The Bank of Japan's Monetary Policy during the Global Financial Crisis

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Abstract

The global financial crisis forced the world's central banks to adopt non-traditional and unconventional policy measures, in addition to lowering their policy interest rates. The Bank of Japan (BOJ), which has been seeking steps to normalize interest rates since it ended its policy of quantitative easing in 2006, has been introducing various measures to tackle the crisis. However, as part of the lesson learned from its quantitative easing policy, the BOJ instituted its Complementary Deposit Facility (a system to remunerate on holdings in excess of required reserves) so that its policy interest rate will not be at zero level. The measures adopted by the BOJ are not ambitious when compared to those implemented by the Federal Reserve Board or the Bank of England, but this is due to the difference in the magnitude of the damage suffered by financial institutions in their respective countries. The BOJ has come under criticism from some quarters for the modest expansion of its balance sheet prior to and following the Lehman shock. But, it is important to note that the BOJ's balance sheet vis-à-vis GDP remains relatively large when compared to those of other central banks. The current financial crisis offers an opportunity to reconsider the framework of inflation targeting, the relevance of new-Keynesian type of optimal monetary policy and the relationship between monetary policy and asset prices.

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Introduction

The problem triggered by rising defaults on mortgage payments by U.S. subprime borrowers has spread beyond the United States and gained global magnitude. It is now widely referred to as a global financial crisis or worldwide economic slump. Central banks around the world responded to the crisis by trimming policy interest rates, which led to a significant decline in nominal interest rates. In particular in December 2008, the U.S. Federal Reserve Board (Fed) set a target rate of 0.0-0.25 percent for its policy interest rate (federal funds overnight rate) in a move that the Japanese media, such as newspapers, at the time described as the adoption of a virtual zero interest rate policy. The Bank of Japan's (BOJ) policy interest rate (uncollateralized overnight call rate) was at the time set at 0.3 percent, marking a reversal in the two countries' interest rate target range. The Fed's move resulted in putting pressure on the BOJ, prompting Japan's central bank to reduce the target range for its policy interest rate to 0.1 percent on December 17. The BOJ had no choice but to undertake other money market operations to cope with the crisis. Other central banks were no exception as they too were forced to introduce money market operations crafted to deal with the global emergency. Japan's monetary policy after the collapse of the so-called bubble economy, in particular its experience with "quantitative easing," appears to have served as an example for other central banks. The question that needed to be addressed was what additional monetary easing steps to take when the nominal short-term interest rate, in other words the policy interest rate, neared zero. Central banks also had to learn not to be thrown into confusion when faced with an emergency such as a liquidity shortage in a particular market, or when confronted with a crisis of the magnitude of the Lehman Shock.

Many central banks eventually had to adopt non-traditional and unorthodox policy measures to cope with the global financial turmoil, which also raised the question of how to return to a conventional policy after the crisis ended. The financial slump also provided an opportunity to review economic frameworks such as inflation targeting, as well as to restudy the validity of new Keynesian optimal monetary policy.

The recent global financial crisis raises many issues about central bank monetary policies. In the following section, I will take a close look at the BOJ's monetary policy and money market operations during the global financial crisis for insights by comparing them with those of other major central banks.

I. The BOJ's monetary policy after "quantitative easing"

As is widely known, the BOJ ended its roughly five-year policy of "quantitative easing" on March 2006, and shifted its main operating target for money market operations to a money market rate (uncollateralized overnight call rate) from the outstanding balance of current accounts held at the BOJ. The target rate was set near zero.

At this point, however, the Bank failed to clearly communicate its policy. A return to a zero interest rate policy caused the BOJ's current account balance to fall, but the central bank did not explain that this would cause the market to tighten. I have concluded from my study of Japan's "quantitative easing" policy that a rise in the current-account target did not in itself have much of an impact in easing the market, contrary to what the BOJ has said. It follows therefore, that those who share my view will not see this latest measure as market tightening even if the return to a zero rate policy led to a decline in the current account balance, as a rise was not seen as an easing measure in the first place. However, the BOJ has itself explained -- albeit under outside pressure -- that the increase in reserve targeting was an easing measure. And as such, the central bank should say that the decline in reserves is a strong tightening measure, and alternatively if that is not the case, it should publicly state that the hike in reserves targeting that it previously conducted was not a market easing step.

The "quantitative easing" policy not only failed for the most part to achieve its desired initial result, it had the adverse impact of weighing on the performance of money markets, among others. It therefore comes as no surprise that in July 2006, shortly after the zero interest rate policy was lifted, the policy objective interest rate was raised to 0.25 percent. It was further hiked to 0.5 percent in February of the following year, raising expectations that interest rates will play a key policy role after their normalization.

The term of the interest rate offered by the BOJ to banks -- previously called the official discount rate (formerly the rate of interest of a BOJ established quota) -- which formed the cornerstone of regulated interest rates, was changed to the "basic discount rate and basic lending rate," (hereafter referred to as basic lending rate). This interest rate was applied to the standby lending facility (Lombard-type lending facility), which was introduced in March 2001. I will elaborate on this matter later, but its application was as a standing facility to put a ceiling to a rise in short-term interest rates. The basic lending rate has mostly been around the 0.1 percent level since September 2001, even during the period of zero interest rate policy after Japan exited "quantitative easing." After the zero interest rate policy ended, it was set at 0.4 percent or the policy interest rate target plus 15 basis points (July 2006), and again revised to 0.75 percent

(February 2007), policy interest rate plus 25 basis points.

