Belgium's biggest bank, Fortis, and another major bank, Dexia. Likewise, some major banks in Iceland and Ireland received relief from their authorities.

Injection of public funds into financial institutions' capital gathered momentum once the UK government announced the bold step on October 7 of injecting £50 billion into major banks' capital by the end of the year.

Announcements of similar measures by other European countries, including Germany and France, followed. Furthermore, as stated, the US also joined in this European effort to inject capital into major financial institutions. According to media reports (*Nihon Keizai-Shimbun*, dated October 15, 2008), the total outstanding of the capital injection reached €270 billion in Europe, of which Germany accounts for €80 billion, France for €40 billion, Spain for €30–50 billion, and Italy €20–30 billion.

Around the same time, many European countries raised their levels of maximum deposit insurance guarantees. For example, the UK raised it from £350,000 to £500,000 on October 3, and Germany, Ireland, and Denmark went as far as announcing blanket protection.

According to the GFSR published by the IMF in April 2008, financial institutions' total losses that could occur in the coming two years, including not only direct losses related to the financial crisis, but also indirect losses such as those related to the economic slump, were $945 billion. The previously reported figure (October 2007) included only subprime loan-related losses at $240 billion. Even using the same definition, however, this figure increased to $525 billion in April 2008.

Against these estimates, for example, the report published by the OECD economists (Blundell-Wignell 2008) insisted that the substantive loss amounts of financial institutions should be about $422 billion if based on their fundamental values. This report assumed a recovery ratio for subprime loan assets of about 40 percent, indicating that the figure estimated by the IMF, using only market prices, was likely to be an overestimate. The latest GFSR published by the IMF in October 2008, however, showed that total losses, $945 billion in April 2008, had further expanded to $1.4 trillion.

Developments up to the end of 2008 were an unprecedented sharp fall in major economies in a remarkably synchronized way, the subsequent reactions of central banks through a series of drastic monetary easings (the US Fed finally introduced a zero interest rate policy on December 16), an almost compulsory public capital infusion into major financial institutions, and the further expansion of the safety net to cover non-banks and some core industries such as automobiles (the US Fed started to purchase commercial paper [CP] issued by corporates and RMBS and so on).

Even in Japan, where the impact could have been minimal, business conditions worsened significantly because of the rapid appreciation of the yen against other major currencies and a sharp drop in foreign demand, and credit conditions tightened, particularly for small and midsized enterprises. In this environment, the Bank of Japan (BoJ) again reduced its policy rate close to zero on December 19, and also announced that it would purchase CP and other risk assets through financial institutions. Moreover, the Japanese government expanded its budget significantly for possible public capital

injection into financial institutions, and decided to purchase shares held by financial institutions and CP issued by business corporates, using the Development Bank of Japan.

This way, the local, special market problem dramatically changed into a global financial crisis at a certain point, and then further evolved into a once-in-100-years global financial crisis. Recently, we have experienced various financial crises or shocks, such as "Black Monday" (1987), "the LTCM shock" (1998), "9/11" (2001), and "the Asian Crisis" (1997) or "Russian Crisis" (1998). None of those crises, however, could even rival the size and spread of the impact of the current crisis. What in the world could cause the differences between the past and the current crisis?

SOME SIMILARITIES BETWEEN THE CURRENT CRISIS AND THE JAPANESE BANKING CRISIS

As the crisis in the US deepened, more arguments were seen to focus on the similarities between the current crisis and the Japanese banking crisis of the 1990s. I would like to touch on this issue here because it could give us a hint of the reasons the current financial crisis deviated from other past crises to become a far more serious crisis than ever before.

Because the current financial crisis is still going on, it is a little hard to draw a crystal clear conclusion on this issue at this point. The most important commonality between the current crisis and the Japanese banking crisis, however, seems to be that many factors behind the turmoil led to the loss in confidence of the mechanisms that had long supported high economic growth.

In the case of the current crisis, these mechanisms are "securitization," "ratings given by rating agencies," "fair value accounting," "VaR," or "Basel II." In the case of the US, it is also social policy, which effectively provides a guarantee for mortgage financing despite its strong emphasis on the mechanism of market economy in other areas. In other words, many implicit assumptions behind the "new financial system," which had long supported the robust economic growth of the US and some European countries, were simply put in doubt.

These elements are not necessarily found in other past crises. The central issues of the past crises, for example, hedge funds or emerging markets, tended to be peripheral; in other words, the crisis never entered into the core of major countries' financial systems.

