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Financial Markets Report

Bank of Japan
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- This is an English translation of the Japanese version published on January 29, 2010.
- This report covers the market developments during the second half of 2009, unless otherwise stated.

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Executive Summary

I. Continuing Recovery in the International Financial Markets and Policy Responses

Around spring 2009, market participants' risk appetite (investors' willingness to take risks) recovered quickly as excessively heightened concerns about financial system stability eased and an increasing number of market participants started to expect economic activity to bottom out against the background of the progress in inventory adjustments. Nonetheless, a wide range of economic agents were suffering from excess debt in the United States and Europe, and investors were sensitive to developments in international financial markets. Thus, it was uncertain whether the recovery in risk appetite would be sustainable. In fact, following the turmoil in global financial markets triggered by the Dubai shock, investors' attitude toward investment became somewhat cautious. However, since the major central banks clarified their stance of continuing the low interest rate policy, investment in risky assets continued, albeit at a slower pace. Such financial flows were seen in not only developed economies but also emerging economies with relatively high expected growth, and stock prices and currencies of these emerging economies continued to be on an upward trend. Real estate prices in some economies and commodity prices also rose. These recovery and rise in a wide range of asset prices seemed to be attributable to the accommodative financial environment maintained by major countries. On the other hand, market participants became concerned with the possibility that the expectation of a continuation of the low interest rate policy in the developed economies might accelerate financial flows to the emerging economies, and that changes in expectations might trigger an abrupt reversal of such financial flows.

II. Developments in Domestic Financial Markets in the Second Half of 2009

In the second half of 2009, interest rates remained stable in money markets, as seen in the moderate decline in interest rates on term instruments reflecting the continued provision of substantial liquidity by the Bank of Japan. There seemed to be no adverse effects from the decision to terminate various temporary measures such as outright purchases of CP. Conditions in credit markets generally continued to improve, as credit spreads on corporate bonds -- not only those with high ratings but also those with medium and low ratings -- narrowed moderately. Although there was a concern about a deterioration in the supply and

demand conditions in government bond markets, Japanese government bond (JGB) yields generally stayed within a certain range. While U.S. and European stock prices rose steadily, Japanese stock prices were relatively weak. Particularly in late November 2009, due to the further appreciation of the yen against the background of the depreciating trend of the U.S. dollar against major currencies, stock prices fell further. After December 2009, when the Bank held an unscheduled Monetary Policy Meeting and decided to further enhance easy monetary conditions, however, the yen depreciated somewhat, and stock prices started to rise.

III. Points to Be Noted in the Financial Markets for the Foreseeable Future

Looking toward the developments in the financial markets for the foreseeable future, it remains important to focus on the factors that affect the interaction between the real economy and the international financial markets. On the real economy side, we need to carefully monitor how deleveraging (process of debt reduction) in the household as well as banking sectors -- for example, in the United States -- proceed and how they affect the financial sector in their rewinding process. Concerning the international financial markets, the issue of how investors' attitude to risk may change is attracting attention. At the moment, the investment attitude by global investors has been recovering but still remains sensitive to such risks including event risks like the Dubai shock. In this regard, global investors pay attention to the continuity of the low interest rate policy. So far, the low interest rate policy implemented by major countries has contributed to activating the real economy via asset price appreciation. On the other hand, global investors actively invest in emerging economies. There could be a large impact on the global economy depending on how the international financial markets respond to a situation in which financial flows into the emerging economies accelerate or when a sudden reversal occurs due to the changes in expectations. Another point noted by global investors is the deteriorating fiscal balances of major countries. Depending on the perspectives on the fiscal balances, investors could further increase their investment position to steepen the yield curve. It is thought that Japanese financial markets are becoming increasingly related to the international financial markets. Thus, it is important to consider the above points when projecting future developments in domestic as well as international financial markets.

IV. Issues Regarding the Functioning of Financial Markets and the Bank of Japan's Actions in 2009

After the failure of Lehman Brothers Japan Inc. in September 2008, in the JGB repo market, where the significant effects such as a decrease in liquidity were seen, the following were recognized as priority issues to be examined by all relevant parties in the markets: (1) improving market practices, mainly establishing and reviewing the fails practice; (2) enhancing the functions of and promoting the utilization of the Japan Government Bond Clearing Corporation (JGBCC); and (3) improving risk management by shortening the JGB settlement cycle. These issues have been discussed among market participants. Additionally, measures to enhance financial market activities have been examined in corporate bond markets, securitization markets, over-the-counter (OTC) derivatives markets, and CP markets. Furthermore, the business continuity plan (BCP) in financial markets has been enhanced in order to strengthen the resilience of the financial markets in the event of a disaster. The Bank hopes that market participants will continue to take initiatives related to improving market practices and infrastructure in financial markets, and the Bank will continue to support such private-sector initiatives.

I. Continuing Recovery in the International Financial Markets and Policy Responses

A look back at developments in the international financial markets from summer 2009 shows that there was a pause in the increasing trend in the risk appetite, reflecting the sluggish economic recovery. However, since the anxiety concerning the financial system continued to ease[1] and the major central banks clarified their stance of continuing the low interest rate policy, the risk appetite did not decrease and basically remained unchanged. In response to this, investment in risky assets continued, albeit at a slower pace. On the other hand, market participants became concerned with the possibility that the expectation of a continuation of the low interest rate policy in the developed economies might accelerate financial flows to the emerging economies, and that changes in expectations might trigger an abrupt reversal of such financial flows.

In Chapter I, we first describe the mild improvements in the international financial markets during the second half of 2009 and their background. We then give an overview of the policy responses of central banks and governments during this period.

1. Continuing Recovery in the International Financial Markets

Although the developed economies tracked the recovery path thanks to various policy measures, the pace remained sluggish, reflecting the negative pressure stemming from balance-sheet adjustments. Hence, even though market participants' risk appetite showed some underlying strength, it remained virtually level. At the same time, observing both the sluggish recovery in the real economy and the continued uncertainty about future developments, major central banks including the Federal Reserve clarified their policy stance of firmly continuing the low interest rate policy. Since the normalization of the financial markets progressed as reflected in the tightening of the LIBOR-OIS spread, expectations became prevalent that the conditions under which market participants raised abundant funds with costs at a historically low level could last for a while. As a result, investment in risky assets also continued, albeit at a slower pace. Abundance in market liquidity seemed related to active investment in the emerging economies with high expected growth rates, and concerns began to appear about a rise in asset prices or the overheating of economic activities in the emerging economies.

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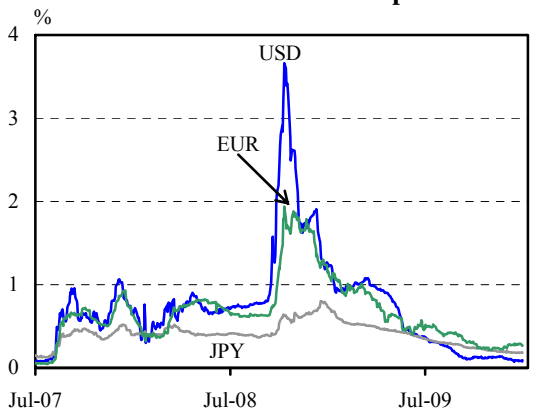
[1] For more details, see Bank of Japan, *Financial System Report*, September 2009.

Improvements in the money markets

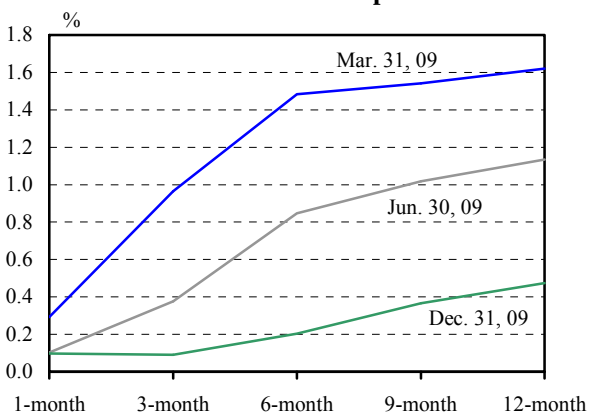
As the effects of various policy measures taken by governments and central banks around the world permeated, the anxiety concerning the financial system continued to ease and the major central banks continued to provide substantial liquidity. Accordingly, conditions in the money markets continued to improve and regained balance. The LIBOR-OIS spread, which had showed vividly the dysfunction in the money markets, tightened almost to the level seen just before the BNP Paribas shock (Chart I-1-1). The LIBOR-OIS spread curve became flat for maturities up to three months (Chart I-1-2). This implies that the 3-month Term Auction Facility (TAF) by the Federal Reserve was effective and that money market funds (MMFs), influential suppliers of the funds, actively managed their funds. All told, the re-energization of the market trade seemed to progress. On the other hand, concerning the longer-term trade of more than six months, although a gradual shift was seen from three-month trade to longer terms, the view remained widespread that the recovery in market liquidity was not sufficient and the recovery in the functioning of the financial markets was not yet complete.

Chart I-1-1: LIBOR-OIS spreads



Note: 3-month.
Source: Bloomberg.

Chart I-1-2: LIBOR-OIS spread curves



Source: Bloomberg.

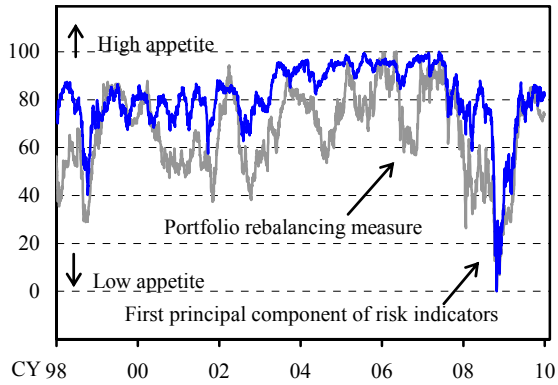
Developments in risk appetite

The risk appetite indicators based on a certain calculation[2] showed a quick recovery up until around June 2009 reflecting the increasing expectation of the bottoming out of

[2] The portfolio rebalancing measure is based on information about investors' portfolio rebalancing. The cross-sectional linear regression of excess returns and past risks (volatility) is run with a pool of risk-free assets and risk assets. The slope of the regression line represents the risk appetite index. The first principal component is estimated from risk indicators. For details, see Bank of Japan, *Financial Markets Report*, September 2008.

economic activity (Chart I-1-3). The level of the indicators was below that after 2003, when excess risk-taking behavior was said to be prevalent, but rose to the historical average level before 2003. Then, after summer 2009, as the view that the U.S. economic recovery would remain sluggish became dominant reflecting deterioration in the U.S. labor market statistics, the upward trend paused. Nonetheless, since the profitability of the U.S. major financial institutions showed a proper recovery and the possibility decreased of further negative feedback from the financial side, the risk appetite did not decrease and remained more or less unchanged.

Chart I-1-3: Risk appetite indicators



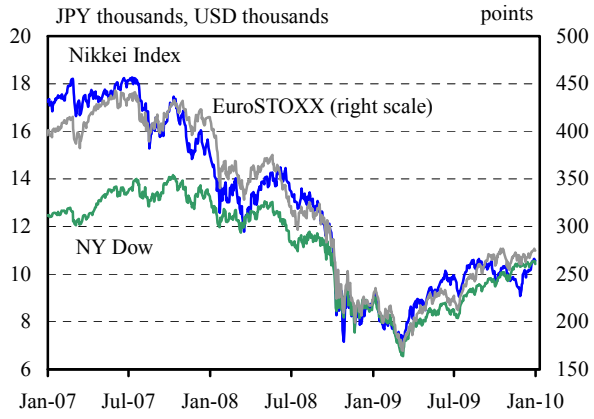
Notes: 1. The portfolio rebalancing measure is estimated from the risk-return profile of government bonds and stocks for developed and emerging economies. The first principal component is estimated from 17 risk indicators such as VIX.
2. Linearly transformed between zero and 100.
3. For more details, see Bank of Japan, *Financial Markets Report*, September 2008.

Under such circumstances, dynamics in stock prices showed that there were no large shocks to both the upside and downside, and the size of price fluctuations became smaller compared to those in the first half of 2009 (Chart I-1-4). The global co-movement measure of stock prices, by one calculation,[3] showed an upward trend from mid-2006, reflecting the expanding global flow of funds and a jump after the failure of Lehman Brothers Holdings Inc. (Chart I-1-5). Then, as the abrupt recovery in global risk appetite came to a halt, the degree of co-movement became smaller and seemed to return to the trend since 2006. From a different perspective, the decomposition of developments in major stock prices into globally common and idiosyncratic shocks shows that the globally common

[3] For this calculation, we first estimate the VAR for price changes in the Nikkei, S&P500, FT100, DAX, SE Composite, Bovespa, and ISE National 100. Then, we conduct a Cholesky decomposition on errors. We estimate the international dependence via variance decomposition for ten-period-ahead forecasts. The international co-movement is computed by aggregating the international dependence. For details, see Diebold and Yilmaz (2009).

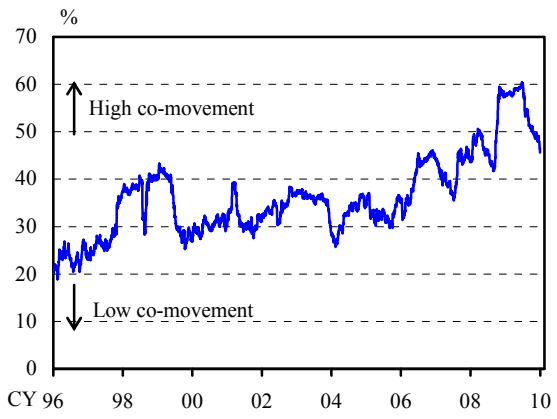
shocks became significantly smaller (Chart I-1-6).[4] Thus, stock markets came to more closely reflect the news in each market compared to the time immediately after the failure of Lehman Brothers Holdings Inc. (for details on background of global co-movements in the stock markets, see Box 1).

Chart I-1-4: Stock indices



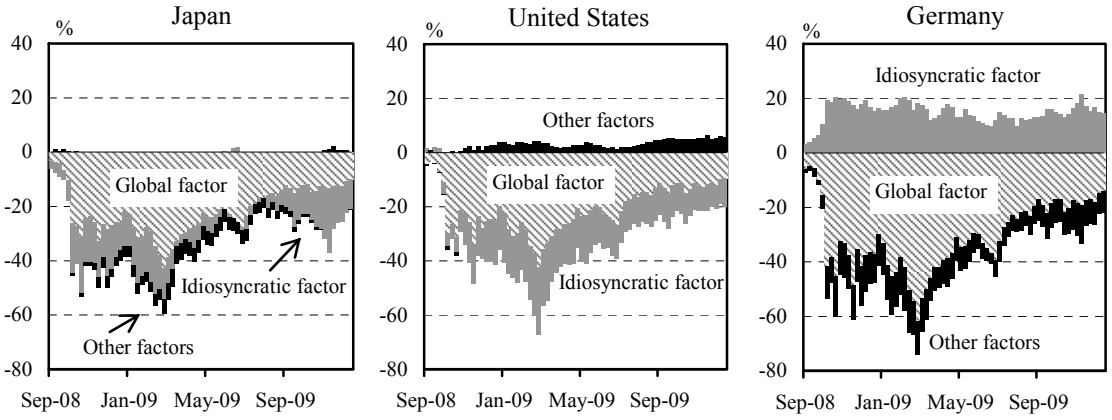
Source: Bloomberg.

Chart I-1-5: Global co-movement of stock prices



Sources: Bloomberg; Bank of Japan.

Chart I-1-6: Factors of stock market returns



Notes: 1. Natural logarithm of return from the end of August 2008.
2. Estimated from five stock market indices for Japan, China, Germany, the United Kingdom, and the United States.
Sources: Bloomberg; Bank of Japan.

Box 1: Background of Global Co-Movements in the Stock Markets

In circumstances where banks act globally, a local financial crisis can spill over globally through balance-sheet adjustments of banks.[5] On the other hand, during the current

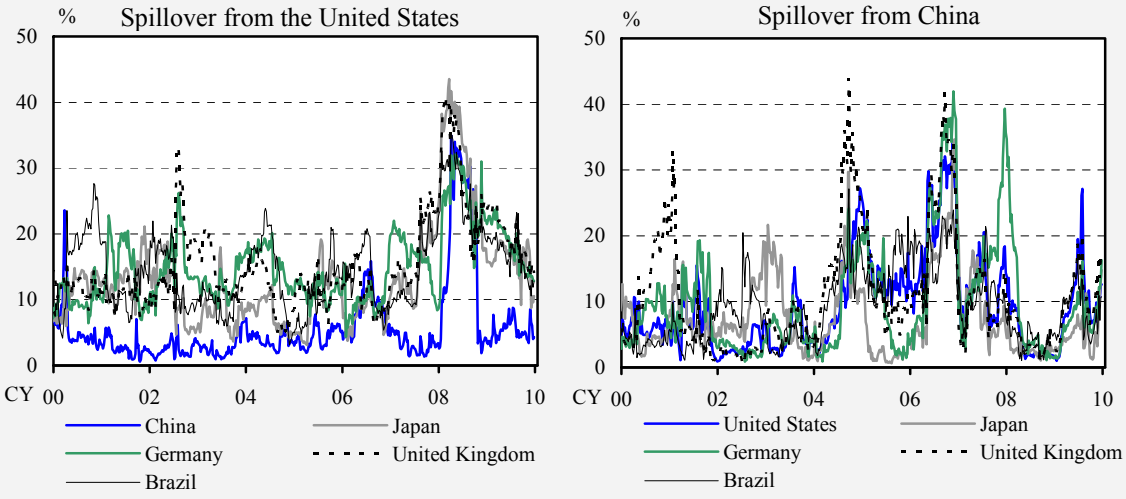
[4] We extract not only common factors (global shocks) but also idiosyncratic factors by Kalman filter. Then we estimate their contributions.

[5] The effects of a shock in one country on other countries are amplified by the international finance multiplier. For details, see Krugman (2008) and Devereux and Yetman (2009).

financial crisis, investors were unable to grasp the size and transmission mechanism of shocks, since the securitized products and others were related to each other in a complex manner. As a result, their risk-averse reactions reportedly took place all at once.[6] The shock during the financial crisis, therefore, acted as a global shock that affected the world simultaneously. In fact, the interdependence of stock markets around the world reached its highest level during the current financial crisis (Chart I-1-5).

In the meantime, much attention was paid to developments in China, which increased its share in the global economy as well as the United States. To understand the sources of the above mentioned global co-movement, we measure how the volatility in each market spilled over into others. The chart clearly shows that developments in the United States and China have significant effects on other markets (Chart 1 for Box 1).[7] This chart shows that although the effects of stock market developments in China on stock markets around the world temporarily abated around the time of the failure of Lehman Brothers Holdings Inc., they emerged again as the international financial markets improved after summer 2009.

Chart 1 for Box 1: Volatility spillover from the United States and China in stock markets



Note: Estimated from six stock market indices.
Sources: Bloomberg; Bank of Japan.

[6] For details, see Caballero and Kurlat (2009) and Nishimura (2009).

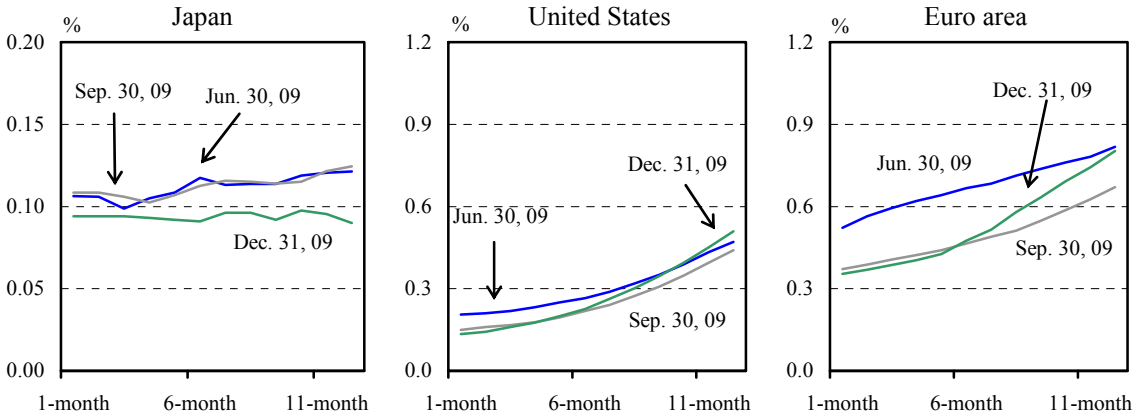
[7] For the computation method, see Footnote 3.

Expectations on maintenance of the low policy rate and its effects

While the risk appetite did not decrease and remained more or less unchanged, the prices of risky assets including U.S. stock prices showed resilience.[8] In the meantime, investment in such financial assets as U.S. non-investment grade bonds (high-yield bonds) or commodities stood out partly thanks to the belief that the low interest rate environment would last longer.

Reflecting both strong and weak economic indicators, expectations concerning the quick economic recovery weakened. In addition, the Federal Open Market Committee (FOMC) statement for the continuation of the low interest rate atmosphere -- as well as the Group of Twenty (G-20) statement to sustain a strong policy response until a durable recovery was secured -- set back the expectations of a policy rate rise. In fact, yield curves show that the anticipated duration until a policy rate rise lengthened during the second half of 2009 (Chart I-1-7).

Chart I-1-7: OIS curves



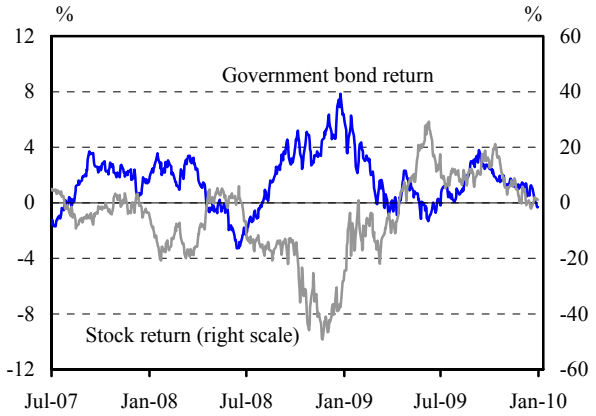
Source: Bloomberg.