At this point, money market participants took issue with the low basic lending rate as a loan facility, or rather its lack of difference with the policy rate. Their argument was that: "This will further slow the progress of the normalization of the interest rate market as it will encourage the view among borrowers that if they cannot tap money markets, they can easily turn to the BOJ."[1)]

In retrospect, the prelude to the financial crisis can be traced to the so-called "Shanghai shock" in February 2007, which caused a slump in global stock prices. The burst of the dotcom bubble after the first zero interest rate policy -- which was introduced in February 1999 and lifted in August of the following year -- forced the BOJ to adopt its "quantitative easing" policy. The U.S. housing bubble exploded at this time just as the BOJ was trying to normalize interest rates. The securitization of financial instruments can be blamed for the spread of the current crisis beyond U.S. borders. It is a reflection of the era of globalization that the depth of the financial crisis first became apparent in Europe rather than the United States, where it originated. Both the BNP Paribas shock in August 2007, and the liquidity crisis that shook Northern Rock in Britain in September of the same year underscored the recent distortions in the balance sheet of European financial institutions, demonstrating their weakness in managing the crisis.

Five central banks in the United States and Europe announced in December 2007 that they would jointly provide liquidity to money markets. While the BOJ welcomed the move, it stopped short of taking special measures to provide liquidity. This difference in response can be attributed to the limited exposure Japanese financial institutions had to securitized U.S. financial instruments. However, the financial crisis began to embroil Japan's economy and financial institutions as the serious ramifications from the Bear Stearns Shock in March 2008 and the Lehman Shock in September of the same year gained momentum.

At this point, the BOJ had no choice but to adopt monetary measures designed to deal with the crisis. Efforts to normalize interest rates had to be set aside. Although I will go into deeper details of those measures in section three of this paper, I would just like to mention here that the measures the BOJ took demonstrate that the central bank has drawn some lessons from the time it was practicing "quantitative easing." In the next section I will look into key measures adopted by major central banks to cope with the crisis ahead of taking an in-depth look into the steps taken by the BOJ, as I believe a comparison of the various measures will better illustrate the Japanese central bank's own attempts to deal with the crisis.

Ⅱ. The global spread of the financial crisis and key central bank policy measures

I will first review the general money market operations of key central banks in recent years before I look into the measures they adopted to deal with the crisis. A study of money market operations during normal times will, I believe, help in gaining a better understanding of the reasons behind the measures taken during the crisis.

Central banks in advanced economies, unlike Japan which previously had regulated interest rates where the official discount rate played a pivotal role in the interest rate structure, no longer managed interest rates in a like manner. Nor was it common for them to adopt current account balances as the target for money market operations, unlike the BOJ at the time of quantitative easing. Fundamentally central banks implemented monetary policy by controlling money market rates through money market operations. Policy interest rates of the major countries shifted from the official discount rate to the overnight uncollateralized call rates in Japan, and the federal fund rate (overnight) for the Fed in the United States. In the U.K., the Bank of England's (BOE) remuneration rates on reserves accounts was its policy rate, or official Bank Rate. It is applied for one week, as the Bank Rate is also typically applied to short-term repo operations (one-week maturity) - the main means of supplying funds during normal times. In the Euro area (the European Central Bank), the main refinancing operations are conduced once a week, and they are the key means of providing liquidity. The lowest bid becomes the policy interest rate. The term is one week.

Many types of monetary measures aimed at guiding policy and other interest rates, have been implemented. According to the BOJ's Monetary Affairs Department (Nippon Ginko Kikakukyoku [2006]), the broad framework of money market operations conducted by key central banks have become very similar. In other words, these "basic frameworks" share the concept that: (1) The central banks' current account balance, established either by law or agreement, functions to maintain stable demand for the current account (2) while working to adjust macro-economic fund demand mostly through open market operations, (3) which will be supported by standing facilities that are designed to provide upper and lower bounds for short-term money markets.

It is worth noting that the reserve deposit requirement system has changed. The U.K. central bank (BOE) for example introduced the deferred reserve requirement system as the centerpiece of the revision of its monetary control system implemented in May 2006. The system was characterized by the fact that it allowed financial institutions to set their own average balances. This means the concept of changing the reserve requirement rate does not exist.[2] Changes in the

reserve rate, however, unlike its definition in a beginner's textbook for monetary economics, includes injecting liquidity to cover the shortage from a hike in the reserve requirement rate. It also includes the reverse, draining liquidity when there is an excess after the reserve requirement rate has been lowered. These are the regular actions of a typical central bank, and the BOE decided to push forward with these policies. The reserve requirement system was, therefore, important as a framework to guide short-term interest rates, and it can be said that its transformation as a system did not have much meaning if the reserve rate was at an appropriate level and was remunerated.[3)]

In any case the spreading repercussions from the global financial crisis caused dramatic changes in the monetary policy and money market operations of central banks. Central banks were forced to switch from non-crisis money market operations to adopting non-traditional, unconventional measures to cope with the growing financial threat.