In this sense, the current financial crisis can be seen as quite similar to the Japanese banking crisis during the 1990s. In the Japanese banking crisis, no one expected that the bubble bursting could evolve into such a tremendously serious crisis. In the early 1990s, many financial experts

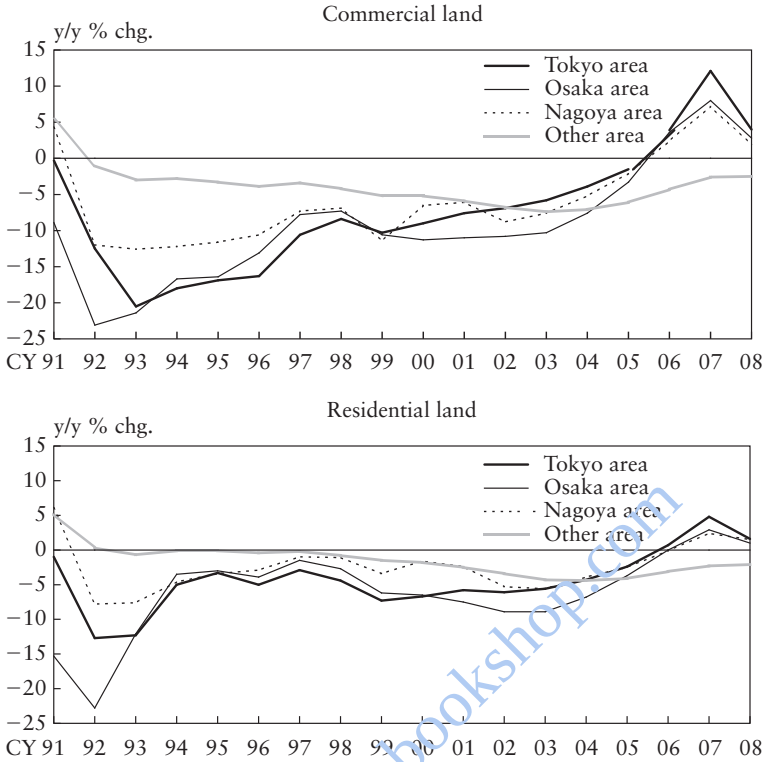
and economists were rather optimistic in saying that the Japanese economy would be on track once it adjusted excess capital formation, although it would take some years. Needless to say, the reality was different.

Asset prices in Japan fell significantly, particularly real estate prices, which continued to fall until 2004 (see figure 1.6). The real economy had also been sluggish, recording three years of negative growth (FY1993, FY1998, and FY2001), with an average growth rate of only a little more than 1 percent over the past 15 years (during FY1992 to FY2006). During this period, the share of Japanese GDP in the world economy fell from 14.1 percent in 1997 to just 8.1 percent in 2007 (see figure 1.7). The Japanese economy was actually overshadowed by other rapidly growing economies such as those of Brazil, Russia, India, and China (BRIC) and even the US and European economies.

Concerning the banking system, many financial institutions, including large ones, went bankrupt, and the government injected huge amounts of public capital into some of them to sustain financial system stability. Moreover, the central bank went so far as to introduce very abnormal measures for purchasing the shares held by financial institutions. During this period, bank lending continued to fall to 2004 (see figure 1.8). Japanese banks' position in the world also dropped sharply in terms of asset size or capitalization value. For example, *American Banker* reported in 1986 that among the top 10 banks in the world in terms of deposits outstanding, seven banks, including the number one, were Japanese. In 2006, however, among the top 10 banks in terms of asset size, there was only one Japanese bank, ranked eighth.

The seriousness of the problems of the Japanese banking system thus also stemmed from collapsing confidence in the financial system, which had long supported the miraculous economic growth after the Second World War. This system was represented by the loans with real estate collateral based on the myth of ever-increasing prices, relationship banking and cross-share holding between banks and corporations, assuming ever-continuing high economic growth, and finally banking regulation and supervision in this environment. Once the confidence in them collapsed, it should naturally take a long time and huge costs to establish a new system that could regain the confidence.

Many systems that lost users' confidence in the current crisis were related to the banks' relatively new business model, called originate and distribute (O&D). This business model will be detailed later but, putting it simply, unlike the traditional model, in which the bank originates loans and keeps them on its balance sheet, in this model, the bank originates loans to be securitized and sold to investors in the market. Consequently, banks can earn commissions from the process of origination and sale of loans while



Note: Prefectural Land Price Survey, surveyed by prefecture officials, shows the land prices as of July 1.