So far, the return from government bonds has usually showed dynamics that are opposite to those of stocks in the developed economies. This was particularly the case when investors became very risk averse and shifted their financial assets from stocks to bonds after the failure of Lehman Brothers Holdings Inc. (Chart I-1-8). Remarkably, since autumn

[8] According to Reinhart and Rogoff (2009), which summarized the characteristics of past financial crises as well as banking crises, during the financial crisis real stock prices fell by 55.9 percent compared to the peak, and the decrease continued for 3.4 years. In the United States during the current financial crisis the S&P500 -- albeit nominal -- fell by 56.2 percent compared to the peak, which is almost the same as the historical average, but so far the decrease has continued for 2.2 years. This suggests a rather quick adjustment.

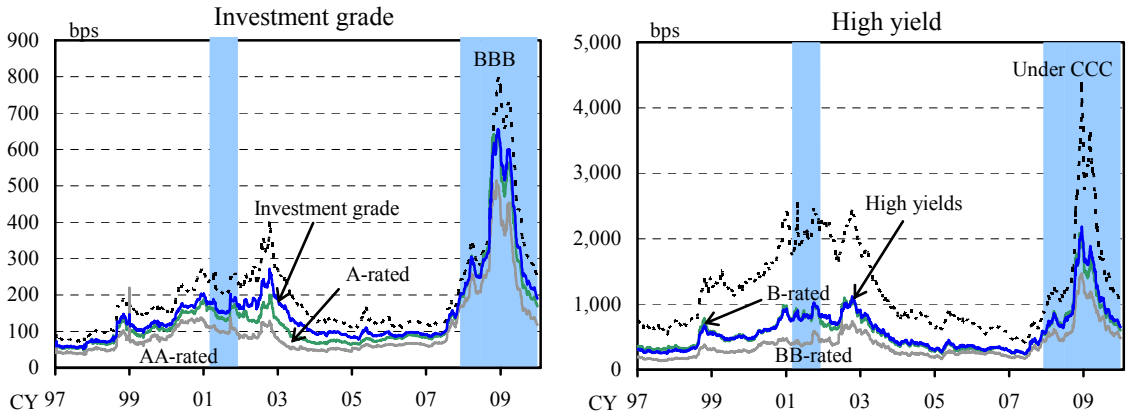
2009, the chart shows that investment in both bonds and stocks has progressed. Some market participants expressed views such that the current recovery in financial markets was not necessarily based on a firm belief in future economic recovery but reflected globally low interest rates and a provision of ample liquidity.

Chart I-1-8: Government bond and stock return for developed economies



Note: Simple average of 3-month return on government bond and stock indices for 20 advanced economies.
Sources: Barclays Capital; Bloomberg.

Chart I-1-9: U.S. Corporate bond spreads over government bond yields



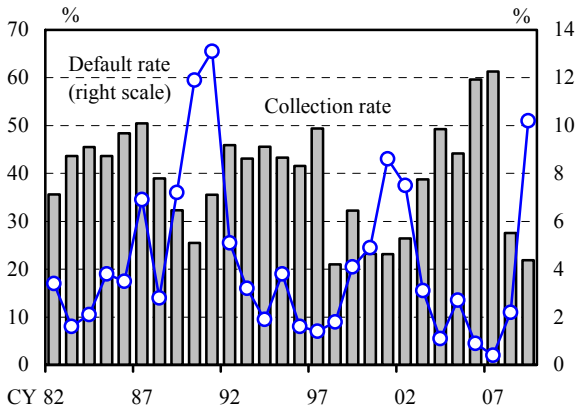
Note: Shaded areas indicate recession periods.
Source: Bank of America Merrill Lynch.

The spread between U.S. high-yield and treasury bonds continued to tighten even after it had already reached an appreciably low level (Chart I-1-9). Although the economy moved out of its worst phase, the realized default rate was high and collection rate at default was low (Chart I-1-10). Taken together, these imply that the risk appetite for high-yield bonds appreciated. At the same time, this tightening was also said to be affected by the banks' risk-taking or search for yield in facing the widening of the deposit-loan ratio under

the expectation of continued low interest rates (Chart I-1-11).

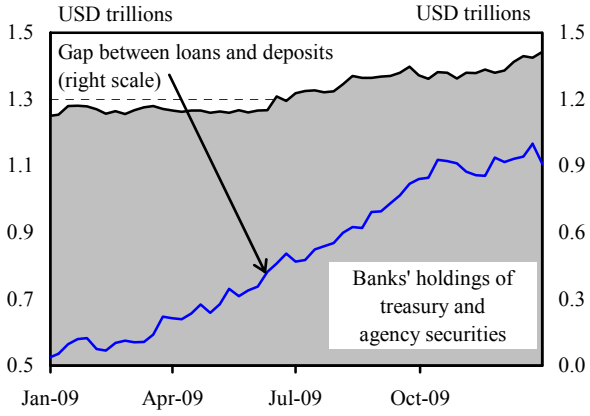
Furthermore, the expectation of the low U.S. dollar interest rate also seemed to result in the depreciating trend of the dollar. Through this channel, there were also the effects of the low interest rate policy (Chart I-1-12).

Chart I-1-10: U.S. default rate and collection rate of high yield bonds



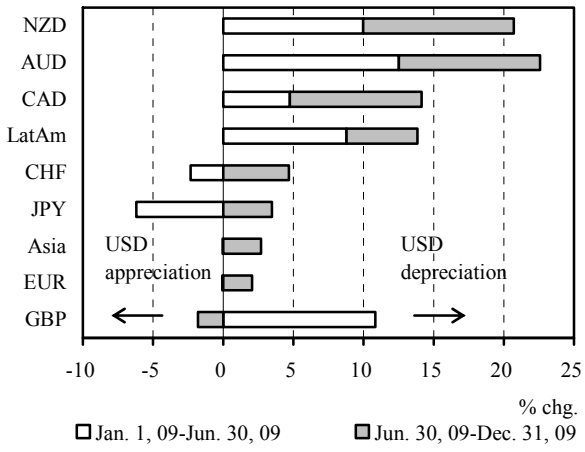
Sources: JPMorgan; Moody's Investors Service.

Chart I-1-11: Gap between loans and deposits of U.S. commercial banks



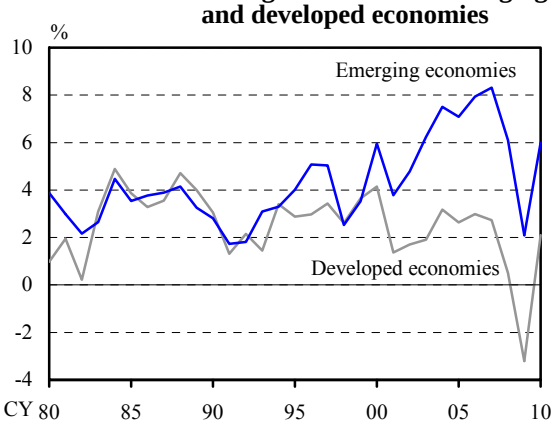
Source: Federal Reserve, "Assets and Liabilities of Commercial Banks-H8."

Chart I-1-12: Change in FX rates against the U.S. dollar



Source: Bloomberg.

Chart I-1-13: GDP growth rates of emerging and developed economies

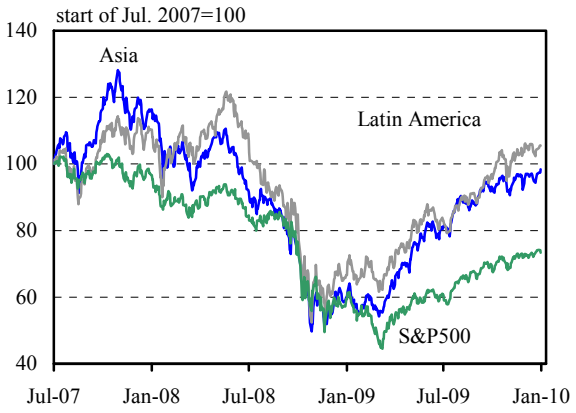


Note: Data for 2009 and 2010 are projections.
Source: International Monetary Fund, "World Economic Outlook."

While the recovery in developed economies was sluggish, international investment continued in emerging economies with high expected growth. This was further enhanced by the expectation of a continuation of the low interest rate policy and U.S. dollar depreciation. Basically, since the emerging economies did not face problems stemming from

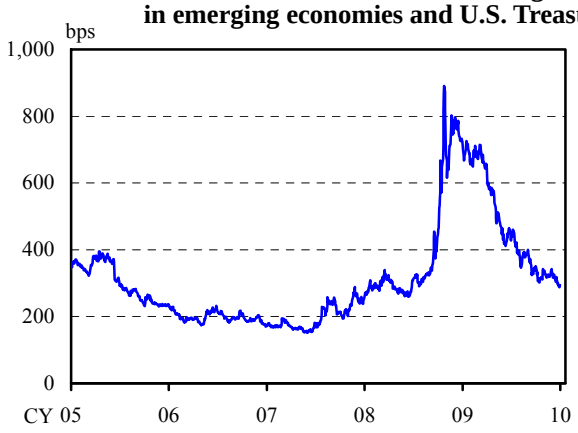
balance-sheet adjustments, they continued to show a steady recovery (Chart I-1-13). Yet, it was pointed out that the expansionary policy continued by the major countries together with the exchange rate policy such as fixed exchange rate or exchange market intervention taken by emerging economies had an expansionary impact on the emerging economies.[9] Furthermore, some warned that the investment in the emerging economies reflected the intensification of the carry trade with the U.S. dollar as the funding currency (on this point, see Box 2). In fact, the recovery or the increasing trend in the emerging financial markets was more rapid and significant compared to the developed economies (charts I-1-14 to I-1-16). In addition, real estate prices likewise increased (Chart I-1-17). Some emerging economies, which recognized the risk of overheating the economy posed by such abrupt international capital flows, started or began to consider capital controls.[10]

Chart I-1-14: Emerging stock price indices



Note: MSCI emerging market indices denominated in the U.S. dollar.
Source: Bloomberg.

Chart I-1-15: Yield differentials between sovereign bonds in emerging economies and U.S. Treasuries



Note: JPMorgan EMBI Global index.
Source: JPMorgan.

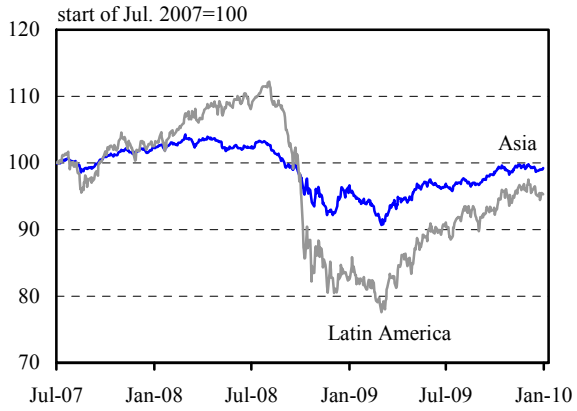
In the meantime, commodity prices rose (Chart I-1-18). Although this reflected the

[9] Taylor (2008) shows that "central banks are taking exchange rates into account when setting interest rates . . . . In the case where a central bank follows a dollar exchange rate peg, the central bank's interest rate must, of course, be cut along with a decline in the federal funds rate, which causes easier monetary policy in the United States to be exported abroad automatically . . . . But even central bankers with flexible exchange rate policies watch the federal funds rate and its futures carefully when making policy decisions."

[10] In October 2009, Brazil introduced a capital tax on capital inflows on equities and bonds of 2 percent. Taiwan began to prohibit foreigners from investing in fixed-term deposits in November. In addition, in November South Korea announced the introduction of regulations on capital transactions that require domestic banks to hold foreign assets from 2010. Indonesia, Russia, and Kazakhstan are also considering the introduction of regulations on capital transactions.

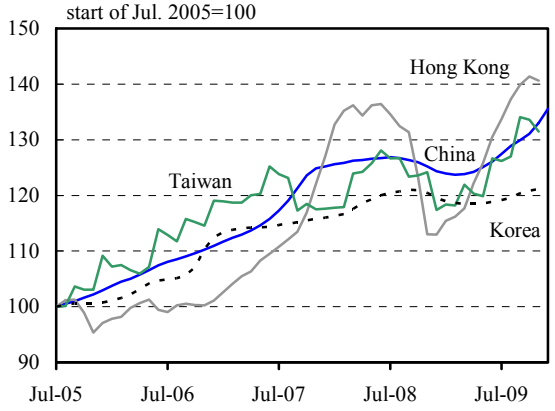
strong economic recovery of the emerging economies that resulted in demand for commodities, noncommercial investors' position increased to a high level for crude oil and gold (Chart I-1-19). For gold in particular, investment demand, which had been small, reached almost the same level as jewelry consumption (Chart I-1-20). These together implied the strong effects from investment flows.[11]

Chart I-1-16: Emerging currency indices



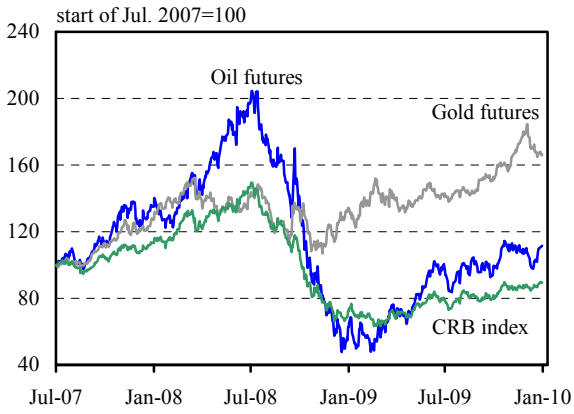
Note: Denominated in local currencies.
Source: Bloomberg.

Chart I-1-17: Housing price indices in emerging economies



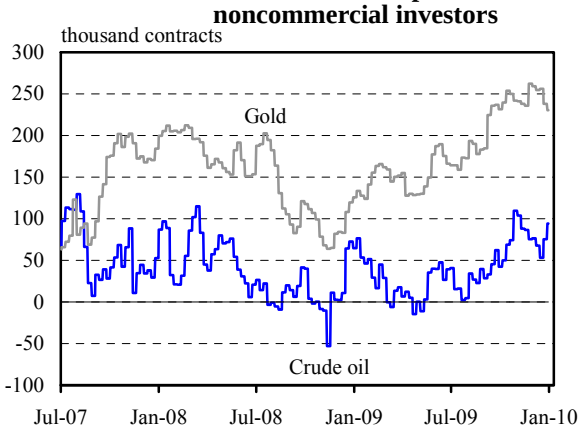
Notes: 1. Except for China, data are as of November 2009.
2. Data for Hong Kong include nonresidential properties.
Source: CEIC Data Company.

Chart I-1-18: Commodity prices



Note: Oil futures and gold futures indicate the NYMEX price and the CME price of the nearest contract months, respectively.
Source: Bloomberg.

Chart I-1-19: IMM futures net position of noncommercial investors



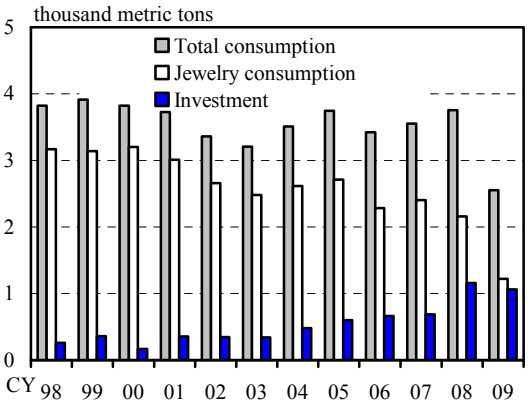
Source: Bloomberg.

Commodities were strongly affected by world stock prices and the U.S. dollar exchange rate. In addition, the correlation within commodities, especially within

[11] On gold, an expected increase in demand by the public sector was also pointed to as a reason for the increase.

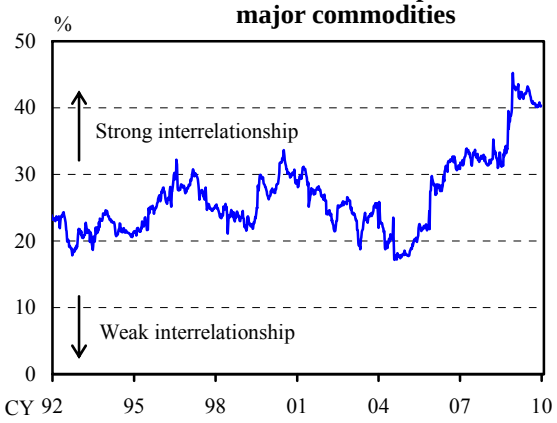
commodity indices,[12] strengthened even though the demand for each basically should differ. In fact, the interrelationship between major commodities[13] has become stronger (Chart I-1-21). Some have pointed out that commodities have grown to more closely resemble financial assets.[14]

Chart I-1-20: End-use gold consumption



Note: Figures for 2009 are only up to the end of September 2009.
Sources: GFMS, "Gold Survey 2009"; World Gold Council.

Chart I-1-21: Interrelationship between major commodities



Sources: Bloomberg; Bank of Japan.

Box 2: Carry Trade

When the carry trade -- funded with low-interest-rate currency and investing in high-interest-rate currency -- is active, the high-interest-rate currency tends to appreciate. In this case, the investor with a carry position will obtain profit from both the interest rate differential and the appreciation of the investment currency. Theoretically, such an excess profit should abate via depreciation of the high-interest-rate currency, which is called uncovered interest rate parity. The uncovered interest rate parity condition is, however, usually rejected statistically.[15] As a result, the risk-adjusted gain from the carry trade is larger than that from investing in safe assets.[16] This fact is known as the forward premium puzzle.

[12] For example, the Goldman Sachs Commodity Index (GSCI) and the Dow Jones-AIG Commodity Index (DJ-AIG).

[13] We applied the method in Chart I-1-5 to NYM-crude oil, CMX-gold, LME-copper, CBT-corn, CBT-soybeans, CBT-wheat, NYB-sugar, and NYB-cotton.

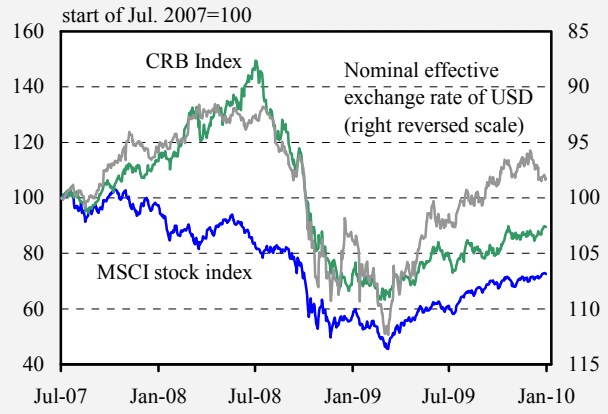
[14] See Tang and Xiong (2008).

[15] However, Alexius (2000) and Chinn and Meredith (2004) show that with the long-term interest rate it is possible that uncovered interest rate parity will hold.

[16] See, for example, Lustig and Verdelhan (2007).

One explanation for this puzzle is to consider the carry trade as an investment in risky assets.[17] According to this thinking, the return from the carry trade is a reward (premium) for taking the risk that the investment currency will show abrupt depreciation (unwinding of the carry trade). Under such circumstances, if the number of risk-taking investors increases, appreciation pressure will mount on the high-interest-rate currency because of the change in the supply-demand balance. If this type of carry trade accelerates further, the high-interest-rate currency will appreciate, increasing the risk of abrupt depreciation. In fact, the historical distribution for exchange rate changes tends to be skewed toward depreciation of the high-interest-rate currency.[18] For example, when the yen carry trade was active, it was skewed toward yen appreciation and implied the risk of a large appreciation of the yen. Similarly, risk reversal -- the difference in implied volatility between put and call options -- also tends to register the put-over position and to show strong motives to hedge the risk of a depreciation of the high-interest-rate currency.

Chart 1 for Box 2: U.S. dollar, stock, and commodity indices



Source: Bloomberg.

During the second half of 2009, the negative correlation strengthened between the U.S. dollar exchange rate and prices of stocks and commodities (Chart 1 for Box 2). This strengthening may have been affected by a recovery in risk appetite of global investors. If the series of policy responses to the current financial crisis have significantly contributed to the recovery in risk appetite by easing the borrowing constraint or reducing the funding risk,

[17] See Brunnermeier, Nagel, and Pedersen (2009).

[18] This implies that the risks in the carry trade should be measured by not only the variance but also the third or higher moments such as skewness and kurtosis.

there is a risk that the revival of the carry trade will increase the possibility of large adjustments in the foreign exchange (FX) market.

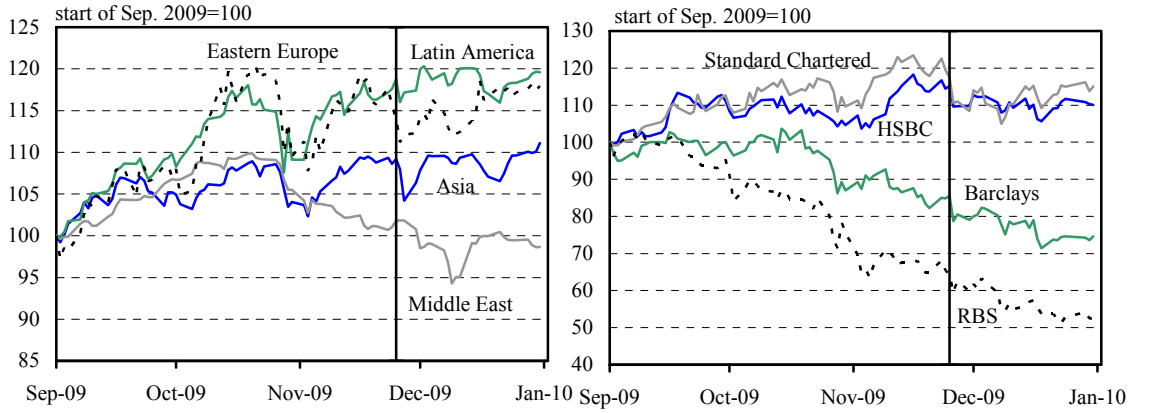
Reactions to the Dubai shock, etc.