First, central banks trimmed their policy interest rate, which in itself does not necessarily translate to an unorthodox or unconventional measure. The Fed appears to have taken the lead, followed by other central banks, in adopting near-zero interest rates as their policy interest rate in the wake of the Lehman Shock. Here, I would like to bring to your attention the fact that interest rates were near but not actually at zero. I earlier mentioned that when the Fed's policy interest rate was set at 0.0-0.25 percent, some of the press reported the move as the adoption of the zero interest rate policy. However, if anything the Fed's policy can be interpreted as a statement that the short-term nominal interest rate will not be set at zero. Neither did the BOJ, or other central banks set their short-term nominal interest rate at zero, which appears to suggest that central banks have learned a lesson from the Japanese central bank's quantitative easing policy when as a side effect the short-term nominal interest rates fell to zero.

What was important was the remuneration rate for reserve requirements and the new management that was practiced so that technically the nominal short-term interest rate would not fall to zero. This management of the reserve requirements also played a role in expanding the balance sheets of central banks. In studying the unconventional and unorthodox policies adopted by central banks to fight the current crisis, it is most common to look either at the credit easing policies, represented by the purchase of assets that would typically be considered inappropriate by a central bank, or the quantitative easing policy, represented by the liabilities stemming from the increase in reserve balances.

The BOE is representative of the latter as it is one of the few central banks that professes to implement quantitative easing. The turning point came when the central bank first reverted to a crisis mode money market operation in order to cope with Northern Rock's liquidity crisis in September 2007. The BOE supplied liquidity to the market in order to be able to deal with the

crisis while at the same time providing Northern Rock with financial support (which in macro-economic terms is a means of injecting funds into the market). However, a problem arose at this point. As I explained earlier, the banks themselves set their deposits under the U.K.'s reserve requirement system, which is remunerated at the Bank Rate. However, there was a condition attached to this.

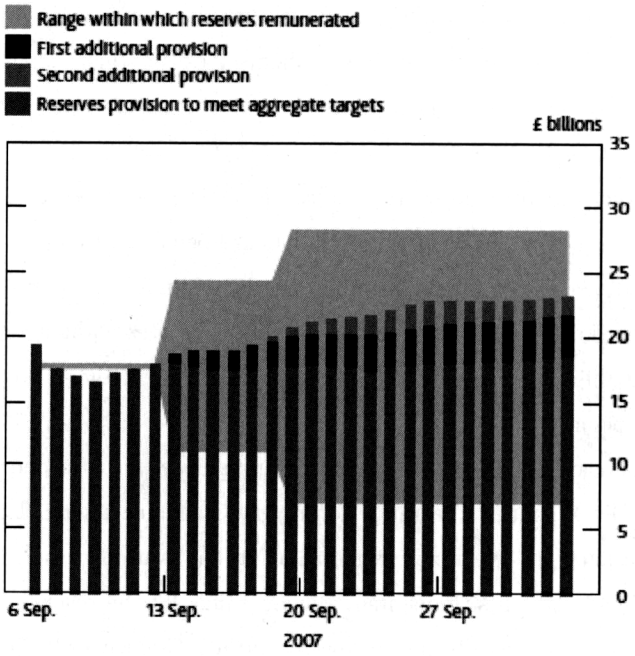
This was that financial institutions were required to meet their reserves target within a range of one percent above or below the point target. Banks are penalized by receiving no remuneration if they fail to meet the reserves target. In other words, punitive measures are imposed if banks maintain reserves that are either over or under the target. It goes without saying that the system was designed so that there was no incentive to maintain holdings either below the reserve ranges, or above, due to the penalty.

The BOE had no choice but to supply excess reserves on a macro-economic basis. To resolve this dilemma, the BOE expanded the range for reserves remunerations. The move enabled the BOE to provide additional reserve funds, while allowing banks to increase their reserve holdings. Later, the BOE made adjustments to maintain a wider range for the reserves targets although the actual reserve balances were usually just below the target. (Figure 1, 2) The BOE did not see a rapid increase in its balance sheet before March 2009. While it took steps to increase funds, including providing financial support to Northern Rock, undertaking long-term repo operations and conducting the outright purchase of gilts, the BOE at the same time, greatly decreased the amount of its short-term repo operations, which is a key means of providing funds in non-crisis times. As a result, the balance sheet did not expand dramatically.

The situation changed drastically after March 2009. The BOE established a subsidiary, the Asset Purchase Facility Fund, on January 30, 2009. The fund was initially provided with the option of buying up to 50 billion pounds worth of private securities, such as commercial papers. The purchases were to be financed by the issuance of Treasury bills (TB). The issuance of TB as a means of procuring funds serves to drain liquidity from the market. Thus, even if the market was later provided with funds in the form of CP purchases, the move would only have a neutral impact on the market as a whole. However, the BOE decided in March to allow the APF to buy U.K. government securities, or gilts. The ceiling was set at 150 billion pounds, of which 50 billion pounds could be assets from the private sector. It was also announced that the purchases would be financed by increasing the central bank reserves. At this point, the APF became an instrument to conduct quantitative easing both in terms of its character and its quantity. The limit for purchases was raised to 175 billion pounds in August of that year, and hiked again to 200 billion in November later in the same year. This caused the BOE's balance sheet to mushroom.