Figure 1.6 Development of Japanese real estate prices
Source: Bank of Japan 2008c; material from Ministry of Land, Infrastructure, Transport and Tourism, "Survey of Land Prices"

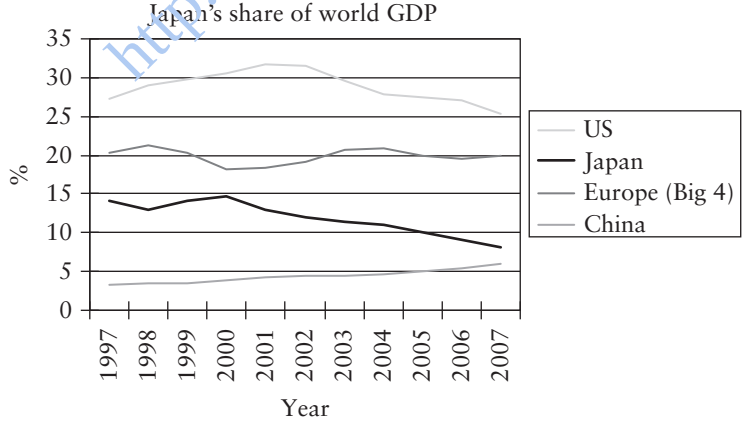
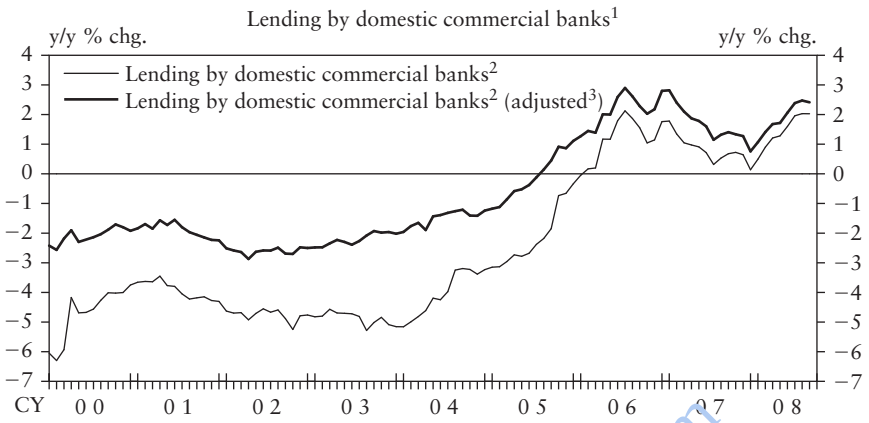


Figure 1.7 Japanese GDP's share of the world economy
Source: Economic and Social Research Institute 2008



Notes: [1]Percent changes in average amounts outstanding from a year earlier.
[2]"Domestic commercial banks" refers to city banks, regional banks, and regional banks II.
[3]Adjusted to exclude
(1) Fluctuations due to the liquidation of loans.
(2) Fluctuations in the yen value of foreign currency-denominated loans due to changes in exchange rates.
(3) Fluctuations due to loan write-offs.
(4) The transfer of loans to the former Japan National Railways Settlement Corporation to the General Account.
(5) The transfer of loans to the former Housing Loan Administration Corporation to the Resolution and Collection Corporation.

Figure 1.8 Growth rate of bank lending
Source: Bank of Japan 2008c

not keeping any risk on their balance sheet, releasing the capital that would otherwise be required.

It should be noted that this new business model flourished partly because of the failure of the Japanese banking system. Some financial experts and academics attributed the reason for the Japanese banking system being so problematic to there being so much risk concentrated in it. If banks can identify and break down the risk of loans they originate, and then sell securitized products backed by these assets to widely dispersed investors, with the risk sliced and diced to suit many varied investors in line with their risk appetites, the risk can relatively easily be assumed by the system as a whole. In this system, the risk is diversified among many investors, so the financial system was supposed to be able to overcome even the serious nonperforming loan problem experienced by Japan. (The IMF (2006) called this model the "twin-engine model," in contrast to the "single-engine model" of the Japanese banking system).

It is indeed an irony to note that lessons the system learned from the previous crisis have now caused another crisis. This irony should be a caution in reviewing this new business model. Fixing the current system could in the same way sow the seeds of another crisis, which might occur in another 10 or 20 years. To consider this possibility, the next chapter looks at the big picture of the current crisis and breaks it down into major elements, while chapter 3 discusses how regulators, banks, and others reacted to these elements.