While market conditions have improved, there were occasional bankruptcies but they did not cause any epidemic events. At the end of November 2009, however, after a government-affiliated firm in Dubai requested payment rescheduling, stock prices in the United States, Europe, and emerging economies and U.S. long-term interest rates decreased reflecting the flight to quality. In particular, stock prices in Middle East countries fell and those of major U.K. banks, whose exposure to the United Arab Emirates was considered relatively large, dropped after the request for payment rescheduling (Chart I-1-22). In December, however, after the Abu Dhabi government announced its financial support, concern about Dubai lessened significantly.

In the meantime, much attention was paid to sovereign risk in some European countries. The sovereign credit default swap (CDS) spreads and long-term interest rates compared to those in Germany rose in such countries as Greece, where expansion of the fiscal deficit was significant (charts I-1-23 and I-1-24; for details on the sovereign CDS market, see Box 3). These caused an intensification of market concern.

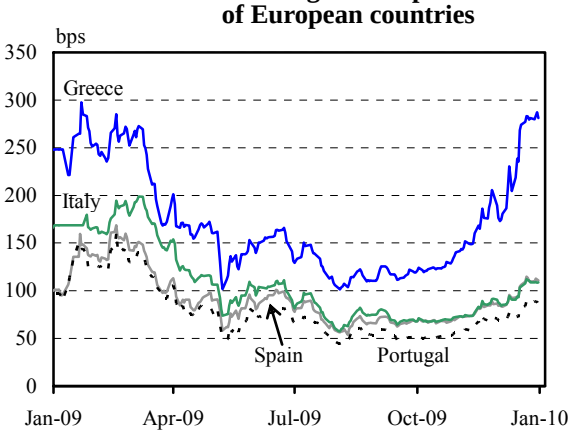
So far, the Dubai shock and sovereign risk in some European countries have not reduced global investors' risk appetite. As a result, international financial markets showed some underlying strength. Although global investors remained very cautious about various risks such as event risk, the resilience of the markets to shocks gradually increased reflecting improved market conditions.

Chart I-1-22: Stock index of Middle East and stock prices of U.K. banks



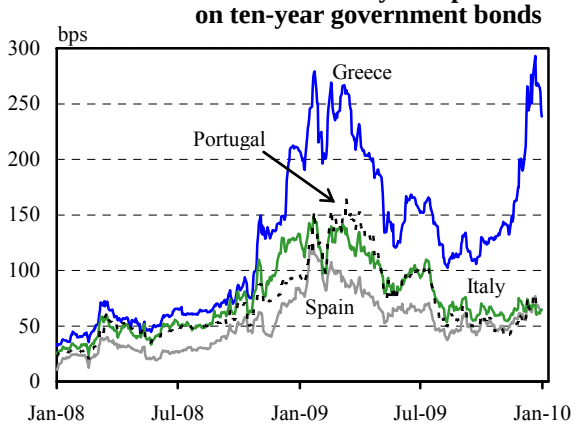
Note: The vertical line in the chart indicates November 25, 2009 when a government-affiliated firm in Dubai requested payment rescheduling.
Source: Bloomberg.

Chart I-1-23: Sovereign CDS spreads of European countries



Note: 5-year CDSs denominated in U.S. dollars.
Source: Bloomberg.

Chart I-1-24: Intra-euro area yield spreads on ten-year government bonds



Note: 10-year yield spreads relative to Germany.
Source: Bloomberg.

Box 3: Sovereign CDS Market

The sovereign CDS is the derivatives trade for sovereign creditworthiness. The buyers of CDS protection pay certain fees, and in return they can receive payment in the case of (1) default, (2) moratorium, and (3) restructuring.

Sovereign CDSs deal with sovereign creditworthiness by denominating trades in currency other than that of the targeted country. They are usually based on the U.S. dollar (the CDS for the United States is on the euro). The buyers of the protection dislike double default risk, namely, the default of both the country and the seller of the protection. Therefore, in principle, the economic agents whose nationality is the same as the country to be insured cannot be sellers of the protection. The major agents are as follows: financial institutions that buy protection to control the country risk limit in portfolios or reduce such risks as credit as well as price volatility risk; institutional investors that sell protection aimed at obtaining premiums; and hedge funds that conduct arbitrage dealing for the spread from the government bond yield after an asset swap or carry out sales transactions based on speculation.

The size of the sovereign CDS market is extremely small compared to the government bond market, and the volume of trade is small (Chart 1 for Box 3). The price dynamics may be affected by speculative motives such as those just mentioned. This point should be borne in mind when judging the country risk from changes in the CDS premiums.

Chart 1 for Box 3: Amounts outstanding of sovereign CDSs and government bonds

	Sovereign CDSs		Government bonds
	Gross	Net	
Japan	17,492	2,826	6,106,591
United States	10,713	2,162	7,566,500
United Kingdom	26,749	3,620	1,202,479
Germany	58,929	12,048	1,780,178

Notes: 1. The CDS data are as of December 11, 2009 in millions of U.S. dollars.
2. The government bond data are converted to U.S. dollars at the exchange rates at the end of September 2009.
Sources: Bundesbank; DTCC; EUROSTAT; Federal Reserve; Bank of Japan.

2. Policy Responses of Central Banks and Governments

In response to the financial crisis, central banks around the world implemented a series of temporary measures, including unconventional ones. Given the improvements in the financial environment, central banks decided to gradually terminate various temporary measures that had fully served their intended purposes. In the conduct of monetary policy, they firmly continued their low interest rate policy to ensure economic recovery. In addition, governments continued to implement large-scale economic policy packages and measures to stabilize the financial systems.

Temporary measures

In the second half of 2009, central banks continued to implement most of the temporary measures introduced by the end of the first half of the year. Reflecting central banks' provision of substantial liquidity to interbank markets and purchases of a range of assets, further improvements in the financial environment were seen. For example, the LIBOR-OIS spreads of various currencies were on a declining trend (Chart I-1-1), and the issuing conditions for CP started to improve.

Although usage of short-term liquidity facilities such as the TAF declined, the Federal Reserve continued to provide substantial liquidity, as seen in the significant increase in its holdings of long-term assets such as agency mortgage-backed securities (MBSs) and long-term Treasury securities, outright purchases of which started in the second half of 2008 and the first half of 2009, respectively. As a result, the size of the Federal Reserve's balance sheet remained at a high level (Chart I-2-1). The European Central Bank (ECB) conducted longer-term refinancing operations (LTROs) with a one-year maturity through fixed-rate

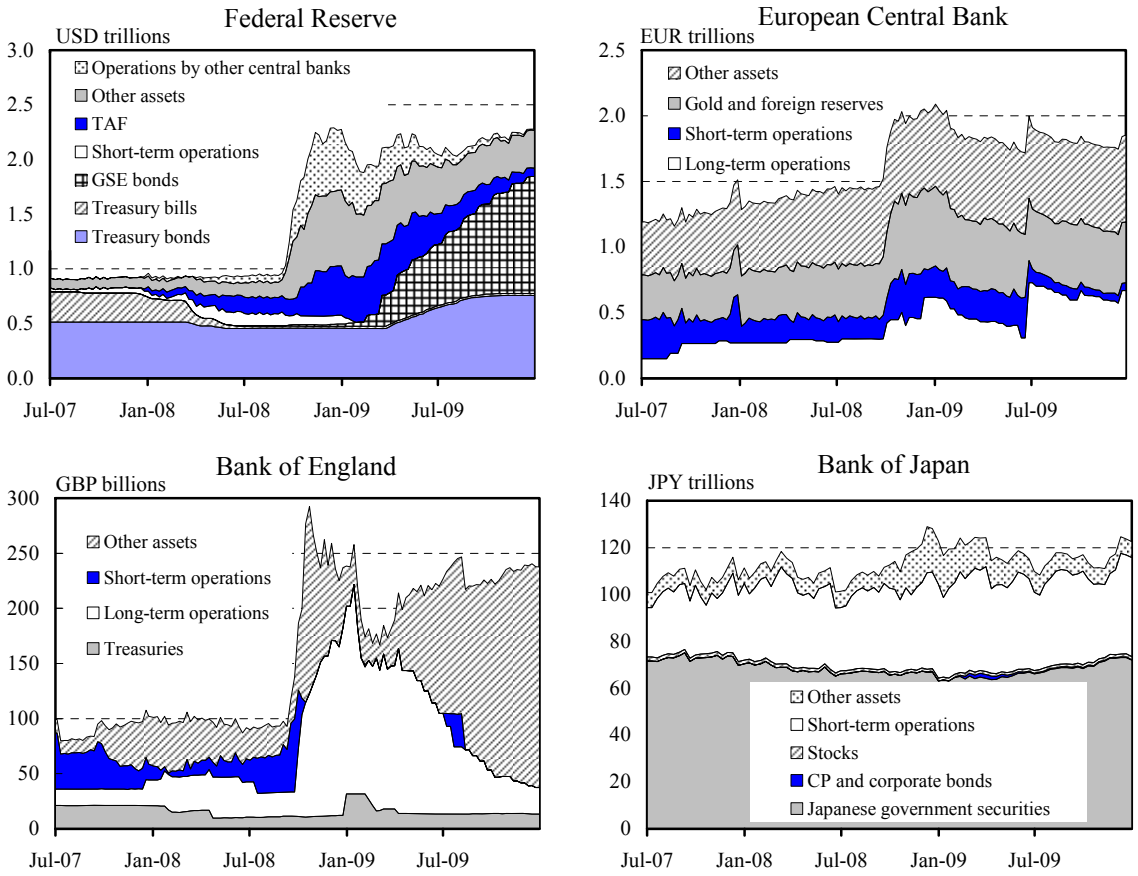
tender procedures with full allotment in September and December 2009, following the first operation carried out in June 2009. The bidding amounts remained at high levels. It should be noted, however, that the bidding amounts had decreased compared with those in the first operation, because the rate applied to these operations -- that is, the policy interest rate -- became less favorable than the market rate, which declined further in the meantime. The Bank of Japan continued to conduct a series of temporary measures introduced since autumn 2008, extending the effective periods of these measures. The Bank extended the effective period of the outright purchases of CP and corporate bonds from the end of September to the end of December 2009, and that of special funds-supplying operations to facilitate corporate financing from the end of September 2009 to the end of December 2009, and further to the end of March 2010. The effective period of expansion in the range of corporate debt as eligible collateral was also extended.

With regard to the provision of liquidity in foreign currencies, the Federal Reserve announced the extension through February 1, 2010 of the U.S. dollar liquidity swap and the foreign-currency liquidity swap arrangements with central banks that were scheduled to expire on October 30, 2009, to make it possible for other central banks to continue providing dollar funds.

Reflecting continuous improvements in the financial environment, market participants grew less dependent on temporary measures, as evidenced by the decrease in the bidding amounts of various operations. In view of these developments, central banks around the world reduced various types of liquidity support gradually and terminated some temporary measures whose intended purposes had been achieved.

As scheduled, the Federal Reserve completed its purchases of 300 billion U.S. dollars of Treasury securities by the end of October 2009. It announced that the purchases of agency debt and agency MBSs would be executed by the end of March 2010. The Federal Reserve also announced that it would not extend the effective periods of the Asset-Backed Commercial Paper (ABCP) Money Market Mutual Fund Liquidity Facility (AMLF), the Commercial Paper Funding Facility (CPFF), the Primary Dealer Credit Facility (PDCF), the Term Securities Lending Facility (TSLF), and the Term Asset-Backed Securities Loan Facility (TALF). TAF funding was reduced gradually, as its usage declined steadily. The ECB carried out the last twelve-month LTRO in December 2009 and decided to carry out the last six-month LTRO on March 31, 2010.

Chart I-2-1: Balance sheets of central banks

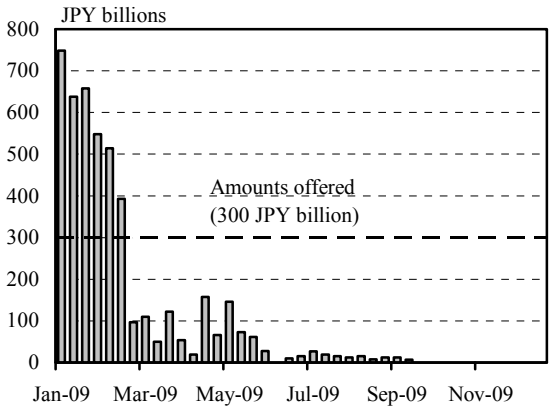


Note: GSE denotes government-sponsored enterprise.
Sources: Bank of England; European Central Bank; Federal Reserve; Bank of Japan.

In outright purchases of CP conducted by the Bank of Japan, the bidding amounts had decreased reflecting the improvements in the issuing conditions for CP. There had been no bidding for eleven consecutive operations conducted since September 18, 2009 (Chart I-2-2). In outright purchases of corporate bonds, amounts bid had fallen short of the amounts offered (Chart I-2-3). As for CP that was eligible collateral for special funds-supplying operations to facilitate corporate financing, issuance rates on some CP with high ratings had been below yields on government bills. The Bank terminated its outright purchases of CP and corporate bonds at the end of 2009, given that issuing conditions in the CP and corporate bond markets had been improving markedly and thus the purpose of the purchases to restore market functioning had been achieved. In addition, the Bank decided that special funds-supplying operations to facilitate corporate financing would remain in

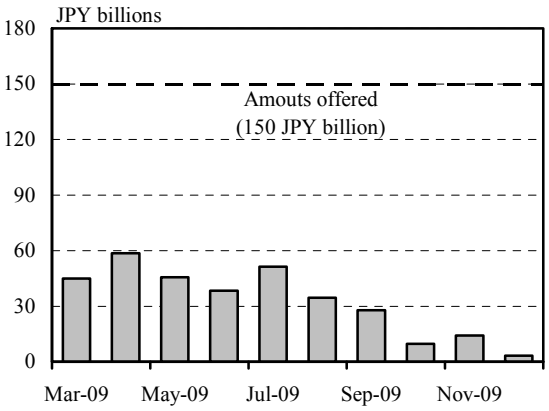
effect until the end of March 2010, in order to ensure financial market stability toward the end of the fiscal year, and would expire. From April 2010 onward, the Bank would be prepared to provide ample liquidity mainly through funds-supplying operations against pooled collateral, which accept a wider range of collateral. Meanwhile, it was decided that expansion in the range of corporate debt eligible as collateral would remain in effect until the end of 2010. In addition, the Bank decided that the complementary deposit facility would remain in effect for the time being, from the viewpoint of ensuring smooth conduct of money market operations while providing ample funds sufficient to meet liquidity demand in financial markets.

Chart I-2-2: Amounts offered and bid of outright purchases of CP



Source: Bank of Japan.

Chart I-2-3: Amounts offered and bid of outright purchases of corporate bonds

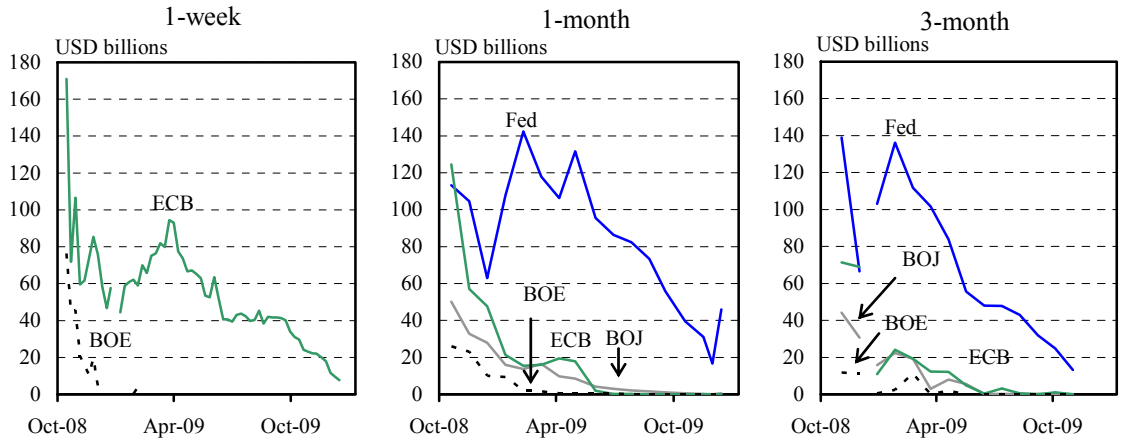


Source: Bank of Japan.

As global U.S. dollar funding markets began to return to stability, pressures in the markets eased and the bidding amounts of U.S. dollar funds-supplying operations decreased markedly (Chart I-2-4). The Federal Reserve announced in December 2009 that it would be working with its central bank counterparties to close its temporary liquidity swap arrangements by February 1, 2010.

The scaling down and termination of temporary measures, including ones that had already been terminated by the end of December 2009, seemed to have no significant impact on the financial markets, and the financial markets remained stable.

Chart I-2-4: U.S. dollar funds-supplying operations



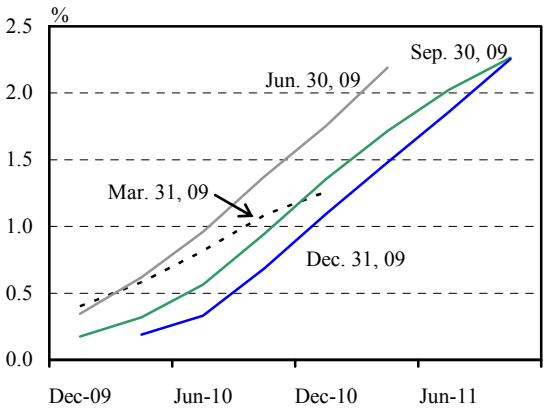
Note: Figures for the Federal Reserve indicate the amounts of TAF credit offered.
Sources: Bank of England; European Central Bank; Federal Reserve; Bank of Japan.

Maintenance of low policy rates

In the conduct of monetary policy, central banks around the world firmly continued their low interest rate policy through the second half of 2009, as the pace of recovery in the economy remained moderate.

In the statement released after the FOMC, the Federal Reserve showed clearly its stance of maintaining its low policy rate by stating that economic conditions were likely to warrant exceptionally low levels of the federal funds (FF) rate for an extended period (Chart I-2-5). As a result, market participants' expectations on the maintenance of low policy rate remained unchanged.

Chart I-2-5: Federal funds future rates



Note: Horizontal axis indicates the contract months.
Source: Bloomberg.

The Bank of Japan maintained its target for the uncollateralized overnight call rate, the Bank's policy interest rate, at 0.1 percent. In addition, the Bank explicitly stated that it would maintain the extremely accommodative financial environment by holding interest rates at their current low levels and providing ample funds sufficient to meet demand in financial markets. At the unscheduled Monetary Policy Meeting held on December 1, 2009, the Bank decided to further enhance easy monetary conditions by introducing a new funds-supplying operation to encourage a further decline in longer-term interest rates. This operation employs the framework of funds-supplying operations against pooled collateral, introduces a fixed interest rate set equal to the policy interest rate at the time of lending (0.1 percent), and provides ample longer-term funds with a term of three months.

Actions taken by governments

In the Leaders' Statement released at the G-20 summit held in September 2009, leaders pledged to sustain their strong policy response until a durable recovery was secured. In addition to large-scale economic stimulus packages, mainly those introduced or decided by the end of the first half of 2009, governments around the world continued to implement measures to ensure stability in financial markets. These measures continued to play a certain role in restoring confidence in the financial markets. In view of the improvements in the financial environment, some measures that achieved their intended purposes were terminated. For example, the Guarantee Program for Money Market Funds and a component of the Temporary Liquidity Guarantee Program (TLGP) expired in September and October 2009, respectively, as scheduled.

II. Developments in Domestic Financial Markets in the Second Half of 2009

In money markets, interest rates remained stable, as seen in the moderate decline in interest rates on term instruments reflecting the continued provision of substantial liquidity by the Bank. There seemed to be no adverse effects from the decision to terminate various temporary measures such as outright purchases of CP. Conditions in credit markets generally continued to improve, as credit spreads on corporate bonds narrowed moderately as a whole. Although there was a concern about a deterioration in the supply and demand conditions in government bond markets, Japanese government bond (JGB) yields generally stayed within a certain range. While U.S. and European stock prices rose steadily, Japanese stock prices were relatively weak. After December 2009, when the Bank held an unscheduled Monetary Policy Meeting and decided to further enhance easy monetary conditions, however, the yen depreciated somewhat, and stock prices started to rise.

1. Money Markets

In Japan's money markets, interest rates remained stable at low levels, mainly reflecting the continued provision of substantial liquidity through the Bank's various money market operations. The stability in short-term interest rates, however, was partly attributable to the Bank's operations that substituted market transactions and complemented market functioning. As such, it is perhaps too early to conclude that market transactions have returned to the normal state.