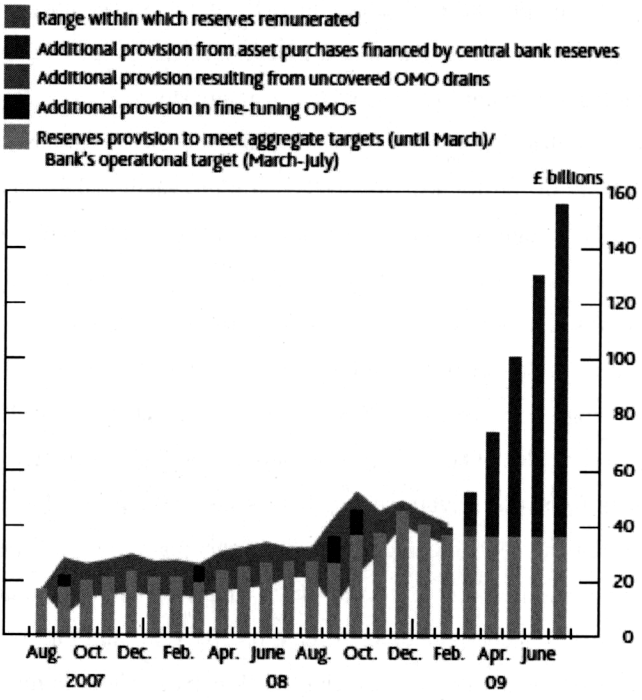
Again, technically speaking, the BOE was able to implement this move, largely because it

Figure 1　Cumulative average reserves provision in September-October maintenance period



Source: Bank of England[2007] *Quarterly Bulletin* Q4, p.503.

Figure 2　Aggregate reserves targets and reserves provision



Source: Bank of England[2009] *Quarterly Bulletin* Q3, p.172.

suspended reserves-targeting after it introduced quantitative easing. Prior to the financial turmoil, the central bank remunerated reserve holdings at the official interest rate provided they fall within a range of plus or minus 1 percent of the point target. The target range was expanded after the Northern Rock crisis, but it eventually altogether suspended the target range, and remunerations were made on all reserve deposits, making quantitative easing possible.

At the time of writing of this paper, it is still premature to make a study of the effects of this quantitative easing policy. The BOE itself appears to expect it to fundamentally be able to achieve so-called portfolio rebalancing.[4] However, it is not necessarily clear how the BOE interprets the BOJ's past experience and its failure to achieve that effect. The BOE also appears to expect a flattening of the yield curve as a result of its massive purchase of gilts. Although there are signs that that goal has been achieved, it is difficult to judge how much of this is due to the "volume" of the purchase.[5] The APF terminated its buying of gilts after it hit a ceiling with its last purchase made on January 26, 2010. The yield curve steepened a touch, but not significantly, after buying of gilts ended.

In contrast, the Fed adopted credit easing as its policy. The Fed newly introduced the Term Auction Facility (TAF), an auction designed to meet funding needs, in December 2007, before the failure of Lehman Brothers.[6] TAF was designed to auction funds to depository institutions, but during the Bear Stearns crisis of March 2008, the Fed also launched the Term Securities Lending Facility (the lending of securities by a pledge of other securities such as the residential-mortgaged-backed securities, MBS), and the Primary Dealer Credit Facility (which provides funding in exchange for a wide range of collateral), both new measures were aimed at providing funds for primary dealers. This marked a major turning point for the Fed, which as the banker's bank previously had not provided funds to securities companies (investment banks). However, prior to the Lehman Shock, the Fed took pains to try not to increase its net supply of funding by selling government bonds in its holdings, while at the same time taking such steps as to provide funds. In other words, at this point the Fed's balance sheet had not expanded excessively, although it was in the difficult situation of having to match the increase in its liabilities with those of its assets. Specifically, the difficulty lay in increasing the balance of its reserve deposits, but I will go into further detail of this subject later.

This situation changed drastically after the Lehman Shock. Soon after the bankruptcy of the U.S. investment bank, in September 2008, the Fed introduced a new means to provide funds. This was the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), which was a non-recourse loan that financed the purchase of asset-backed commercial paper (ABCP) from money market funds (MMF). This was a means of providing funding for depository financial institutions. In October, the Fed followed with steps to purchase new assets, such as the

Commercial Paper Funding Facility (CPFF) (for the issuance of commercial paper), the Money Market Investor Funding Facility (MMIFF) (targeted at the money market investor) and the Term Asset-Backed Securities Loan Facility (TALF) (a facility to support the issuance of eligible asset-backed securities). These are so-called credit-easing measures. The Fed's aim was to revitalize these markets by buying risky private-sector assets, a previously unprecedented move.

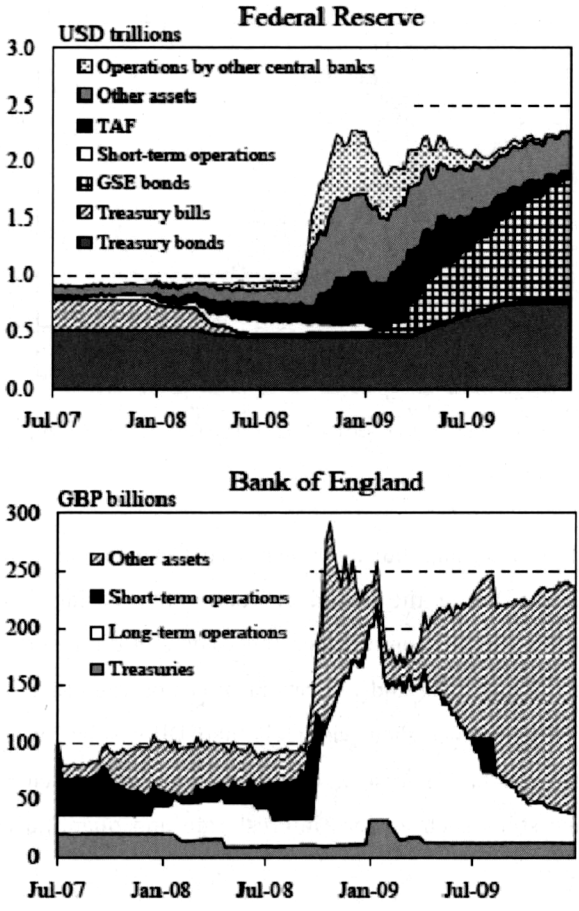
Although these are credit-easing measures, the Fed's balance sheet had been expanding rapidly since the Lehman Shock. This expansion can be attributed to reserve requirements. The Fed's reserve requirements which are specified by law is a deferred with no remuneration paid.[7] The Financial Services Regulatory Relief Act of 2006 gave the Fed the authority to remunerate on reserve balances starting in October 1, 2011. However, the date was moved forward to October 1, 2008 as part of the Emergency Economic Stabilization Act of 2008, established in response to the financial turmoil. This move is technically significant as it not only allows, but provides depository institutions with an incentive to hold excess reserve balances. If the Fed had taken steps to forcibly increase the asset side of its balance sheet without addressing the issue related to the increase in the liability side of the balance sheet, the short-term policy rate would probably have fallen to zero, just as it once had in Japan during the implementation of quantitative easing. Revisions to the reserve requirements were behind the increase in central banks' balance sheets, not only in the United States, but also in Britain.

Moreover, the Fed resumed its buying of agency bonds after the Lehman Shock of September 2009, after an absence of 20 years. In March 2010, it also resumed buying of government bonds. These measures can be interpreted as trying to lower long-term interest rates rather than targeted at credit easing. They also hold strong shades of being quantitative easing measures as the reserve balances rose. The Fed had announced that it would buy up to 300 billion dollars in government bonds, but it decided in October 2009 to drop the move, as it was unclear how much impact this would have.

The swap agreement between central banks and foreign-currency denominated funding were also important measures taken to deal with the financial crisis, a move that I will revisit in a separate section. I would like to first bring to your attention the fact that the balance sheets of both the BOE and the Fed increased, which can be seen in (Figure 3), as a result of measures taken in response to the financial crisis. It is clear from this, that the balance sheets mushroomed regardless of whether the policy aim was quantitative easing or credit easing. The BOJ's balance sheet (Figure 4), in contrast, failed to show much of an increase, inviting some criticism that the Japanese central bank's quantitative easing was inadequate.[8]

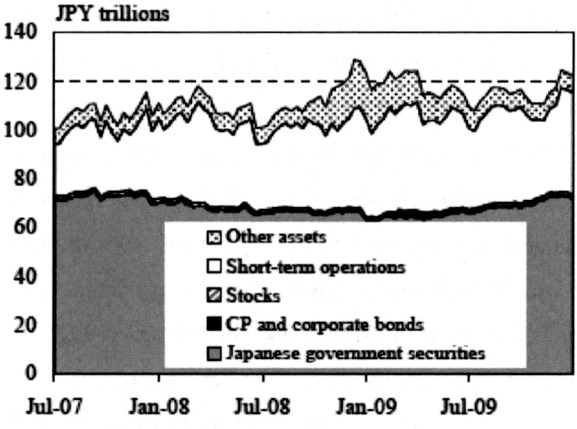
However, a different picture of the situation emerges when you make a long-term comparison with each country's GDP. (Figure 5) The BOJ's balance sheet, which ballooned during the period

Figure 3 Balance sheets of Fed and BOE (Assets)



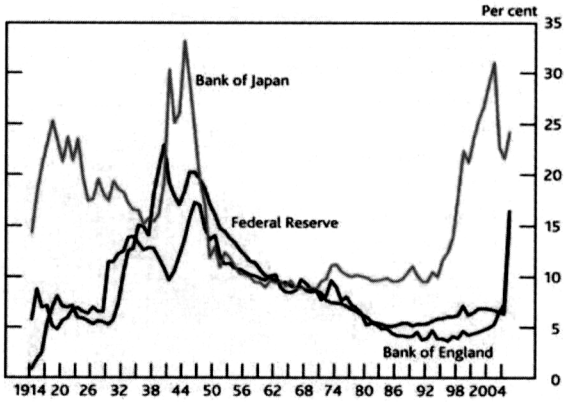
Source: Nippon Ginko [2010] *Kinyu Shijo Report,* p.19.

Figure 4 Bank of Japan's balance sheet (Assets)



Source: Nippon Ginko [2010] *Kinyu Shijo Report,* p.19.

Figure 5　Central banks' balance sheets as a percentage of GDP



Source: Bank of England [2009] *Financial Stability Report* No.26, p.50.

of quantitative easing, briefly shrank, but later increased again to cope with the financial crisis, a matter I will review later. During the period of quantitative easing few positive effects were reported, and no correlation can be seen between the volume of the reserve deposits and the scale of the balance sheet on the one hand and the rise in prices on the other hand. After the Lehman Shock, the scale of the BOJ's balance sheet vis-a-vis the GDP was larger than either the BOE's or the Fed's. In the next section, I will look into how the BOJ, which in the late 1990s took unconventional monetary steps such as zero interest rate and quantitative easing, responded to the current financial crisis.