Overnight rates

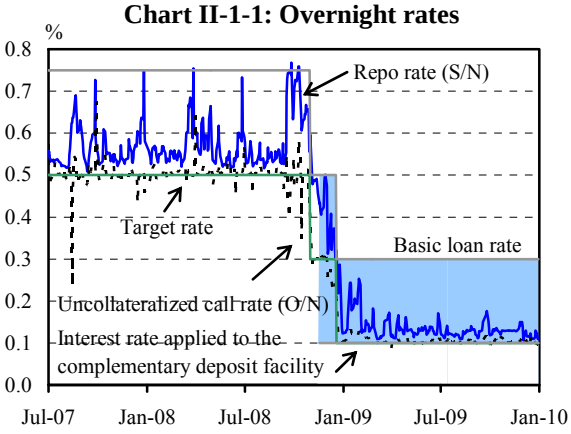
As the Bank continued to provide substantial liquidity, overnight rates remained stable on the whole.

The uncollateralized overnight call rate remained stable at around the Bank's target of 0.1 percent (Chart II-1-1). The complementary deposit facility, which applied the interest rate of 0.1 percent on excess reserves, set a floor for interest rates while the Bank continued to provide ample liquidity.

In the repo market, upward pressure on interest rates was observed occasionally, as funds were dislocated among market participants. General collateral (GC) repo rates for spot/next day transactions, however, stayed generally in the range of 0.10-0.15 percent due to the flexible provision of ample liquidity through the Bank's purchases of Japanese

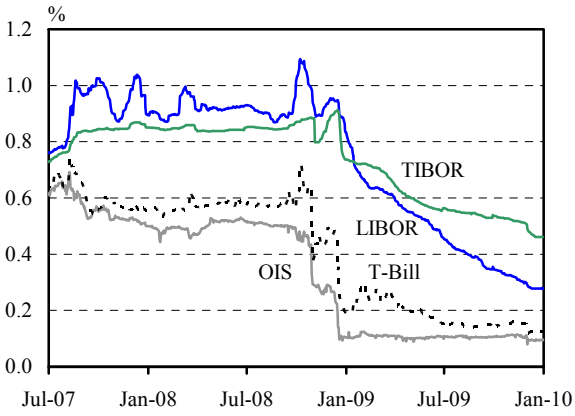
government securities (JGSs) under repurchase agreements.

Chart II-1-1: Overnight rates



Note: Horizontal axis indicates the settlement dates.
Source: Bank of Japan.

Chart II-1-2: 3-month rates



Note: Rate prior to the integration of FBs and TBs in February 2009 is the FB rate.
Sources: Bloomberg; Japan Bond Trading.

Markets for term instruments, foreign currency funds markets, and CP market

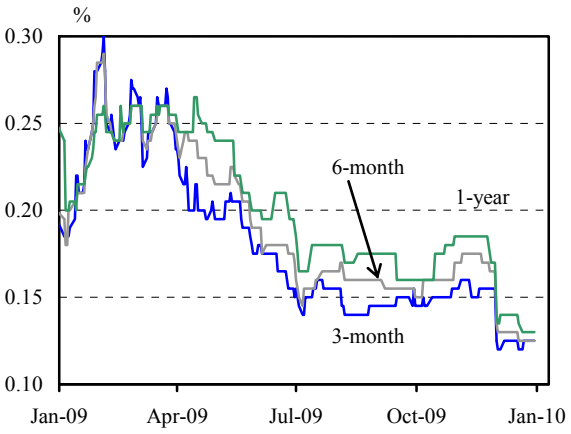
Under the accommodative financial environment, interest rates on term instruments continued to be susceptible to downward pressure and generally remained stable at low levels. Interest rates on term instruments declined further (Chart II-1-2), particularly after the unscheduled Monetary Policy Meeting held on December 1, 2009, at which the Bank decided to further enhance easy monetary conditions by introducing a new funds-supplying operation to encourage a further decline in longer-term interest rates.

Yields on government bills, particularly those with six-month and one-year maturities, rose as the government increased the issuance of its bills with one-year maturity in the middle of November 2009 in the context of a trend of increasing JGS issuance (Chart II-1-3). Yields on government bills, however, were stable in the range of 0.1-0.2 percent on the whole, as GC repo rates remained generally stable at low levels. After the introduction of a fixed-rate funds-supplying operation against pooled collateral, yields on government bills with up to one-year maturity declined to the range of 0.10-0.15 percent.

The Tokyo Interbank Offered Rate (TIBOR), the base rate for lending, was somewhat higher than other interest rates on term instruments. This was because the heightening of firms' credit risk after the outbreak of the current financial crisis delayed the return of TIBOR to the level of actual interbank rates. After the Bank announced the introduction of a fixed-rate funds-supplying operation against pooled collateral, however, TIBOR declined markedly, mainly reflecting the decline in yields on government bills

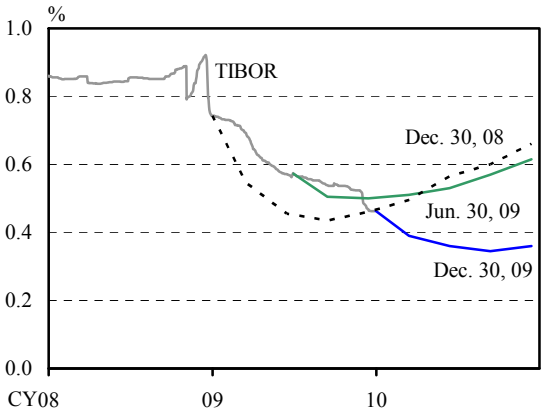
(Chart II-1-2). As market expectation of continued low interest rate heightened, Euroyen futures rates fell significantly after the unscheduled Monetary Policy Meeting (Chart II-1-4).

Chart II-1-3: Yields on government bills



Source: Japan Bond Trading.

Chart II-1-4: Forward curves for Euroyen futures



Sources: Bloomberg; Tokyo Financial Exchange.

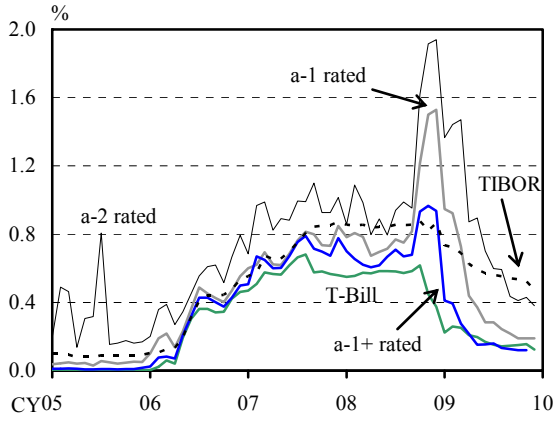
In the CP market, issuing conditions were stable against the background of the decrease in firms' credit demand for working capital and the Bank's special funds-supplying operations to facilitate corporate financing that included CP as eligible collateral. CP issuance rates remained more or less unchanged at low levels (Chart II-1-5). Issuance rates on CP rated a-2 declined moderately somewhat below TIBOR as those on CP rated a-1 or higher stayed at low levels and investors searched for yield. While the amount outstanding of CP rated a-1 or higher decreased as a whole due to the decline in precautionary demand for liquidity that grew toward the end of fiscal 2008, that of CP rated a-2 gradually recovered after falling significantly at the end of 2008 (Chart II-1-6). Issuing conditions for low-rated CP also started to improve.

In the foreign currency funds markets, conditions for obtaining U.S. dollar funds continued to improve, and demand for funding dollars in exchange for yen by Japanese banks remained steady. Costs of funding U.S. dollars remained stable (Chart II-1-7).[19] The

[19] Chart II-1-7 shows that the U.S. dollar funding premiums in FX swap markets (spreads between the cost of funding U.S. dollars and U.S. dollar LIBOR) have been positive at a certain level. This reflects the fact that yen LIBOR, which is used to calculate costs of funding U.S. dollars, has been somewhat higher than actual interest rates due to the insufficient recovery in credit lines that Japanese banks provide to foreign banks. Thus, the figures in the chart probably overstate the actual costs of funding U.S. dollars by Japanese banks whose demand for U.S. dollar funding is high (for more details, see Box 4).

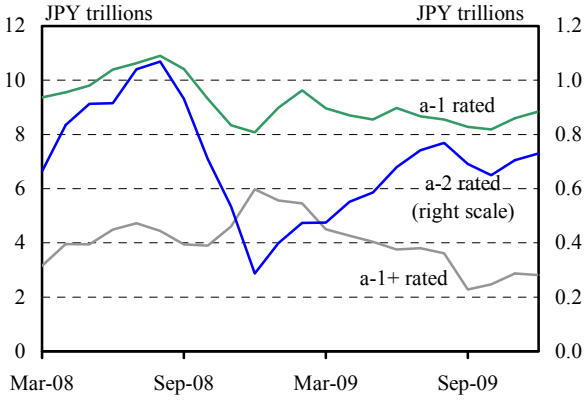
recovery in liquidity in FX swap markets also seemed to bring about stability in conditions for obtaining foreign currency funds (Chart II-1-8).

Chart II-1-5: CP issuance rates



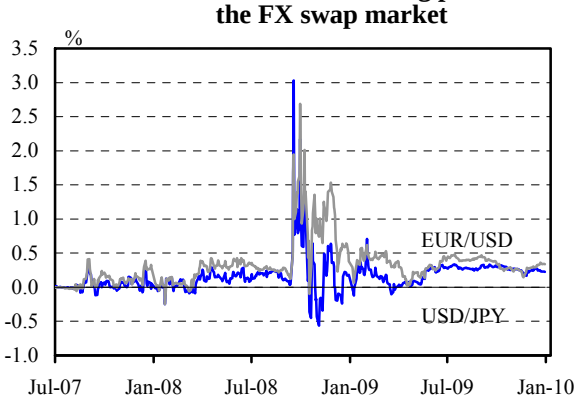
Note: 3-month maturity. Monthly weighted average.
Sources: Bloomberg; Japan Bond Trading; Japan Securities Depository Center; Bank of Japan.

Chart II-1-6: Amount outstanding of CP



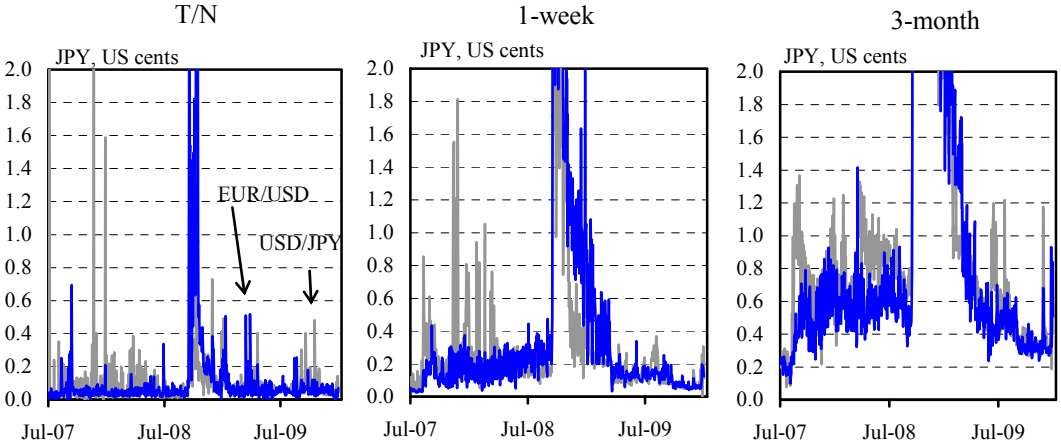
Note: Data are at the end of the month.
Source: Finance Facsimile News.

Chart II-1-7: U.S. dollar funding premiums in the FX swap market



Note: 3-month spreads between FX swap-implied U.S. dollar rates and U.S. dollar LIBOR.
Source: Bloomberg.

Chart II-1-8: FX swap market liquidity



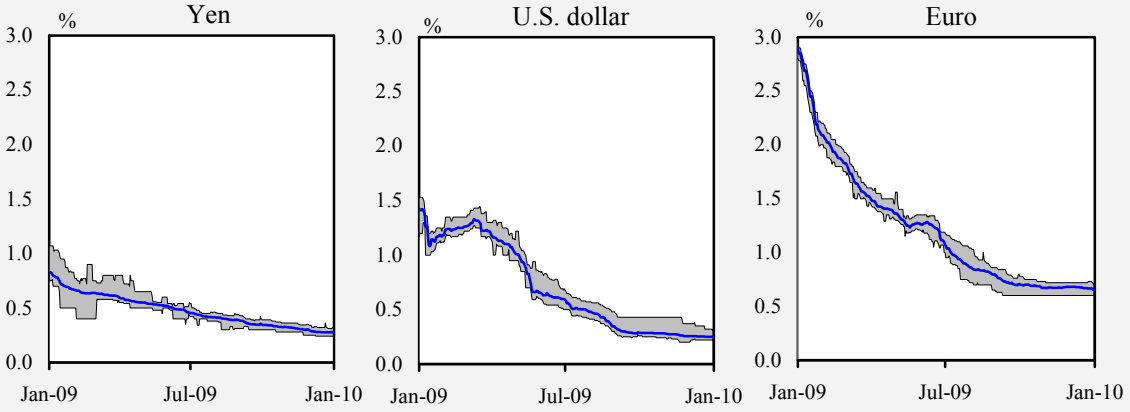
Note: The daily average of bid-ask spreads in the FX swap market.
Source: Bloomberg.

Box 4: London Interbank Offered Rate (LIBOR)

LIBOR is a rate provided by reference banks after considering at what rate they can obtain a certain amount of funds from their counterparties. In this sense, it is an offering rate perceived by borrowers. When assessing LIBOR as an indicator for liquidity risk and counterparty risk in interbank transactions, the LIBOR-OIS spread is often used in order to eliminate market participants' outlook for policy interest rates that is included in LIBOR.

LIBOR is a rate assumed by reference banks and not an actual rate of funds transactions. Thus, it is pointed out that LIBOR may reflect the discretion of reference banks. For example, yen LIBOR tends to be somewhat higher than actual interest rates, due to the insufficient recovery in credit lines that Japanese banks provide to foreign banks. This is a peculiar characteristic of yen LIBOR. Given these points, careful attention should be paid when comparing liquidity in funding markets around the world and the degree of recovery in market functioning by using LIBOR (Chart 1 for Box 4).

Chart 1 for Box 4: U.S. dollar, yen, and euro LIBOR



Note: Shaded areas indicate the ranges of offered rates by all reference banks.
Source: Bloomberg.

2. Japanese Government Bond Markets

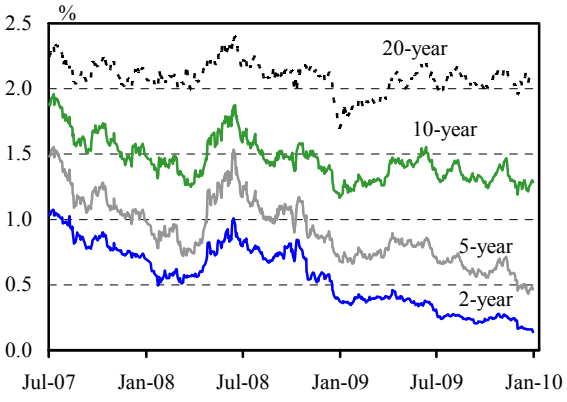
In the second half of 2009, JGB yields generally stayed within a certain range, given that the cautious outlook on economic activity and the markets' expectations on maintenance of the low policy rate put strong downward pressure on long-term yields. Nonetheless, JGB yields rose temporarily due to concern about a deterioration in the supply and demand conditions in government bond markets.

Developments in JGB yields

JGB yields moved within a narrow range, with the cautious outlook on economic activity on one hand and concern about a deterioration in the balance in government bond markets on the other (for more information on the relationship between the balance in government bond markets and JGB yields, see Box 5). In other words, downward pressure mounted when concern about economic downturn heightened, and upward pressure mounted when concern about the balance in government bond markets due to an increase in the issuance of JGBs heightened. Throughout the second half of 2009, the yield on ten-year JGBs was at around 1.3 percent (Chart II-2-1).

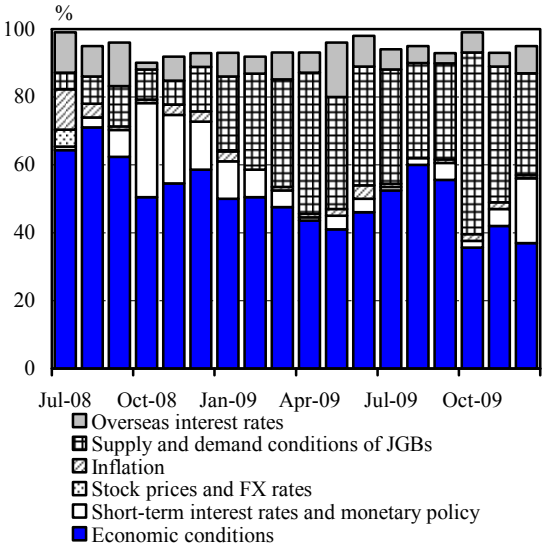
The results of a market survey indicated that market participants grew concerned about stock prices and FX rates as a factor causing changes in JGB yields for some time. Looking at survey results as a whole, however, market participants focused mainly on the economic conditions and the supply and demand conditions of JGBs as a factor causing upward pressure on JGB yields (Chart II-2-2).

Chart II-2-1: JGB yields



Source: Japan Bond Trading.

Chart II-2-2: Factors affecting JGB yields



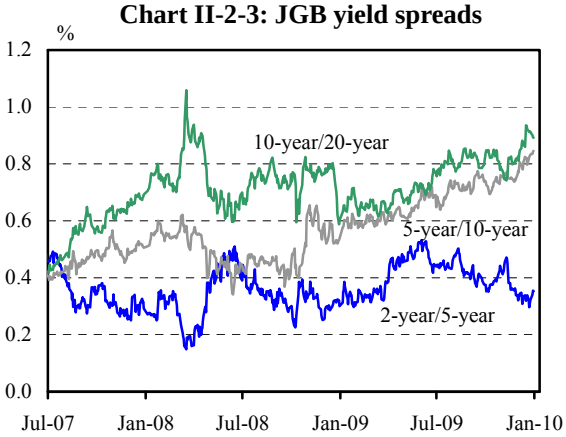
Source: QUICK, "QUICK Survey System Report."

Yield curve

When looking at separate parts of JGB yield curve, the 2-5 year (short- to medium-term) spread narrowed while the 5-10 year (medium- to long-term) spread was on an uptrend (Chart II-2-3). This showed that, as many market participants expected that the Bank would maintain an accommodative policy stance for some time, the room for a further decline in JGB yields of the short-term zone was limited. Thus, investors including banks started to

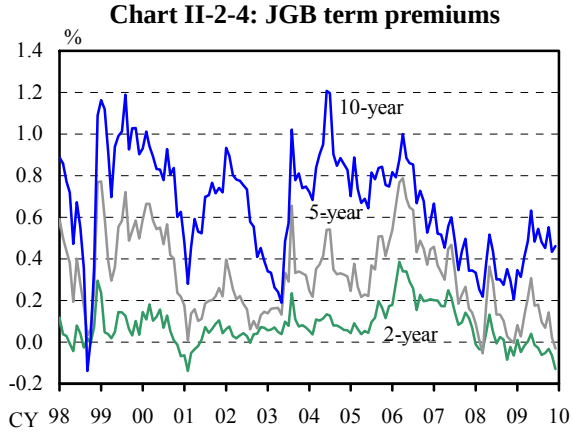
invest in medium-term JGBs. According to a model for the term structure of interest rates, term premiums of long-term interest rates were lower than the level in the past but somewhat higher than those of short- to medium-term interest rates. This suggested that investors were demanding certain term premiums incurred by uncertainties about the future changes in long-term interest rates (Chart II-2-4).[20]

Chart II-2-3: JGB yield spreads



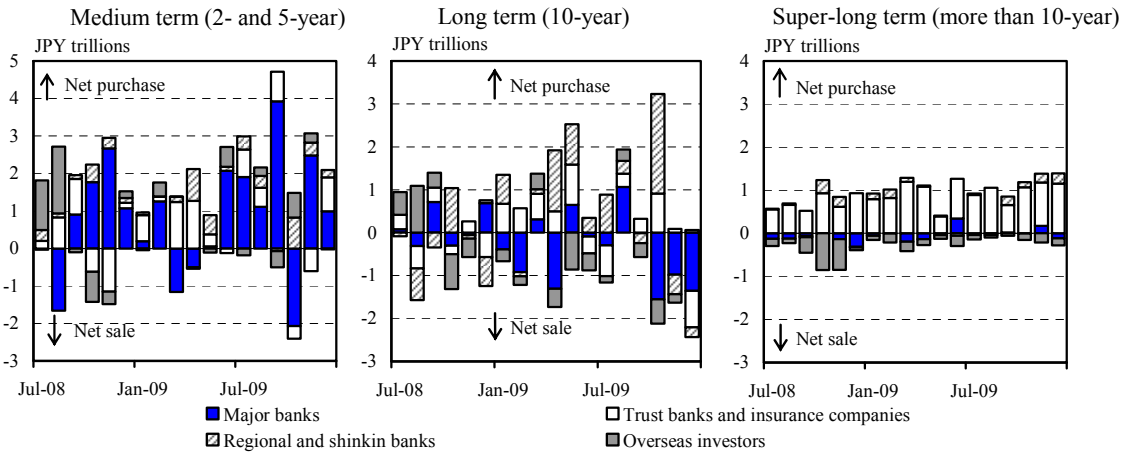
Sources: Japan Bond Trading; Bank of Japan.

Chart II-2-4: JGB term premiums



Note: Term premium is defined as the difference between the zero coupon rate and the average of expected future short-term rates estimated by the model.
Sources: Japan Bond Trading; Bank of Japan.

Chart II-2-5: JGB trading by type of investor



Source: Japan Securities Dealers Association, "Trends in Bond Transaction (by investor type)."

JGB trading activity by type of investor

Banks as a whole increased their net purchases of JGBs reflecting the widening of the gap between the amount of their loans and their deposits, but major buyers differed by maturity.