Ⅲ. The Bank of Japan's response to the crisis, and its policy aim

BOJ measures taken in response to the financial crisis triggered by the Lehman Shock can be divided into the following three categories: (1) reductions in policy interest rates etc. (2) measures to stabilize the financial market (3) and steps to facilitate corporate financing. The scale of the steps taken are modest when compared to emergency measures adopted either by the BOE or the Fed, which I have described in the previous section. This is largely due to the fact that Japanese financial institutions managed to escape relatively unscathed from the crisis. At the same time, it is also true that there was little room for Japan to further trim its policy interest rate target, which was still at a low 0.5 percent, despite a hike in February 2007. This meant that the BOJ was vulnerable to pressures to take additional market easing measures.

First, in terms of lowering the policy rate, the BOJ on October 31, 2008 lowered the target by 0.2 percent to 0.3 percent.[9] At the time, market participants had speculated that the BOJ would

cut the target range to 0.25 percent, but it appears that the central bank adopted a range of 0.3 percent expecting that it might need to cut rates further. The basic lending rate was cut by 0.25 percent to 0.5 percent. It is important at this time to take note of the introduction of the complementary deposit facility. Under this system, remuneration is paid to excessive reserves, which means it has a similar affect as the deposit facility. At the time of its introduction, the deposit rate was 0.1 percent, 20 basis points below the policy interest rate target range. It was possible, therefore to contain the volatility of short-term money market rates to within 20 basis points in either direction of the policy rate. What is even more important is that the introduction of the complementary deposit facility meant that even if the interest rate is not zero, in can hold excess reserves. This provided financial institutions with the incentive to hold such reserves.

This can be interpreted as the BOJ's determination - barring extreme circumstances - not to lower the policy interest rate to zero, a level seen for short-term interest rates at the time of quantitative easing. The decision stems from the BOJ's view that money markets' failure to function smoothly during the period of "quantitative easing" was a major problem. Money markets, however, do begin to lose its ability to function smoothly when it becomes sensitive to counter-party risks. At this point central banks have no choice but to provide an alternative to money markets. However, the burden on commercial financial institutions will increase if no remunerations are made on reserve deposits, eventually leading in some cases to the need to take additional measures to absorb liquidity. It was a difficult decision for the central bank, as the situation made it hard for the market to feel that conditions have eased, leading to concerns that the media might misinterpret the move. It is debatable whether this move had much meaning, but it is possible to say that the BOJ had acquired a tool by which it can flexibly expand its balance sheet.

In actual fact, when the policy interest rate was lowered to 0.1 percent on December 19 of the same year, the remunerative rate on complementary deposit facility was left at 0.1 percent, which was the same level as the target rate (the basic lending rate was trimmed by 0.2 percent to 0.3 percent.) This provides another example of the BOJ's resistance to a zero interest rate policy.

This complementary deposit facility, which was introduced in November 16, 2008 when it began to accept deposits, was initially due to end in April 15, 2009, but the term was first extended on February 19, 2009 to October 15 of the same year. On July 15, 2009, it was extended a second time to last until January 15, 2010. On October 30, 2010, it was decided to make the term indefinite, removing all limits for the time being.

While the complementary deposit facility is a measure related to lowering interest rates, it is also a step designed to secure the stability of financial markets, and in fact it is listed as such in the BOJ's homepage. Other steps taken to ensure the stability of financial market can be found in Table 1. Among the most important of these was the U.S. dollar fund supply operation that was

Table 1　The Bank of Japan's　Policy Mesures in the Current Financial Crisis

	Releases	
Measures to Ensure Stability in Financial Markets		
Expansion of the securities lending facility	Oct. 14, 2008: Feb. 19, 2009	
Introduction and expansion of U.S. dollar fund-supplying operations	Sep. 18, 2008: Sep. 29, 2008: Oct. 14, 2008: Jan. 28, 2010	expired at Feb. 1, 2010
Re-establishment of U.S. dollar funds-supplying operations	May. 10, 2010	
Expansion of the purchases of JGBs with repurchase agreements	Oct. 14, 2008	
Introduction of the complementary deposit facility	Oct. 31, 2008	
Increase in outright purchases of JGBs	Dec. 19, 2008 (16.8 tril. yen) : Mar. 18, 2009 (21.6 tril. yen)	
Expansion in the range of JGBs accepted in outright purchase	Dec. 19, 2008: Jan. 22, 2009	
Introduction of outright purchases of of JGBs from specific brackets classified by bond type and residual maturity	Dec. 19, 2008: Jan. 22, 2009	
Inclusion of the Development Bank of Japan as a counter-party in operations such as CP repo operations	Dec. 19, 2008	
Acceptance of debt instruments issued by real estate investment corporations as eligible collateral	Jan. 22, 2009	
Inclusion of government-guaranteed dematealized CP in eligible collateral	Feb. 19, 2009	
Expansion in the range of eligible collateral for loans on deeds to the public sector	Apr. 7, 2009	
Acceptance of bonds issued by the governments of the United States, the United Kingdom, Germany and France as eligible collateral	May 22, 2009	
Provision of sufficient funds over the year-end	Oct. 14, 2Oct. 14, 2008	
Provision of sufficient funds over the fiscal year-end		
Steps to Facilitate Corporate Financing		
Increase in the frquency and size of CP repo operations	Oct. 14, 2008	
Expansion in the range of ABCP as eligible collateral	Oct. 14, 2008	
Introduction and expansion of special fund-supplying oprerations to facilitate corporate financing	Dec. 2, 2008: Dec. 19, 2008: Feb. 19, 2009: Oct. 30, 2009:	expired at the end of Mar. 2010
Expansion in the range of corporate debt as eligible collateral	Dec. 2, 2008	
Introduction of outright purchase of CP	Dec. 19, 2008: Jan. 22, 2009: Oct. 30, 2009	expired at the end of 2009
Introduction of outright purchase of corporate bonds	Jan. 22, 2009: Feb. 19, 2009: Oct. 30, 2009	expired at the end of 2009
Measures to Secure the Stability of the Financial System		
Resumption of stock purchases held by financial institutions	Feb. 3, 2009	
Provision of subordinated loans to banks	Mar. 17, 2009: Apr. 10, 2009	expired at the end of Mar. 2010