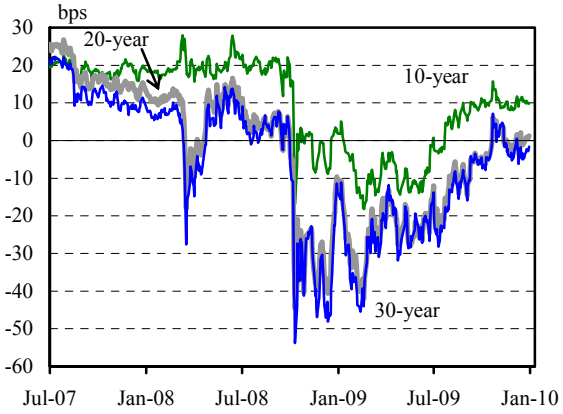
[20] Based on Ichiue and Ueno (2007).

Major banks registered net purchases, mainly of short- to medium-term JGBs, while regional banks registered net purchases of long-term JGBs (Chart II-2-5). Trust banks registered net purchases of JGBs throughout the year, which seemed to reflect the activities of pension funds, having continued their investment along with their investment benchmark based on the market indices. The other long-term investors, life insurance companies, registered net purchases, mainly of super-long-term JGBs. The duration of their portfolio did not significantly extend as was seen two years ago, as they concurrently increased their purchase of exchange-rate-risk-hedged foreign bonds with high yields.

Foreign investors' activities in derivatives markets

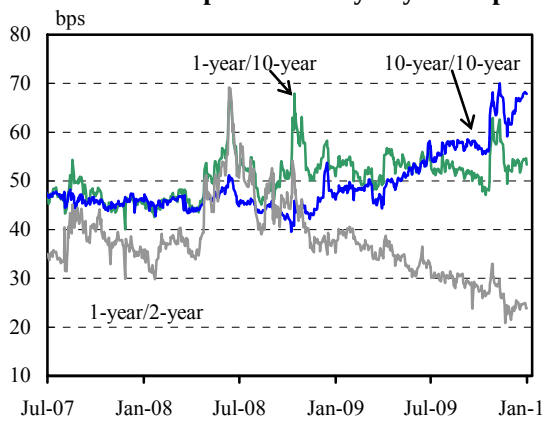
In derivatives markets for government bonds and interest rates, hedge funds that regained their risk appetite and some foreign investors -- such as funds and dealers that were active in the markets other than government bonds -- built up their positions. Some of these investors focused on the deterioration in the Japanese government's fiscal conditions and built up a position where they could earn profits if the increase in long-term interest rates outpaced that in short-term interest rates by using interest rate swaps and swaptions whose underlying asset was a future interest rate swap contract. Some investors sold government bond futures simply or by combining arbitrage transactions with equities futures. In fact, the pace of increase in super-long-term swap rates was higher than that in comparable government bond yields (i.e., the negative super-long-term swap spreads narrowed), and the implied volatility of swaptions increased (charts II-2-6 and II-2-7). The rise in CDS premiums was also observed, as some investors purchased protection against Japan's sovereign CDSs (Chart II-2-8). Among developed economies, the deterioration in the government's fiscal conditions reflected in indicators such as the ratios of the amount outstanding of public debt to GDP was particularly evident in Japan. This might imply that investors, particularly foreign ones, were concerned with uncertainty about future developments. Developments in sovereign CDS markets, however, should be examined carefully, as CDS premiums tended to be susceptible to small fluctuations due to the low liquidity in the market (for more details, see Box 3).

Chart II-2-6: Yen swap spreads



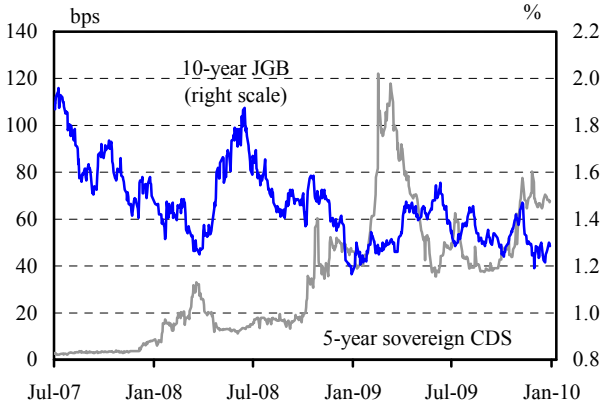
Source: QUICK.

Chart II-2-7: Implied volatility of yen swaptions



Note: *m-year/n-year* means the implied volatility of swaption with *m*-year expiry period and *n*-year swap tenor.
Source: Bloomberg.

Chart II-2-8: Japan's sovereign CDS spread and government bond yield



Sources: Bloomberg; Japan Bond Trading.

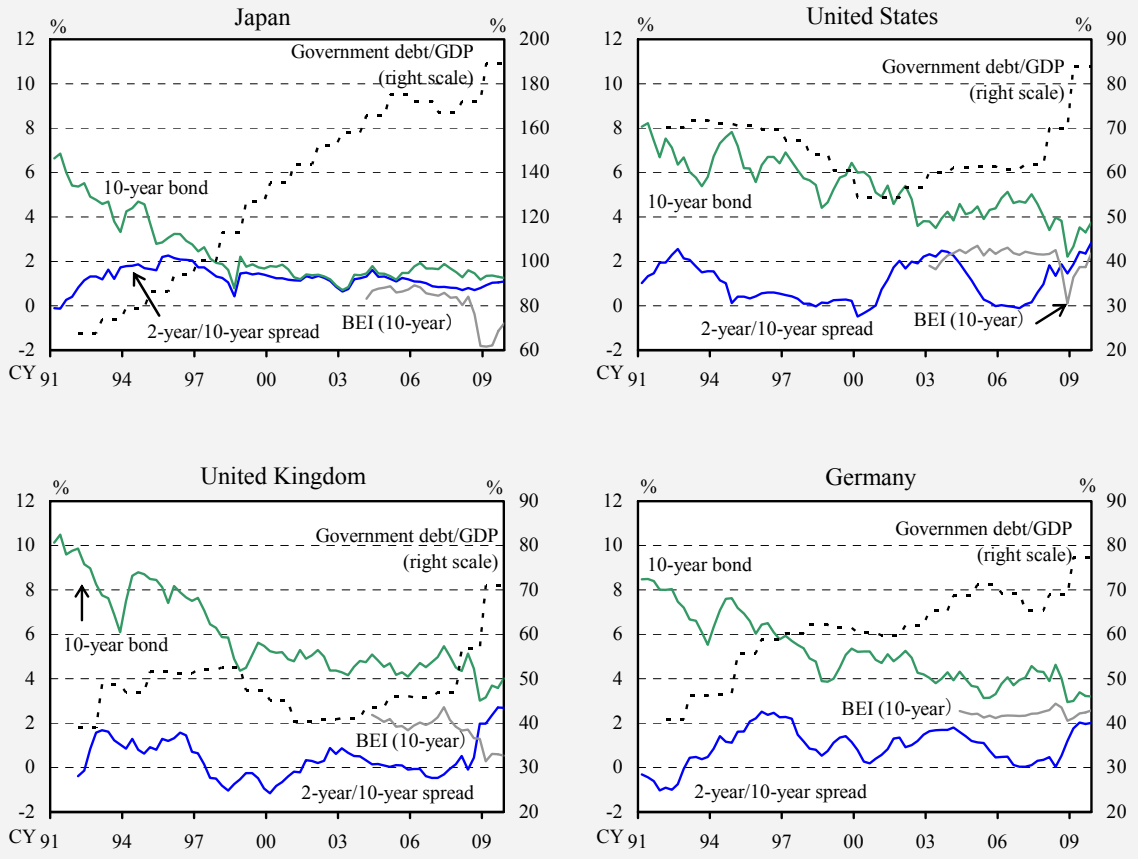
Box 5: Relationship between the Fiscal Deficit and Long-Term Government Bond Yields

As part of responses to the current financial crisis, governments around the world implemented an expansionary fiscal policy in order to alleviate downward pressure on the economy generated by the private sector's deleveraging. On the other hand, as the ratios of the amount outstanding of public debt to GDP increased rapidly, there were growing concerns about its effects on prices and long-term government bond yields.

Fiscal policies influence the yield curve by changing the outlook for economic activity and inflation. At the same time, there are channels through which the increasing fiscal deficit directly affects government bond yields: the fiscal deficit could lead to (1) a rise in prices and government bond yields by undermining the credibility of a country

through the increase in the amount outstanding of public debt (stock)[21] and (2) a rise in government bond yields by changing the supply and demand conditions (flow) in the government bond market. The first and second channel can be seen in changes in the expected inflation rate and in swap spreads (the difference between swap rates and government bond yields), respectively.

Chart 1 for Box 5: Amount outstanding of public debt and government bond yields



Sources: Bloomberg; OECD, "World Economic Outlook 86 database"; QUICK; U.S. Department of the Treasury.

It is difficult to assess these effects quantitatively.[22] By briefly looking at the graphs, no clear correlation can be observed between the amount outstanding of public debt and the expected inflation rate (break-even inflation [BEI] rate of inflation-linked bonds;[23]

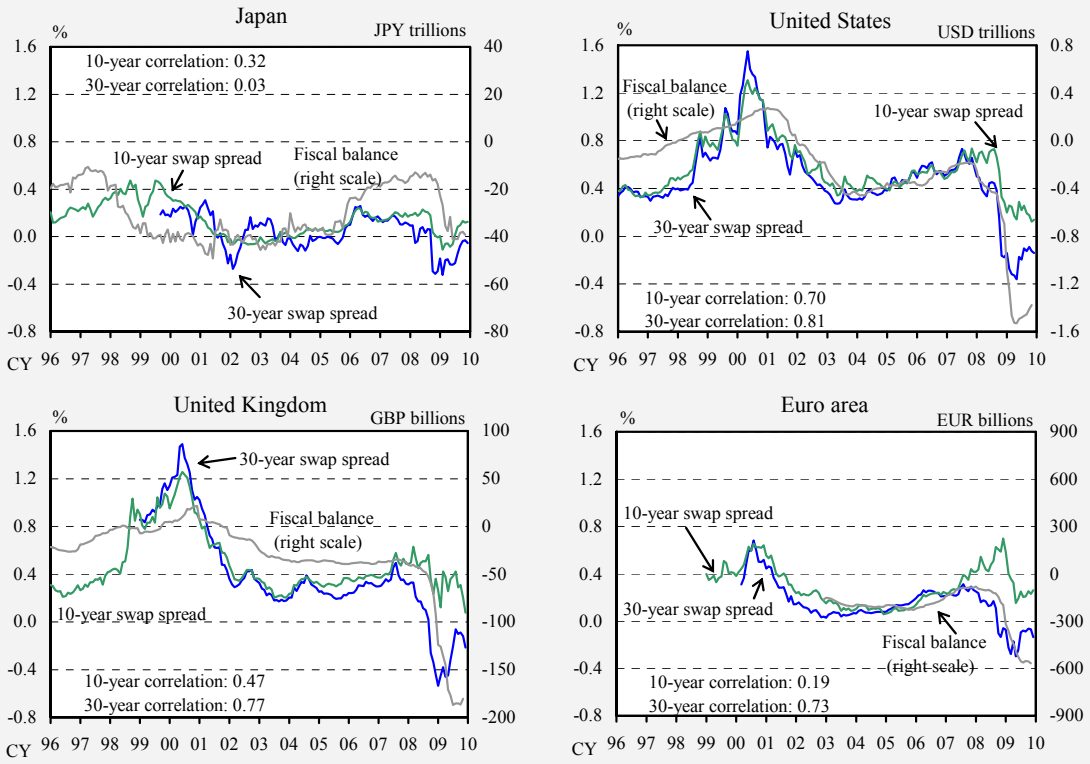
[21] This is based on the Fiscal Theory of the Price Level. It can also be said that the real amount outstanding of public debt decreases due to the rise in inflation.

[22] Laubach (2009) showed that in the United States the 1 percent rise in the ratio of projected deficit to GDP and in the ratio of debt to GDP would increase long-term interest rates by 25 basis points and 3 to 4 basis points, respectively.

[23] Due to the low liquidity in inflation-linked bond markets, BEI rates might include information other than the expected inflation rate.

Chart 1 for Box 5). On the other hand, swap spreads show some correlation with the fiscal balance (Chart 2 for Box 5). Therefore, it can be said that the fiscal deficit has affected long-term government yields mainly through the second channel so far.

Chart 2 for Box 5: Fiscal balances and swap spreads

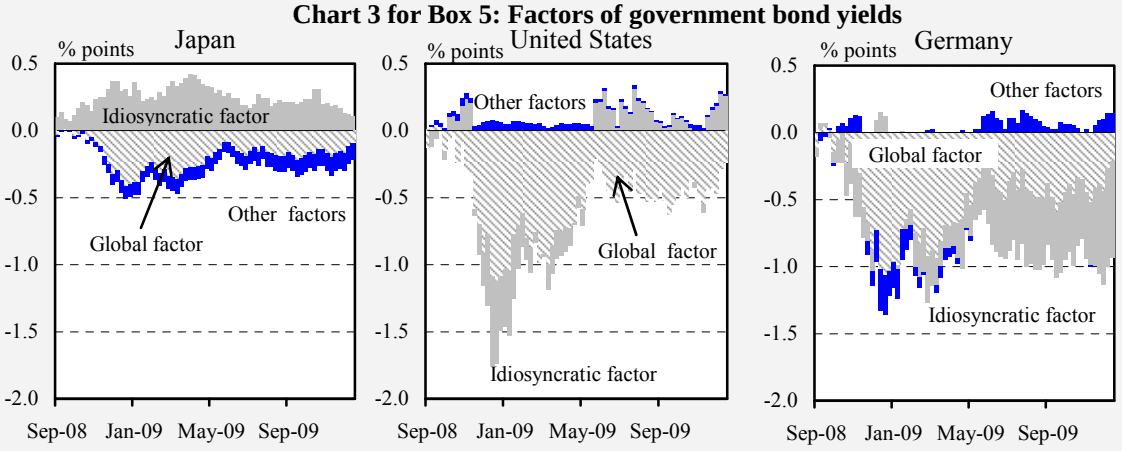


Note: Fiscal balance indicates the average of current- and next-year forecasts based on the Consensus Forecasts.
Sources: Bloomberg; Consensus Economics "Consensus Forecasts."

Looking at the correlation by country, the correlation between the fiscal balance and government bond yields was low in Japan compared with other countries. When the method used in the Chart I-1-6 is applied to long-term interest rates (10-year government bond yields) in Japan, the United States, and Europe, the current financial crisis exerted downward pressures on the yield curve of major countries, but the effects of the crisis on government bond yields in Japan were relatively small (Chart 3 for Box 5). Given that long-term interest rates are influenced by macroeconomic factors such as medium- to long-term growth expectations and the expected inflation rate, it can be assumed that these factors were already at low levels in Japan. On the other hand, there is room for further explanation in terms of the supply and demand conditions. In Japan, households hold a large amount of financial assets as bank deposits, while firms' demand for bank loans has

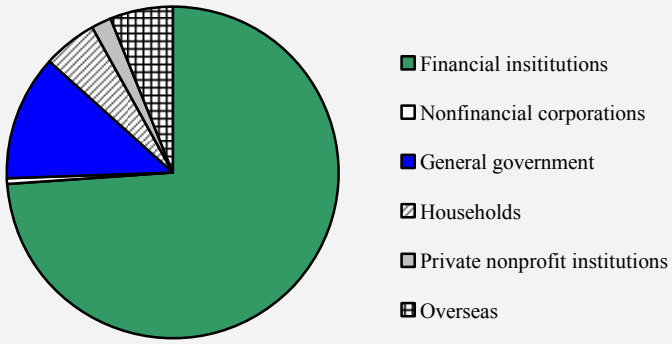
been declining. Under the low deposit-loan ratio, banks increased their holdings of government bonds, and this might have resulted in the continued fairly strong demand for government bonds (Chart 4 for Box 5).[24]

Chart 3 for Box 5: Factors of government bond yields



Note: Cumulative changes of 10-year government bond yields from the end of August 2008.
Sources: Bloomberg; Bank of Japan.

Chart 4 for Box 5: Breakdown of JGB holders



Note: As of 2009/2Q.
Source: Bank of Japan.

3. Credit Markets

As investors with excess funds actively sought to increase their investments, credit spreads on corporate bonds -- not only those with high ratings but also those with medium and low ratings -- narrowed moderately. The environment for corporate bond issuance in Japan

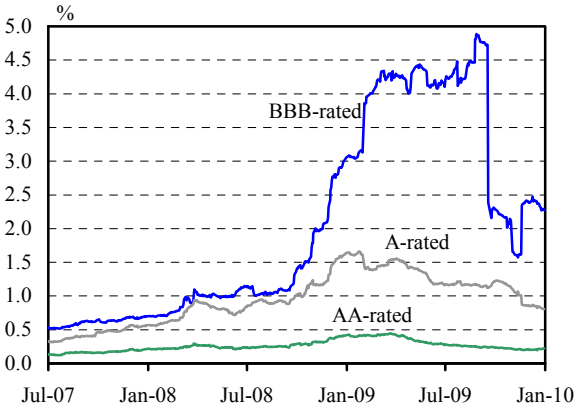
[24] Idiosyncratic factors in Chart 3 for Box 5 show the contribution to year-on-year changes. Supply-demand factors explained here are the factors that constantly exert downward pressures. Therefore, these two factors differ.

remained benign.

Secondary market for corporate bonds

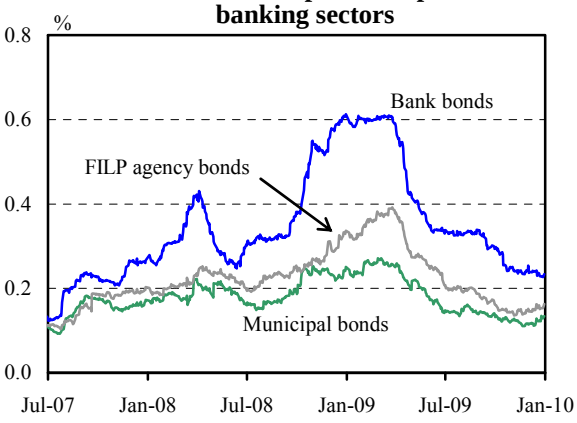
As there was a growing sense that funds were abundant in the secondary market for corporate bonds, credit spreads on corporate bonds with high ratings narrowed further (Chart II-3-1). Although investors remained selective about the issues they purchased, demand for corporate bonds, particularly those with relatively high ratings, recovered along with the gradual recovery in risk appetite, and credit spreads on corporate bonds narrowed (Chart II-3-2).

Chart II-3-1: Corporate bond spreads by rating



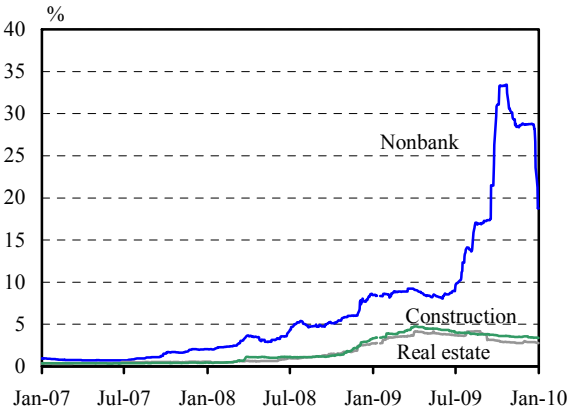
Note: 3- to 7-year maturity.
Source: Japan Securities Dealers Association.

Chart II-3-2: Credit spreads of public and banking sectors



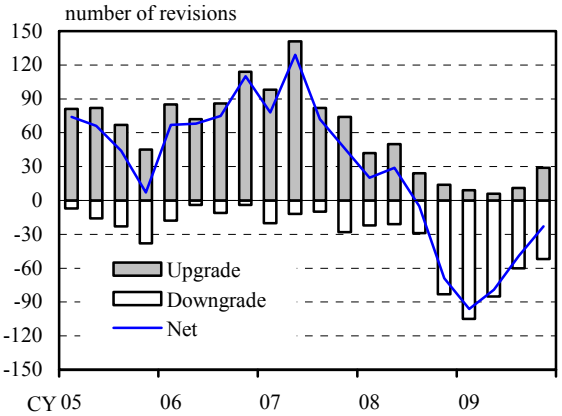
Source: Japan Securities Dealers Association.

Chart II-3-3: Corporate bond spreads by sector



Source: Bloomberg.

Chart II-3-4: Revisions of firms' credit ratings



Source: Bloomberg.

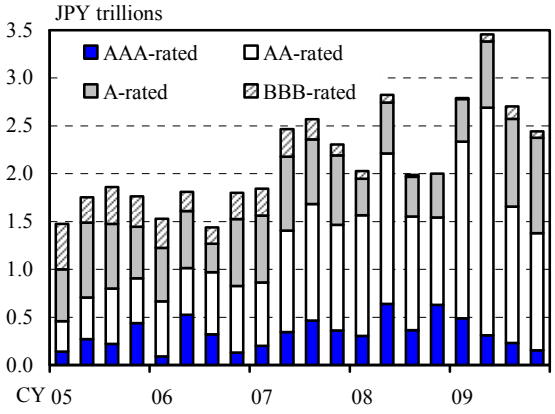
The widening of credit spreads on corporate bonds issued by firms in some industries accelerated mainly due to heightened concerns over the deterioration in firms'

funding availability, but its effects on the market as a whole were limited. This was because the number of downgradings of firms as a whole decreased and investors' risk appetite recovered (charts II-3-3 and II-3-4).

Corporate bond issuance market

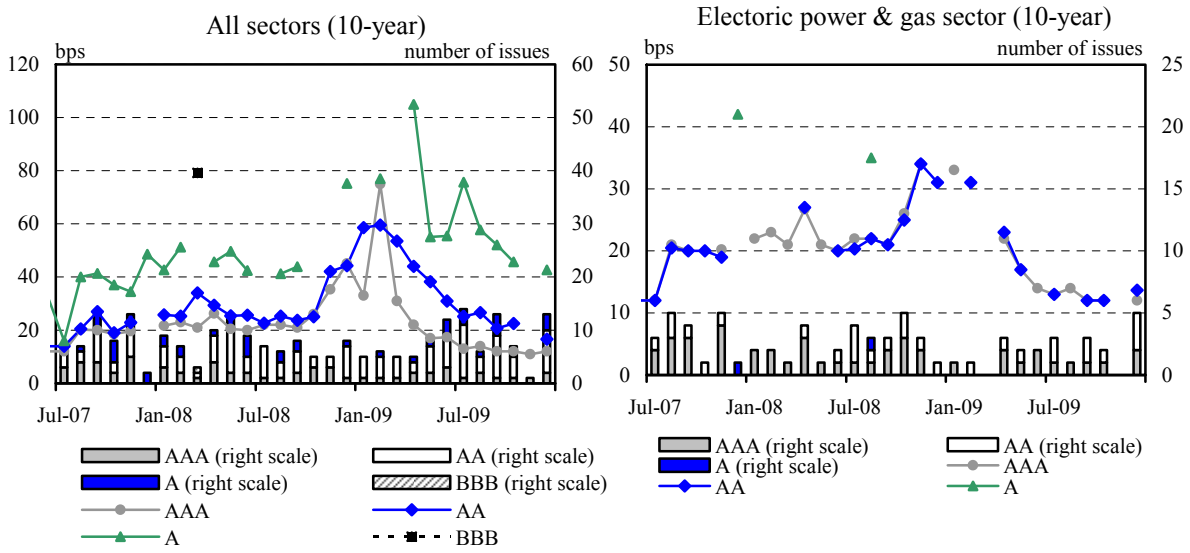
The environment for corporate bond issuance in Japan improved. In the second half of 2009, the total amount of primary corporate bond issuance was high, and the increase in primary corporate bond issuance seemed to be spreading to a wide range of firms (charts II-3-5 and II-3-6). Looking at corporate bonds by issuer rating, issuance of BBB-rated corporate bonds was limited, but that of single A-rated corporate bonds increased significantly. The issuance spread also decreased backed by steady demand (for information on international comparison of developments in corporate bond markets, see Box 10). A look at the purpose of raising funds, however, shows that only a small amount of issuance was aimed at business fixed investment and merger and acquisition (M&A) activity that required additional capital, and most issuance was aimed at improvement of the financial structure -- for example, to raise the long-term debt ratio, which declined after the failure of Lehman Brothers Holdings Inc.

Chart II-3-5: Corporate bond issuance by rating



Sources: I-N Information Systems; Capital Eye.

Chart II-3-6: Number and yield spreads of corporate bond issuance by rating



Sources: I-N Information Systems; Capital Eye.

CDS premiums

After October 2009, the widening of CDS premiums for Japanese companies was seen quite often, reflecting the weak domestic stock indices (Chart II-3-7). The widening of CDS premiums was particularly notable among firms with low credit ratings and in some industries, as heightened concerns over the deterioration in firms' funding availability led to efforts by investors to reduce the credit risk of cash bonds (Chart II-3-8; for details on default correlations between credit instruments, see Box 6).

Chart II-3-7: CDS indices

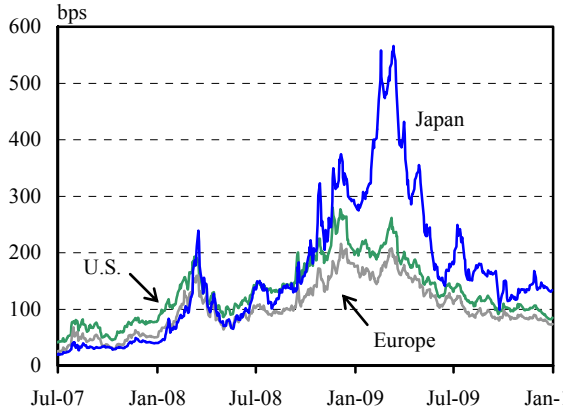
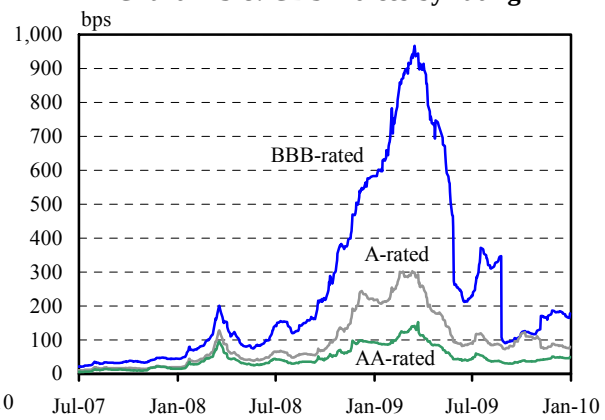


Chart II-3-8: CDS indices by rating

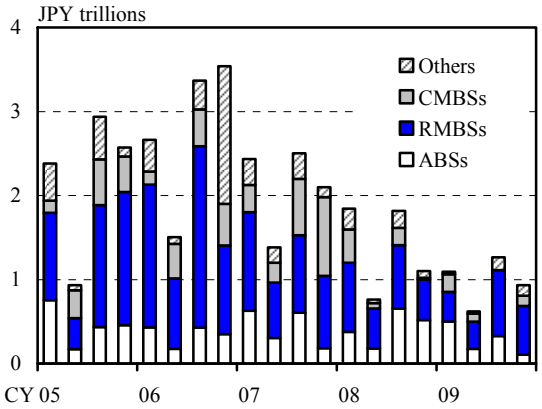


Note: CDX.NA.IG for the United States; iTraxx Europe for Europe; iTraxx Japan for Japan.
Sources: Moody's; QUICK.
Source: Markit Group.

Issuance of securitized products

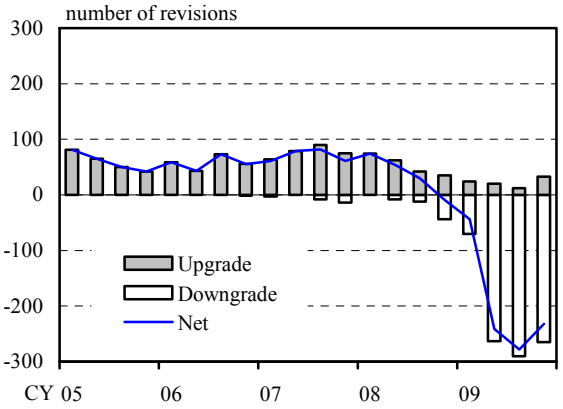
Although the amount of securitized products issued remained at a low level, some signs of recovery were seen. By product, residential mortgage-backed securities (RMBSs) issued by the Japan Housing Finance Agency continued to be a major securitized product issued, but the amount of RMBSs issued by private financial institutions and asset-backed securities (ABSs) backed by lease receivables increased somewhat after having decreased thus far (Chart II-3-9). The underlying assets for some securitized products, such as commercial mortgage-backed securities (CMBSs), shrank further as a result of the deterioration in real estate markets, and the number of downgradings of these products remained high against the background of heightened risk of refinancing (Chart II-3-10). As a result, primary issuance of these products remained effectively at a standstill.

Chart II-3-9: Amount of securitized products issued



Source: Deutsche Securities.

Chart II-3-10: Credit rating revisions of securitized products



Source: Deutsche Securities.

Box 6: Default Correlations between Credit Instruments

CDSs transfer the credit risk, and like corporate bonds and loans, their price changes depend on the credit risk of reference companies. It can be estimated that the developments in credit spreads reflected in the prices of CDSs correlate highly with those of corporate bonds and loans. This is because if a default occurs, such as a failure to pay principal and interest on corporate bonds and loans, settlement of CDS contracts is likely to proceed following a confirmation of the credit event. In fact, many corporate bond investors buy CDSs to hedge the credit risk of their assets.

Generally speaking, however, the default clause of corporate bonds differs from the credit event clause of CDSs. In addition, there are some cases where definition of

default among the same corporate bonds differs for each issue and issuing market. Furthermore, each default clause of loans has its own characteristics, and terms and conditions of a contract vary. Therefore, the confirmation of default (or credit event) and its timing may differ among credit instruments.

Because of these differences, there is a case where the final amount of debt collected may differ among senior creditors, depending on whether they are corporate bond holders or loan lenders. For example, if the loan assets are impaired by informal dispute resolution procedures such as the Alternative Dispute Resolution (ADR) targeted only at them, but a credit event is not confirmed, hedging credit risk by holding CDSs will not function well. On the other hand, if a credit event is confirmed even though corporate bonds are not subject to dispute resolution procedures, the investors who have bought CDSs to hedge credit risk of their corporate bonds will enjoy unexpected profits.

The increased asymmetry in economic effects of credit instruments would raise greater awareness of a difference in risk profile, and this would affect the price formation of each credit instrument. In order to enhance the stability of transactions and market liquidity, it is preferable to reduce uncertainties by setting some kind of standard in the treatment of loan assets for each procedure and in a confirmation of a credit event for CDSs thereafter and by disclosing information. It is difficult to decide a uniform framework, as ADR programs vary widely and it may be necessary to keep information confidential so as to support the reorganization of a firm. Due to the increase in transactions of credit instruments, such as corporate bonds, CDSs, syndicated loans, and securitized products, the number of creditors and other relevant parties has increased dramatically compared with the time when the conventional correspondent lending was frequently used. In addition, the global standards for each credit instrument should be borne in mind to some extent. It is desirable to improve consistency by sharing mutual understanding among market participants while learning from experience.

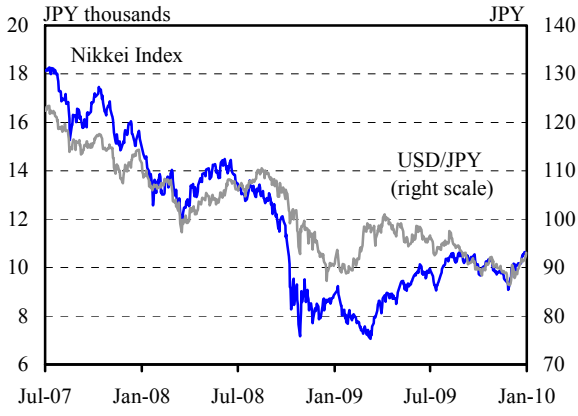
4. Stock Markets

Japanese stock prices had been on a declining trend in response to the deterioration in earnings outlook due to the appreciation of the yen. After December 2009, however, they started to rise.

Developments in stock prices

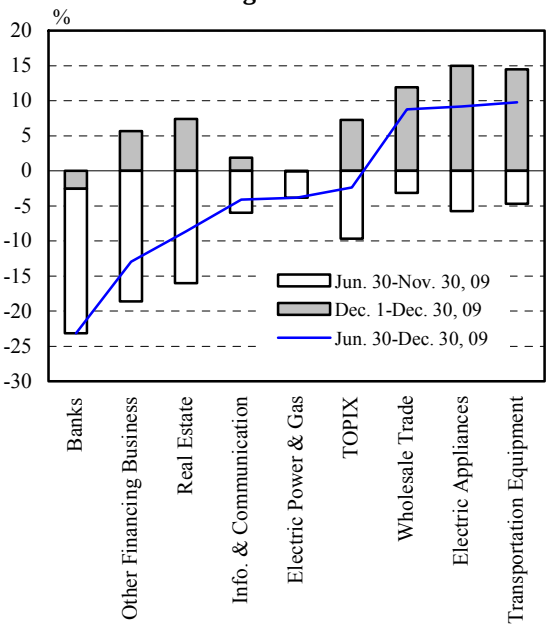
Japanese stock prices rose toward the middle of August 2009 following U.S. and European stock prices. This was against the background of the following: improvement in corporate profits was confirmed as inventory adjustments progressed globally reflecting a recovery in overseas economies; and there were growing expectations that exporting companies' profits would increase as the yen depreciated somewhat against the U.S. dollar. Japanese stock prices, however, did not gather momentum thereafter given the gradual appreciating trend of the yen, market participants' cautious stance on judging the economic policy stance of the new administration, and concerns that the supply-demand balance would deteriorate due to measures to boost capital. Thus, Japanese stock prices remained weak, although U.S. and European stock prices were on a gradual uptrend. In late November 2009, due to the Dubai shock in addition to the prior depreciation of the U.S. dollar, the yen appreciated to the range of 84-85 yen against the dollar for the first time since 1995. This sharply heightened concerns that exporting companies' profits might deteriorate, and stock prices fell significantly. After December 2009, when the Bank decided to enhance easy monetary conditions, stock prices rebounded as the yen depreciated slightly against the U.S. dollar reflecting the improvements in U.S. economic indicators. Comparing developments in stock prices and the yen-dollar exchange rates during that period with those in the past, they became more correlated with each other (Chart II-4-1).

Chart II-4-1: Stock index and FX rate



Source: Bloomberg.

Chart II-4-2: Changes in TOPIX Sector Indices



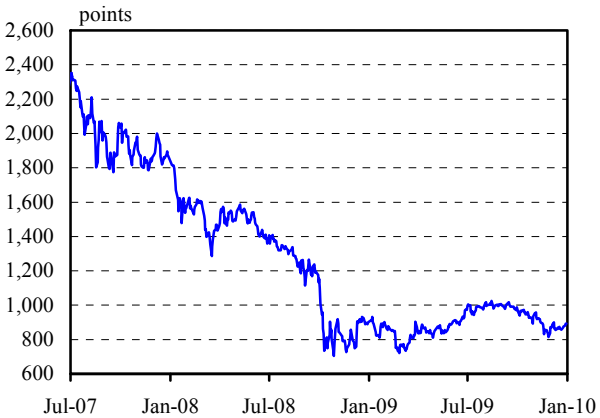
Source: Bloomberg.

Developments by sector

Looking at the developments in stock prices by sector, stock prices in the banking sector declined significantly reflecting concerns that the supply-demand balance would deteriorate due to measures to boost capital as capital adequacy regulations were reinforced globally. Japanese real estate and financial sectors other than banks saw a significant decline in their stock prices due to the continued deterioration in their corporate profits and funding conditions (Chart II-4-2). Stock prices of exporters, such as manufacturers of electric appliances and transportation equipment, were on an uptrend toward early August 2009 due to the progress in inventory adjustments, but they fell thereafter due to the appreciation of the yen. These prices rebounded after December 2009, as the yen depreciated to around 90 yen against the U.S. dollar.

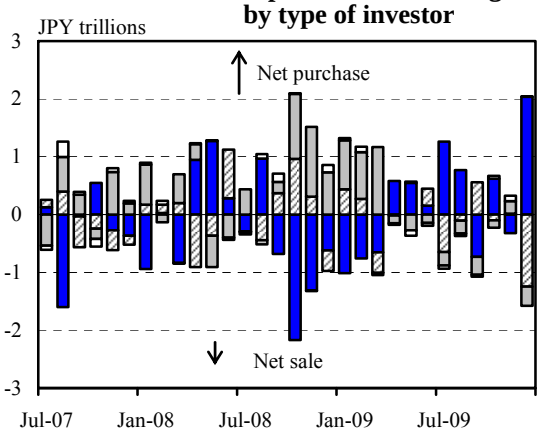
The Tokyo Stock Exchange real estate investment trust (REIT) Index showed some weakness, as anxiety remained over the funding availability for real estate companies and the deterioration in the real estate rental market. The Tokyo Stock Exchange REIT Index remained more or less unchanged after November 2009 (Chart II-4-3), as there were some positive developments such as acquisition of new real estate financed through public offerings and mergers of real estate investment corporations.

Chart II-4-3: Tokyo Stock Exchange REIT Index



Source: Bloomberg.

Chart II-4-4: Japanese stock trading by type of investor



Note: Data include both spot and futures transactions.
Sources: Osaka Securities Exchange; Tokyo Stock Exchange.

Stock trading activity by type of investor

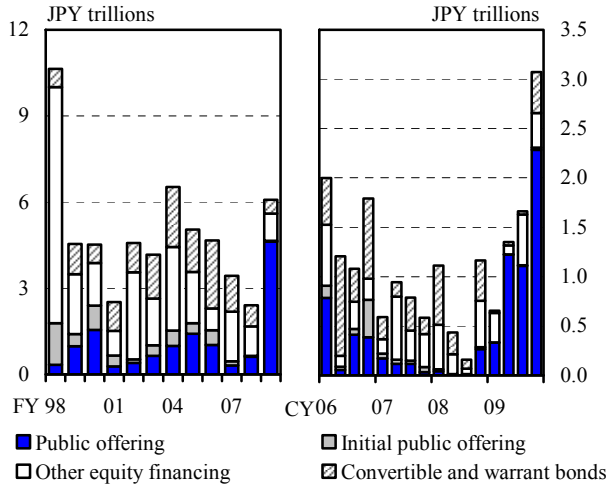
Investment by foreign investors continued to record small net purchases by November 2009. This was because foreign investors considered that the investment margin for Japanese

stocks was smaller than that for stocks of emerging economies with high expected growth rates. After the unscheduled Monetary Policy Meeting held in December 2009, foreign investors increased their stock purchases (Chart II-4-4). Pension funds that made investments through trust banks continued to rebalance their portfolio. Insurance companies tended to hold back their purchases and sales of stocks as they took a cautious stance regarding possible changes in regulations. Investment by individual investors continued to record net sales in the second half of 2009.

Equity financing

Financial institutions reinforced their capital in preparation for a possible tightening of global capital adequacy regulations. With a view to strengthening capital bases, equity financing through large-scale public offerings and convertible bonds (CBs) by firms increased. Thus, equity financing in the second half of 2009 recorded the highest level since the first half of 1999 (Chart II-4-5). However, equity financing through initial public offerings (IPOs) continued to be sluggish.

Chart II-4-5: Equity financing



Notes: 1. "Other equity financing" includes allotments to existing shareholders and third parties.
2. Figures for fiscal 2009 are only up to the end of December 2009.
Source: QUICK.

5. Foreign Exchange Markets

FX rates depreciated temporarily after having appreciated rapidly toward the beginning of 2009 due to risk aversion of investors globally. Looking at the general trend thereafter, FX rates appreciated again. In later November 2009, there were considerable changes in FX

rates as the yen appreciated to the range of 84-85 yen against the U.S. dollar for the first time since 1995. After December 2009, when the Bank decided to enhance easy monetary conditions, however, the yen slightly depreciated against the U.S. dollar reflecting the improvements in U.S. economic indicators.

Developments in FX rates

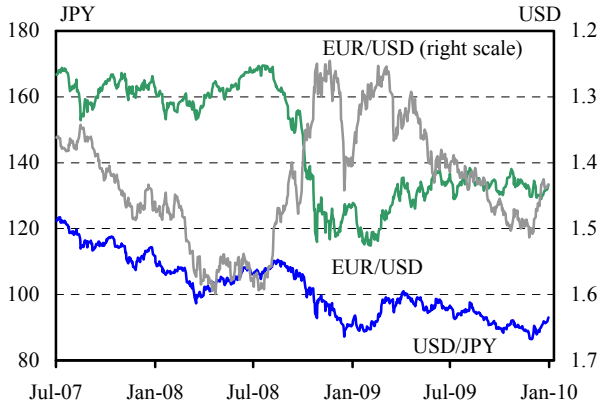
In FX markets, the U.S. dollar generally depreciated against currencies (Chart I-1-12). This seemed to be because capital inflows to emerging economies and the commodity markets increased again reflecting the recovery in risk appetite, and investors who had taken refuge in U.S. dollars were returning to invest in risky assets. This tendency was reinforced further by a sense that funds were abundant, generated by the recovery in the functioning of the U.S. dollar market and by market participants' view that the Federal Reserve would maintain its easy monetary conditions given the weak economic recovery. As a result, market participants' expectation of depreciation in the immediate future had grown.

While the depreciating trend of the U.S. dollar against major currencies developed, the depreciation of the dollar exerted upward pressure on the yen, one of the major currencies (Chart II-5-1). On the other hand, downward pressures, such as the continued low interest rates in Japan and active investments in global risky assets, continued to be exerted on the yen, and the yen continued to be traded at around 90 yen from September to the middle of November 2009. In the statement released after the FOMC, the Federal Reserve stated that economic conditions were likely to warrant exceptionally low levels of the FF rate for an extended period. Market participants' expectations on maintenance of the low policy rate grew further. In addition, in response to the Dubai shock, market participants temporarily became increasingly risk averse. These events resulted in emergence of imbalances in the markets, and the yen appreciated again in late November.

It is known that once there is a rapid change in FX rates, the rates fluctuate widely due to various technical factors. Looking at the recent changes in FX rates, many technical factors seemed to have operated, as evidenced by the fact that FX margin traders cut their losses and market participants executed transactions to hedge against positions in structured bonds. In late November 2009, the yen appreciated significantly against the U.S. dollar and was traded at 84.82 yen to the dollar on November 27 for the first time in 14 years, since July 6, 1995. This appreciation may be partly due to these technical factors. After December

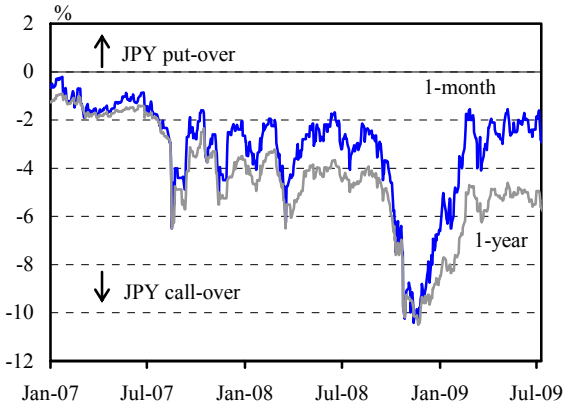
1, 2009, when the Bank decided, at the unscheduled Monetary Policy Meeting, to further enhance easy monetary conditions by introducing a fixed-rate funds-supplying operation against pooled collateral, the effects of the Dubai shock were limited as a whole and seen only in the short term. Market participants' expectation of depreciation of the U.S. dollar in the immediate future had abated somewhat reflecting the improvements in U.S. economic indicators. As a result, the appreciation of the yen came to a halt, and the yen depreciated somewhat.