Source: Bank of Japan

conducted on September 18, 2008 based on the dollar-swap arrangement with the Fed. The ceiling for the operation was first set at $60 billion, but this was later raised to $120 billion on September 29. On October 13, the limit was removed. The operation was taken to help Japanese banks that were hit by dollar liquidity problems as the swap market lost its ability to function smoothly in the

aftermath of the Lehman Shock. The outstanding balance of money for the operation to supply U.S. dollar funds rose rapidly towards the end of 2008 to approach $123 billion. The volume declined from 2009 when financial markets began to regain their equilibrium, and the operation eventually ended on February 1, 2010.

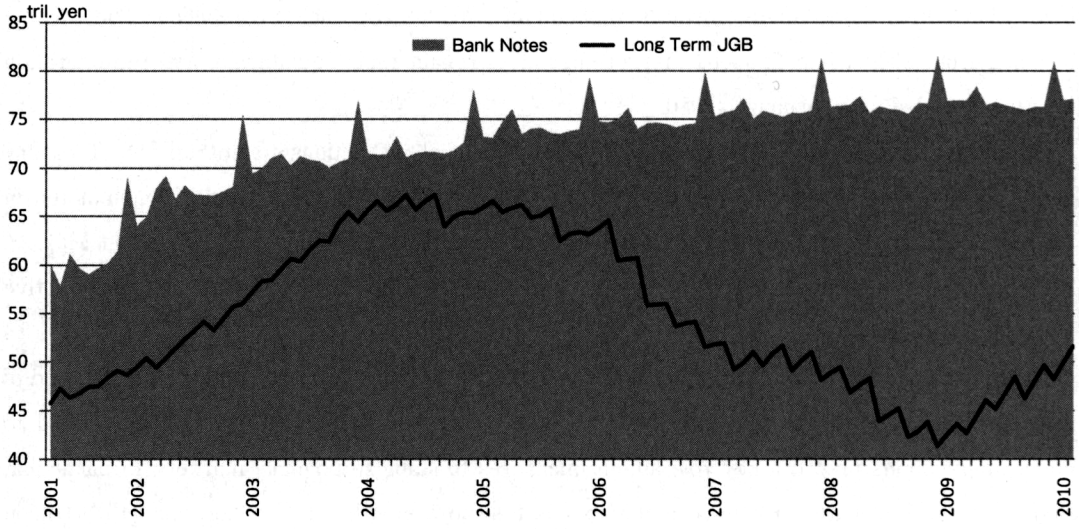
Other measures included the decision to allow financial institutions to put up U.S. Treasury bonds, British gilts, German government bonds and French government bonds (denominated in the local currencies) as collateral for open-market operations. The move, introduced in May 22, 2009, was aimed at providing greater flexibility to access lending facility for internationally active financial institutions.

Apart from the aggressive supply of funds in response to rising fund demand seen at the end of calendar 2008 and also at the end of March 2009, when the fiscal year ends, steps related to government bonds played a key role among measures to stabilize financial markets. In particular, BOJ purchasing of long-term government bonds rose to a monthly 1.4 trillion yen (16.8 trillion yen on an annual basis) in December 19, 2008, and further increased to a monthly 1.8 trillion yen (an annual 21.6 trillion yen) on March 18, 2009. This compares with the volume of long-term government bonds purchased after "quantitative easing" was introduced, when it amounted to 400 billion yen a month. It was 1.2 trillion yen a month after October 2002. The value of the purchase was not reduced even after the conclusion of the "quantitative easing" policy, but was increased as an instrument to fight the current crisis.

The BOJ has been under constant pressure to increase its purchase of government bonds after the burst of the so-called bubble. The central bank has put up a passive resistance to these pressures by referring to the so-called "bank-note" rule, which sets the ceiling on outstanding long-term government bond holdings to an amount below the banknotes in circulation. In fact, the BOJ's outstanding balance of long-term government bond holdings during the period of "quantitative easing" at times neared the balance of banknotes in circulation. But it has been falling since it peaked in mid-2004, as many instruments matured at the end of 2008, while the so-called "safety margin" also increased. However, there has been an increase in outstanding long-term government bond holdings since 2009, leading to some concern that it may not be possible to maintain the "bank-note" rule in the future. (Figure 6)

This is not simply a question about keeping the rule. It raises troubling questions about what might happen if the central bank is seen as bowing to pressure to buy government bonds from a government which fails to show due respect to the central bank's autonomy and need for fiscal restraint. If this happens, bond buying by the central bank will be seen as the monetization of the budget deficit, leading to the possibility that bond prices will slump. Such a development will, without a doubt, exert negative pressure on the economy as a whole.