Chart II-5-1: Bilateral exchange rates



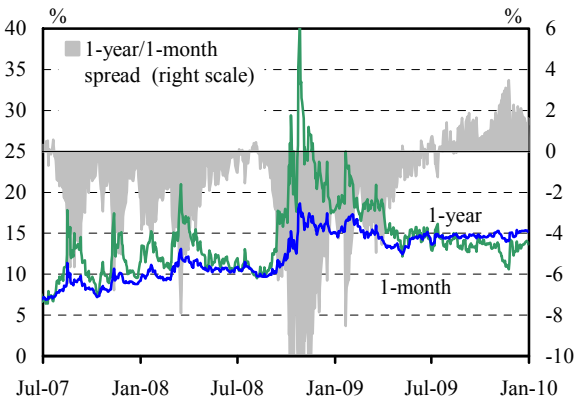
Source: Bloomberg.

Chart II-5-2: Risk reversal of U.S. dollar/yen



Source: Bloomberg.

Chart II-5-3: Implied volatility of U.S. dollar/yen options



Source: Bloomberg.

FX options markets

Looking at the risk reversal of the U.S. dollar/yen in FX options markets, the yen call-over position -- a need to hedge the risk of a appreciation of the yen -- for both short term (1 month) and long term (1 year) diminished notably (Chart II-5-2). Needs to hedge the risk of a further appreciation of the yen seemed to decrease compared with some time ago. Implied

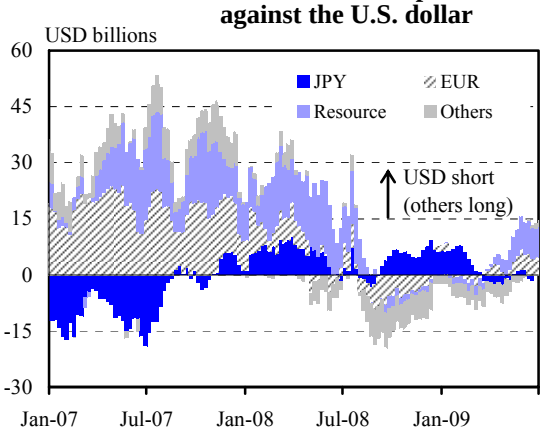
volatility of the U.S. dollar/yen for the long term (1 year), however, remained at a high level and was higher than that for the short term (1 month). As for the outlook, it was projected that in the short run the yen would move in a relatively small range against the U.S. dollar given that both upward and downward pressures continued to be exerted, but in the longer run there would remain a considerable uncertainty about fluctuations in FX rates (Chart II-5-3).

Speculators' positions and Japanese retail investors' FX trading

The International Monetary Market (IMM) futures net positions of noncommercial investors on the Chicago Mercantile Exchange showed that speculators increased their short positions in the U.S. dollar to the level recorded before the failure of Lehman Brothers Holdings Inc., reflecting the depreciation of the dollar against other currencies (Chart II-5-4).

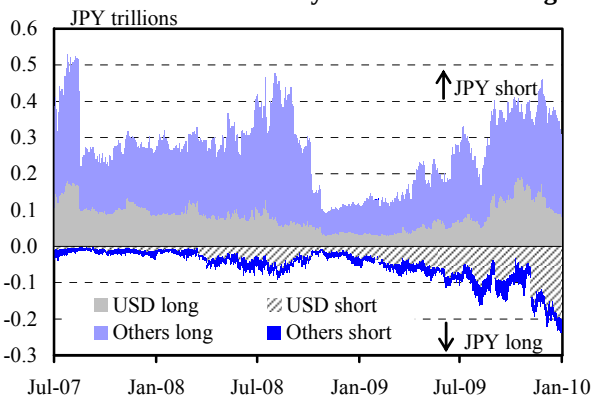
Looking at Japanese retail investors' trading behavior, FX margin traders continued to take contrary positions and increased their short positions in the yen against the currencies of resource-rich countries (charts II-5-5 and II-5-6). As the depreciating trend of the U.S. dollar developed, Japanese retail investors also increased their long positions in the yen, which were not evident before, and their positions exceeded the level recorded before the failure of Lehman Brothers Holdings Inc. These transactions seemed to include not only the narrowly defined "yen carry trade" aimed at the difference in interest rates but also short-term transactions that aimed at profits on short-term FX transactions.

Chart II-5-4: IMM futures net position against the U.S. dollar



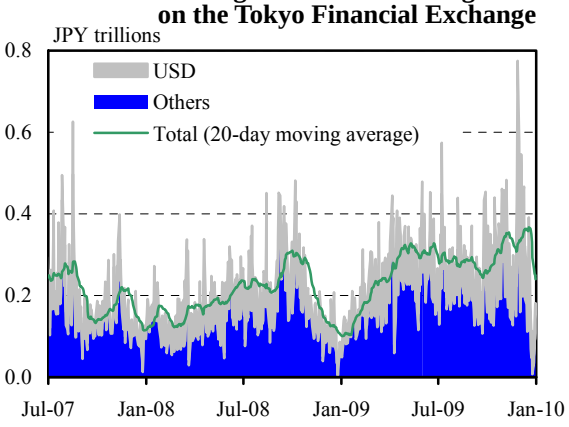
Notes: "Resource" consists of AUD, NZD, CAD, and MXN.
"Others" consists of GBP and CHF.
Source: Bloomberg.

Chart II-5-5: Open interests of FX margin trading on the Tokyo Financial Exchange



Sources: Bloomberg; Tokyo Financial Exchange.

Chart II-5-6: Trading volume of FX margin trading on the Tokyo Financial Exchange



Sources: Bloomberg; Tokyo Financial Exchange.

III. Points to Be Noted in the Financial Markets for the Foreseeable Future

Looking toward the developments in the financial markets for the foreseeable future, it remains important to focus on the factors that affect the interaction between the real economy and the international financial markets.

On the real economy side, it will be an important factor for the markets to have more stability whether each country can sustain the economic recovery with facing the downward pressure stemming from deleveraging. In this regard, we need to carefully monitor how deleveraging in the household as well as banking sectors -- for example, in the United States -- proceed and how they affect the financial sector in their rewinding process.[25] It should be noted that consequences from the deleveraging in the United States with large external imbalances cannot be separated from how the international financial flows between developed and emerging economies are altered (for information on the deleveraging from the viewpoint of the international financial flows, see Box 8).

On the other hand, concerning the international financial markets, the issue of how investors' attitude to risk may change is attracting attention. At the moment, the investment attitude by global investors has been recovering but still remains sensitive to such risks including event risks like the Dubai shock. In this regard, global investors pay attention to the continuity of the low interest rate policy.[26] So far, the low interest rate policy implemented by major countries has contributed to activating the real economy via asset

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[25] How the deleveraging proceeds depends on the optimal level of leverage. It is difficult to determine this level. However, (1) through the series of financial crises, the level of collateral required by the investors should grow, and (2) as the risk-averse behavior becomes more prevalent, borrowers should reduce their external funding and increase their internal reserves. Therefore, deleveraging should continue for a while. Although the sizes of the countries and the economic conditions then and now are quite different, and therefore a simple comparison is impossible, the experiences in the Scandinavian countries in the early 1990s show that economic recovery became evident even during the process of deleveraging (on this point, see Box 7).

[26] The low interest rate policy can be harmful to economic conditions through the process of increase in the risk appetite and its reversal. Recently, this transmission channel has attracted much attention and been named the "risk-taking channel" of monetary policy (Borio and Zhu [2008]). According to an analysis by Jimenez *et al.* (2009) using data for Spain, with the prolongation of low short-term nominal interest rates, lending standards are eased and lending increases to riskier projects. By using the data for Europe and the United States, Altunbas, Gambacorta, and Marques-Ibanez (2009) show that the low interest rate policy for a long period of time can affect the valuation of cash flows when computing the risks and induces the search-for-yield behavior. As a result, it enhances the banks' risk taking.

price appreciation. It has been pointed out that investors were taking an active stance based on expectations on the maintenance of the low policy rate, and this situation itself is consistent with the intended purpose of the policy measures. In addition, when the expectation of the interest rate changes, we will likely observe improvement in the fundamentals of the real economy in response to such changes. Hence, it is not appropriate to consider the continuation of the low interest rate itself as being very risky. On the other hand, global investors actively invest in emerging economies. There could be a large impact on the global economy depending on how the international financial markets respond to a situation in which financial flows into the emerging economies accelerate or when a sudden reversal occurs due to the changes in expectations.

Another point noted by global investors is the deteriorating fiscal balances of major countries. So far, to avoid the abrupt contraction of the macroeconomy in response to deleveraging in the private sector, the public sector instead of the private sector has supported aggregate demand. Corresponding balance-sheet expansion in the public sector has gradually begun to be perceived as a risk factor by market participants. During the second half of 2009, both developments in the real economy and expectations on monetary policy exerted downward pressure on long-term interest rates. As a result, upward pressure on long-term interest rates was never severe. Yet, depending on the perspectives on the fiscal balances, investors could further increase their investment position to steepen the yield curve.[27] In addition, we should carefully monitor the possibility that long-term interest rates turn to an upward trend.

It is thought that Japanese financial markets are becoming increasingly related to the international financial markets. Thus, it is important to consider the above points when projecting future developments in domestic as well as international financial markets.

Box 7: Deleveraging in the Scandinavian Countries

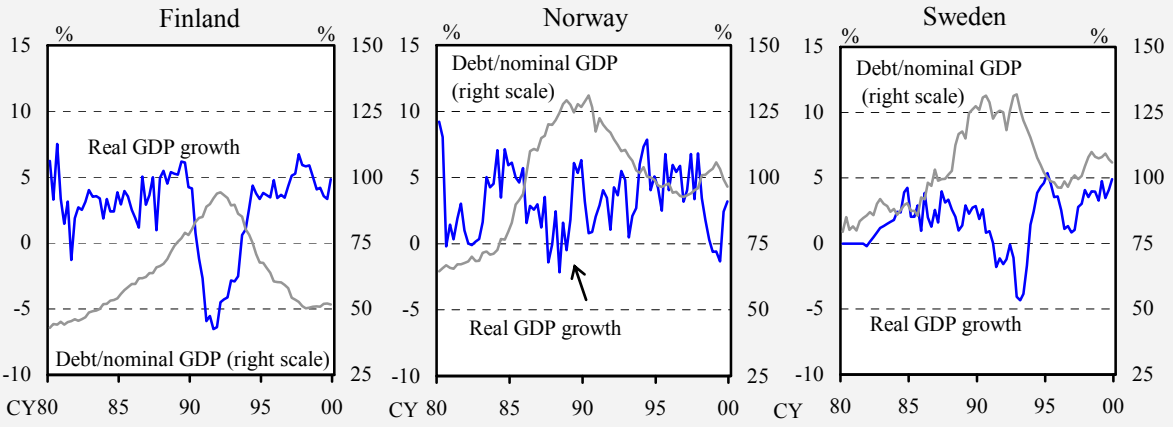
As consensus becomes firm on the process of deleveraging through rapid and clear policy, the trend of economic recovery can become distinct even under ongoing deleveraging.

[27] Even though the strike rate was as high as 7 percent, implied volatility of the option for hedging the interest rate increase continued to increase well over the historical average. According to the December 2009 *BIS Quarterly Review*, this reflected the fact that some investors recognized the upside risk where the central banks could increase the policy interest rate at a higher pace than expected in response to the price increase reflecting the deterioration in fiscal conditions.

Looking at deleveraging and economic activity in the Scandinavian countries during the early 1990s, real GDP started to increase rapidly right after the onset of deleveraging (Chart 1 for Box 7).[28] Generally speaking, there are some cases where the macro leverage statistics such as the ratio of debt to GDP did not show any significant downward trend even when leveraging proceeded at the micro level right after the financial crisis. The experiences of the Scandinavian countries, however, demonstrate the possibility that once deleveraging at the macro level begins, the adjustment period will be shorter.

The sizes of the Scandinavian countries and the economic conditions then and now are quite different. Furthermore, the relationship between deleveraging and GDP growth is not very structural. In particular, since the Scandinavian countries are small and open economies, the role of exchange rate depreciation in the economic recovery was possibly very large. Yet, the experiences of the Scandinavian countries imply that as deleveraging progresses, credibility in the financial markets can be restored and the degree of uncertainty about future states can decrease; as a result, not only risk-averse behavior by consumers as well as firms but also downward pressure from the progress of the deleveraging will abate.

Chart 1 for Box 7: Deleveraging and economic recovery of Scandinavian countries



Note: Figures are on an annualized basis.
Source: International Monetary Fund.

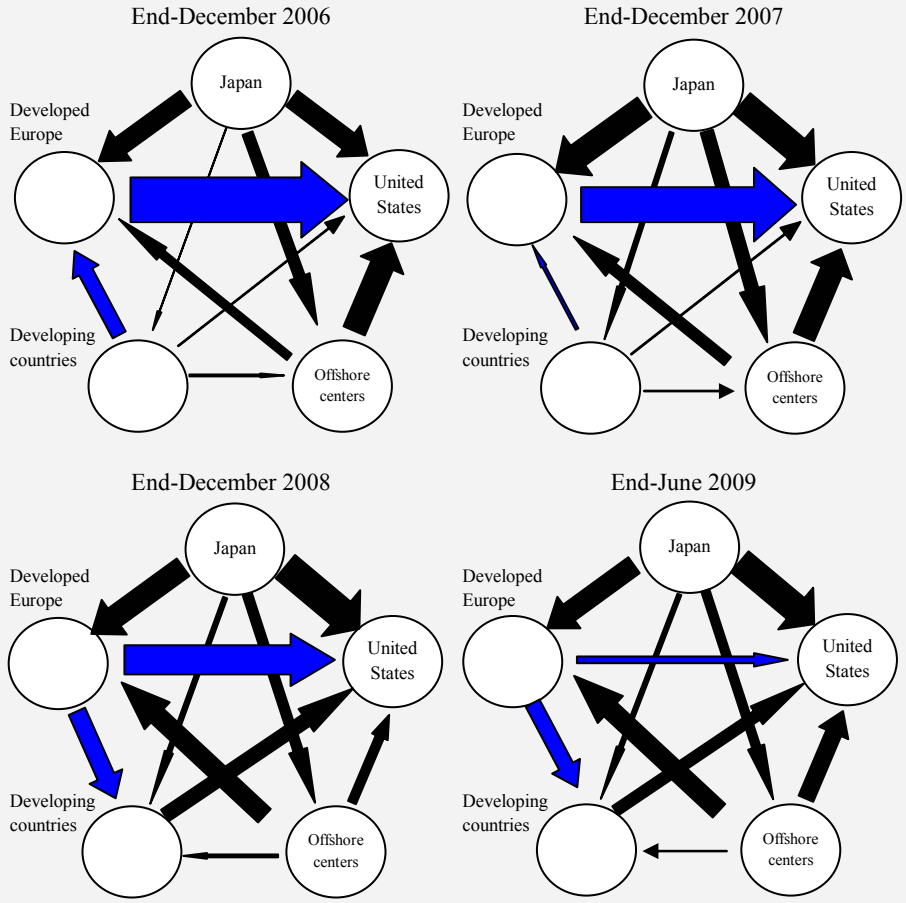
Box 8: Deleveraging in International Financial Flows

As noted in the previous *Financial Markets Report*, the current financial crisis occurred during the process of abrupt unwinding of funds that flowed from emerging economies and

[28] For details, see Upper (2009).

resource-rich countries with a large current account surplus into the treasury bonds or credit instruments including securitized products in the United States via banks in the euro area as well as the United States. In this box, we outline the developments in deleveraging from cross-border financial flows using the Bank for International Settlements (BIS) statistics.[29]

Chart 1 for Box 8: Net external claims through international banking system



Notes: 1. Measured on a stock basis.
2. Each arrow shows net external claims of banks on banks and nonbanks, pointing from creditor to debtor between two regions.
3. The width of each arrow indicates the net amount proportional to the net outflow from Japan to the European developed countries at the end of December 2006 (393.5 billion U.S. dollars).
Source: Bank for International Settlements, "Locational International Banking Statistics."

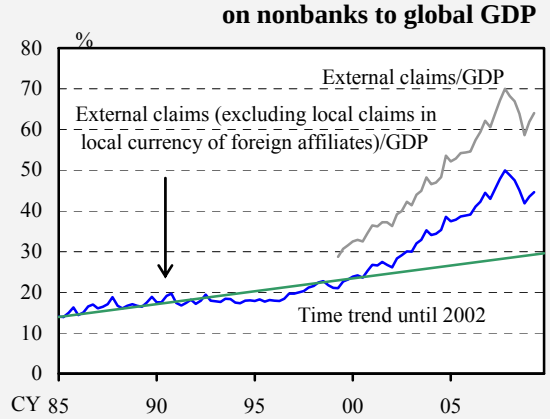
First, looking at net external claims through international banking system before the onset of the BNP Paribas shock, excess funds in Japan, emerging economies, and offshore centers flowed into the United States via developed Europe up until the end of

[29] Due to the availability of the locational and consolidated international banking statistics published by the BIS, analysis is based on the data up until the end of June 2009.

2007 (Chart 1 for Box 8). From 2008, emerging economies pulled foreign reserves out of major European banks, and this resulted in a sudden decrease in net external assets from Europe to the United States. We can observe that deleveraging affected the international financial transactions at that time.

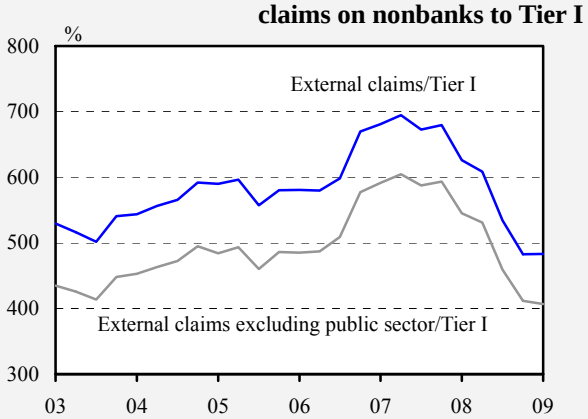
Next, the ratio of gross external claims to GDP shows that although the decline in gross external claims continued even after 2009, deleveraging paused reflecting the regaining of stability in the financial markets over the spring and summer (Chart 2 for Box 8). The ratio of external claims to Tier I, which could serve as an alternative statistic for leverage for countries where such data are available, reached the lowest level since June 2003, the period for which time-series data are available (Chart 3 for Box 8). This reflected the decline in external claims and progress in capital reinforcement by banks in each country. In this sense, the risk of further reductions in international financial transactions became smaller.

Chart 2 for Box 8: Ratio of banks' external claims on nonbanks to global GDP



Note: The interoffice accounts are excluded from gross external claims by nationality.
Sources: Bank for International Settlements, "Locational International Banking Statistics," "Consolidated Banking Statistics"; International Monetary Fund, "WEO Database."

Chart 3 for Box 8: Ratio of banks' external claims on nonbanks to Tier I



Notes: 1. Aggregate of Japan, the United States, Canada, France, Germany, Italy, Belgium, the Netherlands, Sweden, Switzerland, and the United Kingdom.
2. Tier I for Japan and Germany in 2Q/2009, and for the United Kingdom and France from 1Q/2009 are assumed to remain unchanged from the previous period.
Source: Bank for International Settlements, "Locational International Banking Statistics."

IV. Issues Regarding the Functioning of Financial Markets and the Bank of Japan's Actions in 2009

With a view to supporting improvement in the functioning and efficiency of financial markets in Japan, the Bank is addressing the following issues to enhance the market infrastructure. Regarding the JGB repo market, the following are under consideration: (1) improving market practices, mainly establishing and reviewing the fails practice; (2) enhancing the functions of and promoting the utilization of the Japan Government Bond Clearing Corporation (JGBCC); and (3) improving risk management by shortening the JGB settlement cycle. Additionally, measures to enhance financial market activities have been examined in corporate bond markets, securitization markets, over-the-counter (OTC) derivatives markets, and CP markets. Furthermore, regarding the business continuity plan (BCP) in financial markets, the following actions have been taken in order to strengthen the resilience of the financial markets in the event of a disaster: conducting exercises in money markets assuming the outbreak of the highly pathogenic avian influenza; and preparing for the first market-wide joint exercise among money markets, FX markets, and securities markets to be conducted in February 2010.

In 2009, the Bank addressed the following major issues concerning the market infrastructure.

1. Measures Taken by Market Participants in the Money Markets and JGB Markets

After the failure of Lehman Brothers Japan Inc. in September 2008, liquidity in Japan's money markets and the JGB markets decreased. Particularly in the JGB repo market, which had been affected significantly, the following[30] were recognized as priority issues to be examined by all relevant parties in the markets: (1) improving market practices, mainly establishing and reviewing the fails practice; (2) enhancing the functions of and promoting the utilization of the JGBCC; and (3) improving risk management by shortening the JGB settlement cycle. These issues have been discussed among market participants.[31] The Bank

[30] For details, see Bank of Japan (2009).

[31] In December 2009, the Financial Services Agency of Japan published "Draft Blueprint for the Development of Institutional Frameworks Pertaining to Financial and Capital Markets." From the perspective of reducing the settlement risk for JGB transactions, the following items were raised: strengthening the systems of the JGBCC in order to increase the use of its clearing services; shortening the settlement interval for JGBs; and establishing and disseminating rules for handling settlement fails.

hopes that market participants will continue to take initiatives related to improving market practices and infrastructure in financial markets, and the Bank will continue to support such private-sector initiatives.

Establishing and reviewing the fails practice

Market participants have recognized that it is necessary to review the fails practice in order to further establish it, while avoiding frequent occurrence of fails. In Japan, the fails practice was introduced in January 2001 along with the introduction of the settlement of JGB transfers on a real-time gross settlement (RTGS) basis; however, it has not been well established. Some market participants do not accept fails because they do not have sufficient understanding of the meaning and role of the fails practice and cannot cope with fails due to a lack of adequate operation schemes and systems. Particularly in the situation where fails triggered by the failure of Lehman Brothers Japan Inc. occurred frequently, this deepened turmoil in the JGB repo market. Based on the experience, market participants recognized the importance of establishing the fails practice. In May 2009, the Working Group concerning Review of Fails Practice for Bond Trading was founded as a subordinate organization of the Japan Securities Dealers Association (JSDA) and started reviewing the fails practice on a market-wide basis.[32] In November 2009, the interim report of the working group was published to summarize the results of the discussions (for details, see Box 9). In this report, the working group reconfirmed the importance of the fails practice and agreed with the introduction of fails charges in order to prevent frequent occurrence of fails under low interest rate conditions after the practice became well established. Considering business operations after a fail is confirmed, it was also agreed that the cut-off time would be moved forward. Since the release of the report, the working group has been

[32] The members of the working group are as follows: securities companies, major banks, trust banks, regional banks, *tanshi* companies, institutional investors (the Norinchukin Bank, life insurance companies, investment trust management companies, and Japan Post Bank), JGBCC, and delegates of the major private study groups. The Financial Services Agency, the Ministry of Finance, the Bank, and Government Pension Investment Fund also participate as observers.

discussing measures such as regulations concerning handling of short repo transactions,[33] given the importance of "good-faith efforts" to avoid fails as much as possible and to resolve the fail as soon as possible upon the unavoidable occurrence of fails. Additionally, in order to introduce fails charges, the actual operations concerning the claim for and the payment of fails charges are discussed by the Bonds Gensaki Transaction Study Group. It is desirable that these reviews enable the wide range of market participants including the executives to understand well the meaning and role of the fails practice and that systematic frameworks and business operations to handle fails are further established.

Enhancing the functions of and promoting the utilization of the JGBCC

Challenges for the JGBCC are enhancing the functions and promoting further utilization so that market participants receive the benefit of utilizing the central counterparty (CCP) features, such as the guarantee to perform delivery and payment obligations, which facilitate the reduction of counterparty risk, as seen in the case of the failure of Lehman Brothers Japan Inc. Given the experience that the pace of JGB settlement was delayed since it took a long time to deal with the operations related to the failure of Lehman Brothers Japan Inc. and resolve settlement fails, the JGBCC is working to prepare manuals and improve infrastructures to cope with extraordinary cases. Moreover, it is required to review its scheme to ensure timely and stable acquisition of JGBs and settlement funds to resolve settlement fails more quickly. In particular, the JGBCC carries out studies on the scheme for raising funds as an urgent issue. As for promoting further utilization of the JGBCC, some of the market participants have started to consider using services provided by the JGBCC. The JGBCC is expected to enhance its functions as early as possible, including promotion of disclosure such as improvement in transparency concerning how to allocate bonds subject to settlement fails, which was pointed out as a challenge in response to the bankruptcy. It is also desirable that, along with the enhancement of functions, there will be some progress in the discussion among relevant market participants on the effective use of the JGBCC's risk

[33] The present "Regulations concerning handling of short sale and lending transaction of bonds" oblige JSDA members to cover short positions before the settlement date when they carry out short sales of bonds in outright transactions and other transactions. From the perspective of avoiding frequent and intentional fails, the working group is discussing the introduction of regulations concerning handling of short repo transactions that oblige market participants who entered into repo transactions (i.e., lending transactions) to cover the securities until the delivery.

management features.

Shortening the JGB settlement cycle

Market participants have also recognized that the JGB settlement cycle should be shortened in order to reduce settlement risk by decreasing the amount of unsettled outstanding positions, which are exposed to the risk of default and settlement fails, and reducing the time required to resolve settlement fails. Generally in the JGB markets, outright transactions are settled three days after the trade date (T+3 settlement cycle) and repo transactions are settled two days after the trade date (T+2 settlement cycle). While coping with the market turmoil resulting from the failure of Lehman Brothers Japan Inc., market participants became well aware of the risk that they could not receive funds and bonds as scheduled, or liquidity risk caused by default and settlement fails. For this reason, a working group covering major market participants and relevant infrastructure organizations[34] was set up in September 2009 under the Promotion Meeting for Reform of Securities Clearing and Settlement System.[35] The working group is currently studying the fundamental issues and the way settlement practice and trading management should operate in the case of the T+2 and T+1 settlement cycle for outright transactions and T+1 and T+0 for repo transactions, and will issue its interim report around autumn 2010.

Box 9: Interim Report of the Working Group concerning Review of Fails Practices for Bond Trading

On November 26, 2009, the JSDA published "The Interim Report of the Working Group concerning Review of Fails Practices for Bond Trading." The following is a summary of the report.

[34] The members of the working group are as follows: securities companies, major banks, trust banks, *tanshi* companies, institutional investors (the Norinchukin Bank, life insurance companies, and investment trust management companies), JGBCC, and Japan Securities Depository Center (JASDEC). The Financial Services Agency, the Ministry of Finance, Tokyo Stock Exchange, Japan Securities Clearing Corporation, and the Bank also participate as observers.

[35] The Promotion Meeting for Reform of Securities Clearing and Settlement System was set up under the Committee for Reform of Securities Clearing and Settlement System (the Secretariat at the JSDA) in May 2003; at the meeting, market participants discuss the reform of securities clearing and settlement system independently.

1. Purpose of Establishing the Working Group

Since the outbreak of the global financial crisis triggered by the failure of Lehman Brothers Japan Inc. in September 2008, the necessity to review the fails practice and other processes in bonds settlements has been recognized in light of the drastic change in the market environment. Considering this background, with the intention of further establishing the fails practice while preventing frequent occurrence of fails, the working group was established and has begun reviewing the fails practice and discussing specific measures.

2. Meaning and Role of Fails Practice

Preparing a system that enables the handling of fails is necessary because a situation where a fail could not be handled practically (or accepted) would hinder emergency market operations. Furthermore, the promotion of the understanding of fails is also essential, especially at the executive level, as some parties arguably do not accept the fails practice due to a lack of understanding of fails. When starting to review the fails practice and discuss specific measures, this working group reconfirmed the meaning and importance of the role of the fails practice.

3. Specific Agenda

The group discussed measures to modify the existing fails practice or related categories at the meetings held before the release of the interim report.

(1) Introduction of fails charges

Many expressed the view that a fails charge is effective in preventing frequent occurrence of fails and the introduction of a fails charge should be discussed positively. In light of this, it was agreed that discussions would be carried out assuming that a fails charge was introduced as a consensus of not only JSDA members but also a wide range of market participants, including the representative of each business type, and then complied with by them. Additionally, it was agreed that discussions would not make a distinction between intentional and unintentional fails, and the status of a fails charge -- whether it should be considered a penalty or not -- was left open.

Regarding the calculation method for a fails charge, it was agreed that a practical solution would be explored, with reference to the U.S.-type "α percent minus policy interest

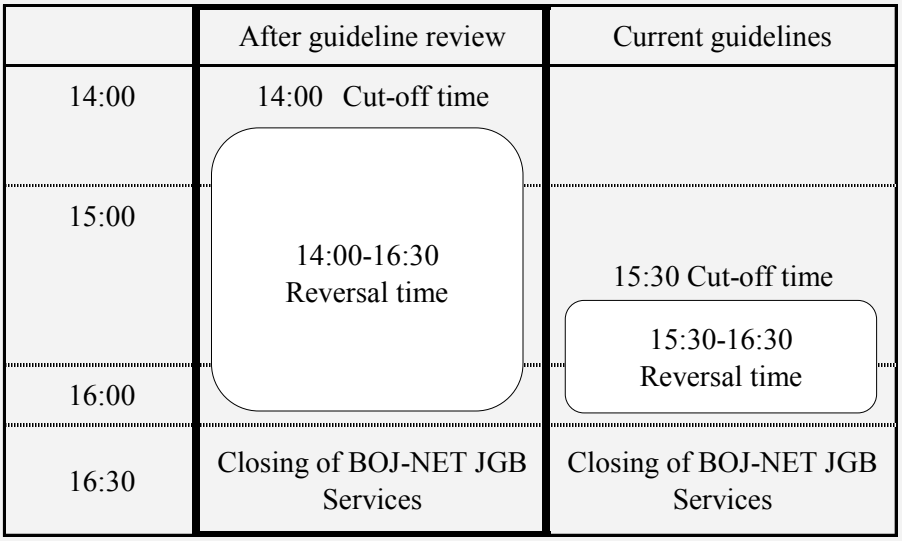
rate (uncollateralized overnight call rate)," which is expected to work to prevent the frequent occurrence of fails under low interest rate conditions. Considering that while there is a concern that a level lower than the U.S. level (3 percent) might not ensure a sufficient effect, a high-level fails charge would mean a "penalty," it was agreed that discussions would be carried out assuming that α percent was set at 3 percent.

Regarding the applicable scope of a fails charge, after the group discussed the application to overseas transactions and loop transactions (i.e., a chain of transactions among multiple entities that begin and end with the same entity, thereby forming a loop), it was agreed that a fails charge would be applied without exception.

(2) Review of the cut-off time

Regarding the cut-off time, considering business operations after a fail is confirmed and the investment of surplus funds where fails have never been accepted, it was agreed that the time would be moved forward from the current 15:30 to 14:00 (Chart 1 for Box 9).

Chart 1 for Box 9: Review of the cut-off time



Note: It was agreed that the period between the new cut-off time and the closing time of the BOJ-NET JGB Services (16:30) would be regarded as reversal time and that fails could be confirmed even before the cut-off time based on agreement between the parties concerned.

4. Future Agenda Items and Discussion on Practical Issues

This working group is scheduled to discuss good-faith efforts and related issues, information disclosure and related issues, and margin calls and related issues as other measures that require development of the new practice, as an example. It was agreed that

the group would ask the Bonds Gensaki Transaction Study Group to discuss the actual operations concerning the claim for and payment of fails charges. Additionally, the group plans to specifically discuss the actual operations concerning the claim for and payment of fails charges involving overseas transactions after establishing a sectional committee composed of a small number of relevant parties.

2. Measures Taken by Market Participants in Other Financial Markets

Participants in corporate bond markets, securitization markets, OTC derivatives markets, and CP markets considered and took measures to enhance market activities, reflecting the lessons learned from the global financial crisis. The Bank hopes that market participants will continue to take initiatives related to improving the transparency and functioning of each market, and the Bank will continue to support such private-sector initiatives by taking part in the participants' discussions.

Measures taken in corporate bond markets

To enhance the functioning of and ensure the stability in the financial markets in Japan, it is necessary to improve corporate bond markets, thereby diversifying firms' medium- to long-term financing and investors' management of funds. In July 2009, the JSDA set up a conference for enhancing the corporate bond markets. The members of the conference and the subgroup, which were composed of major market participants including issuing companies and institutional investors,[36] identified issues and considered measures to improve the market. The final conclusions will be formulated by the middle of 2010 (for details, see Box 10).

Measures taken in securitization markets

Securitized products in Japanese markets remained relatively simple, and their risks have been identified rather easily compared with U.S. and European securitized products. However, as a preventative measure, the Working Group on Distributions of Securitized Products was organized under the JSDA in March 2008 to improve transparency of

[36] The members of the conference are as follows: securities companies, major banks, trust banks, life insurance companies, issuing companies, rating companies, the Tokyo Stock Exchange, the JASDEC, and others. The Financial Services Agency, the Ministry of Finance, the Ministry of Economy, Trade and Industry, and the Bank also participate as observers.

securitization markets.[37] The working group held discussions to ensure traceability of securitized products. After the discussion and public consultation, the self-regulatory rule about distribution of securitized products became effective in June 2009. The self-regulatory rule provided that distributors should prepare to give their customers appropriate information about underlying assets and risks of securitized products, and also introduced standardized information reporting packages (SIRPs)[38] for major securitized products, which provide disclosure lists as a common platform for customers. Recently, market participants have been following up on the implementation of SIRPs and considering measures to improve the securitization markets.

Measures taken in OTC derivatives markets

In Japanese OTC derivatives markets, concerns that counterparty risk would intensify and damage the soundness of the overall financial system as seen in the United States and Europe were not borne out, mainly due to lower trading volume. However, Japanese market participants have discussed the use of CCP[39] and improved market practice[40] in light of international developments, which improved market transparency, particularly regarding CDS trading, and enhanced risk management through the use of CCP particularly regarding CDS trading in the OTC derivatives markets.

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[37] The Financial Services Agency of Japan provided new supervisory checkpoints to ensure the traceability of securitized products in the "Guidelines for Financial Instruments Business Supervision." The working group conducted a detailed study on establishing a self-regulatory rule for distributors of securitized products to comply with the checkpoints. The Bank participated in this study as an observer.

[38] The SIRPs cover RMBSs, ABSs, collateralized loan obligations (CLOs), and CMBSs, which are debt types of primary securitized products. The SIRPs for RMBSs, ABSs, and CLOs are adjusted based on the model format of the Bank's Workshop on Securitization. The SIRP for CMBSs is based on the Investor Reporting Package of the Japan Office of the Commercial Mortgage Securities Association.

[39] The Working Group on clearing operation for OTC derivatives trades set up jointly by the Tokyo Stock Exchange and the Japan Securities Clearing Corporation, as well as the Study Committee on Central Counterparty for OTC Derivatives Transactions organized by the Tokyo Financial Exchange, held discussions on the use of CCP for OTC derivatives transactions.

[40] The International Swaps and Derivatives Association (ISDA) took initiatives to review the market practice of collateral of OTC derivatives transactions and to standardize CDS transactions.

Measures taken in CP markets

The Bank had released the "Average Yields on Newly Issued Domestic Commercial Paper" monthly since the figures for September 1994. In response to calls for more detailed and timely data, however, the Bank engaged in discussions with JASDEC and market participants to improve the statistics. After the discussion, JASDEC began publishing average CP issuance rates on a daily basis starting from October 2009. JASDEC bases the new statistics on data in its Short-Term Corporate Bonds Book-Entry Transfer System. As such, more detailed data are available for users on a daily basis (Chart IV-2-1).

Chart IV-2-1: Revision of CP rate statistics

		After revision	Before revision
Source		JASDEC	Bank of Japan
Frequency of release		Daily, weekly, and monthly	Monthly
Contents		All CP issues on that day	Issues underwritten by the counterparties of BOJ's CP repurchase operation
Average rates		Weighted average	Simple average
Number of categories			
	Maturities	Six (Up to 1W, 2W, 1M, 2M, 3M, and over 3M)	Three (2W, 1M, and 3M)
	Sectors	Seven (Financial institutions, other financial companies, electricity/gas, business companies [except other financial companies and electricity/gas], total of business companies, SPCs, and others)	One (Total of business companies)
	Ratings	Three (Equivalent to a-1+, a-1, and a-2 or lower)	One (Equivalent to a-1 or higher)
Source of release		JASDEC's web site	BOJ's web site

Box 10: Discussion at the Conference for Enhancing the Corporate Bond Markets

The current members of the conference for enhancing the corporate bond markets have pointed out several features about Japanese corporate bond markets; for example, its smaller size, the limited class of the investors, and its lower liquidity compared to the U.S. corporate bond markets (Chart 1 for Box 10). The main issues in the discussion of the conference and the subgroup were as follows.

1. Issues Related to the Primary Markets

The introduced quarterly settlement shortened the period of time in which a corporate entity can issue bonds and concentrated issue dates within a short period. In order to issue corporate bonds quickly, shortening the period of examination and determination of issue terms has been discussed. Moreover, the members recognized that enhancement of debt investor relations (IR) by issuers and enriched disclosure documents in English were necessary in order to foster investment in corporate bonds.

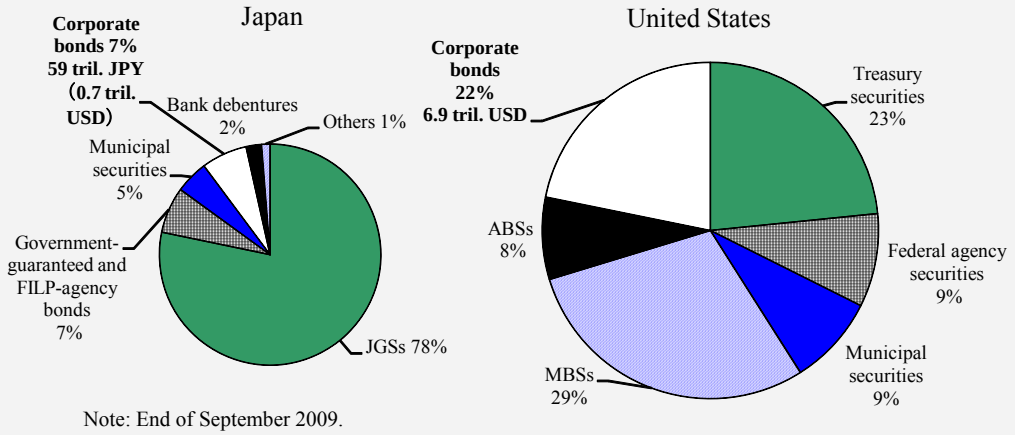
2. Issues Related to the Secondary Markets

In order to provide information about a market price, the members have discussed several issues related to the secondary markets including improvement in provision of the reference price for OTC bond transactions and disclosure of real prices at which dealers traded. In addition, the members have pointed out that the settlement and clearing system and infrastructure of repo trading for corporate bonds should be improved by taking account of the securities settlement systems in the United States and Europe.

3. Other Issues Related to Corporate Bond Markets

The members also have discussed other issues including a review of covenants of corporate bonds, a disclosure of covenants of other debts, a framework of bond management companies, and acquisition of ratings of more than one rating company.

Chart 1 for Box 10: Amount outstanding of Japan and U.S. bond markets



Note: End of September 2009.

Sources: Japan Securities Dealers Association;
Securities Industry and Financial Markets Association.

3. Enhancement of the Business Continuity Plan (BCP) in Financial Markets

At the time of an earthquake or terrorist attack, the operational ability of each market participant would be undermined, and thus market transactions and settlements would tend to be restrained. However, market participants still would need to make payments and settlements for existing transactions, as well as execute transactions such as funding and position closing even when a disaster strikes. A contagious situation when each market participant remains unable to execute minimal transactions over an extended period of time potentially could impair the stability of and confidence in the financial markets, which in turn could have a negative impact on the price formation mechanism. Therefore, not only is the BCP in the interest of each market participant, it also helps stabilize financial markets and the economy as a whole.

In order to maintain the functioning of the markets, it is important to enhance the BCP in financial markets by (1) ensuring the transmission and sharing of information in the event of a disaster, (2) preparing and putting into place contingency procedures,[41] and (3) conducting market-wide exercises to assess the effectiveness of these arrangements (Chart IV-3-1).

In 2008, the operation schemes of the BCP in financial markets made great progress, and a framework for a market-wide BCP was established by ensuring the method of the transmission and sharing of information and preparing the contingency procedures. For example, BCP-dedicated web sites for FX markets and securities markets were launched. In 2009, market participants focused on further enhancing the BCP in cooperation among financial markets as a whole, while conducting more practical market-wide exercises. In September 2009, the fifth exercise in money markets was conducted. The exercise was carried out in a more practical manner, assuming the spread of pandemic influenza (a highly pathogenic avian influenza in this exercise) in order to prompt the financial institutions to prepare for an outbreak of pandemic influenza, while familiarizing users with the BCP-dedicated web sites. Furthermore, to strengthen cooperation among the markets, the first market-wide joint exercise is planned for February 2010. The exercise will be conducted under the assumption of the same scenario and timeline in order to (1) confirm the contingency procedures in the simultaneous activation of each BCP and (2)

[41] The basic contingency procedures in case of a disaster consist of three steps: (1) deciding whether to activate the BCP; (2) sharing information on the damage caused by the disaster; and (3) modifying transaction practices.

examine how to share the information among the secretariats of the respective markets, relevant public authorities, and market participants. The Bank expects that the coming exercise will help to enhance BCP arrangements in the financial markets as a whole.

In order to strengthen the resilience of the financial markets, the Bank will continue not only to enhance its own BCP arrangements but also to support relevant parties.

Chart IV-3-1: Market-wide BCP arrangements

	Money markets	FX markets	Securities markets
Secretariat	- Japanese Bankers Association (JBA)	- Tokyo Foreign Exchange Market Committee (TFEMC)	- Japan Securities Dealers Association (JSDA)
Participants/users of the BCP-dedicated web site	- Approximately 190 institutions - Banks, *shinkin* banks, securities companies, *tanshi* companies, insurance companies, investment trust management companies, securities finance companies, and others - Organization for Management of Domestic Fund Transfers, Tokyo Bankers Association (TBA), CLS Bank International, Association of Call Loan and Discount Co., Japan Securities Depository Center (JASDEC), Japan Government Bond Clearing Corporation (JGBCC), Japan Securities Clearing Corporation (JSCC), Tokyo Stock Exchange (TSE), and Tokyo Financial Exchange (TFX) - Financial Services Agency (FSA) and the Bank of Japan	- Approximately 25 institutions (The number of participants is expected to increase.) - Banks and other financial institutions - TBA, CLS Bank International, and TFX - Ministry of Finance (MOF), FSA, and the Bank of Japan	- Approximately 370 institutions - Securities companies, banks, and others - Securities exchanges, such as TSE and Osaka Securities Exchange, JASDEC, JASDEC DVP Clearing Corporation, JGBCC, and JSCC - FSA, and the Bank of Japan
Launch of the site	- April 2006	- January 2008	- April 2008

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