Figure 6　Japanese Long Term Government Bonds held by the BOJ



Source: Bank of Japan

It is not clear whether the BOJ was attempting to shrug off pressure to implement further monetary easing measures, but the central bank's emergency Monetary Policy board meeting on December, 2009 decided to conduct a new money market operation where it would offer 10 trillion yen (the limit) in three-month loans. The applied interest rate of 0.1 percent for this new market operation was the same as the target rate applied to policy interest rates. The actual volume supplied was 800 billion yen a week. BOJ Governor Masaaki Shirakawa himself admitted that this was a kind of quantitative easing. The move appears to have been directed not only at influencing the volume, but was also an attempt to lower interest rates on term instruments, both of which are aimed at monetary easing. The central bank's orthodox monetary operation was an attempt to guide interest rates in the shortest possible time. While it was not aimed at trying to directly control long-term interest rates, the fact that it did directly put downward pressure on long-term interest rates is evidence that monetary policy was in a crisis mode. The BOJ increased the loan facility to 20 trillion yen on March 17, 2010 for this new lending program.

Furthermore, the BOJ's Monetary Policy meeting on December 18, 2009, shortly after the introduction of the new market operation, made clear in its announcement that it would maintain its quantitative easing stance to try to pull the country out of deflation. It revised its statement to say the "understanding of medium- to long-term price stability," is that "each Policy Board member's 'understanding' fell in a positive range of 2 percent or lower (for the consumer price index on a year to year basis) and the midpoints of most Policy Board members' 'understanding' were around 1 percent." It made clear that the central bank would not tolerate deflation. The

statement previously said "the board members roughly have 1 percent in mind as the median, for the CPI, which is currently about 0-2 percent compared to a year earlier." The minutes of the meeting said the revision was made so as to avoid misunderstanding that minus territory would be accepted. It would seem however, that a data showing a slight minus or plus for year-on-year figures are hardly likely to have a devastating impact. While one can understand central bank fears about becoming the target of criticism that it is not sensitive enough to worries about deflation, there are surely others that believe the central bank should have placed more emphasis on trying to improve its communication.

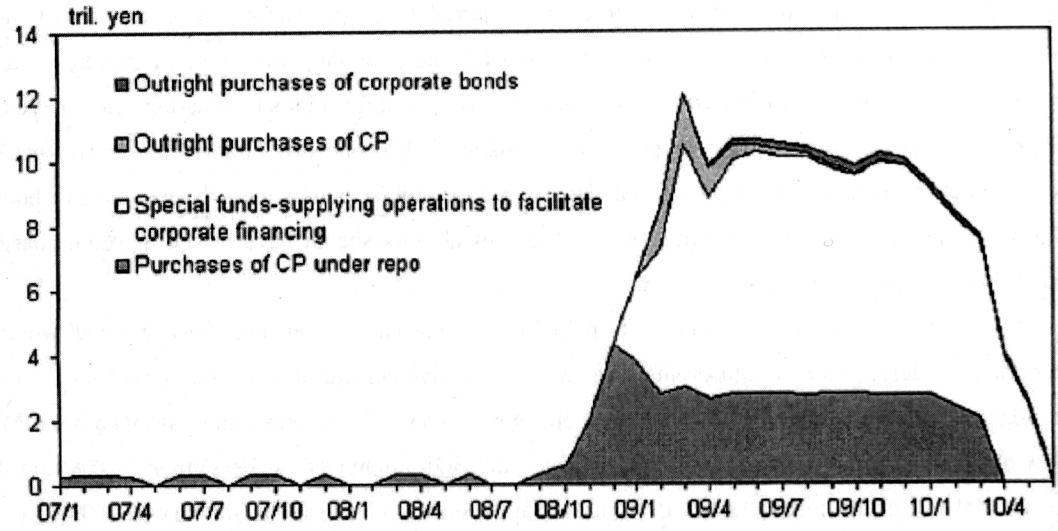
Next we move on to measures taken to help facilitate corporate financing, most of which would generally be described as credit easing. These include active central bank purchases of assets that in non-crisis times would not be considered appropriate, but which were aimed at smoothing the flow of assets in the relevant markets. Specifically, the BOJ announced on December 2, 2008 that it would make outright purchases of CP (commercial papers) while it said on January 22 2009 that it would buy corporate bonds. The former began from December 19, 2008 and the latter from February 19, 2009.

Needless to say, these measures are not considered appropriate measures during normal times because it forces central banks to directly take on the credit risks of various companies, and they represent the direct participation in resource distribution. Moreover, if this causes a deterioration in central bank finances, it will lead to a decline in financial income, which could ultimately put the burden on the public. To avoid such a development, the BOJ imposed some conditions on its purchases. As a result, purchases of CP and other financial instruments declined dramatically after peaking at 1.5 trillion yen in March 2009. Corporate bond purchases, on the other hand, never increased significantly and only amounted to a little over 250 billion yen in September 2009 at its highest monthly level. Both measures, which were implemented as emergency steps, were terminated at the end of 2009.

In comparison, the Special Funds-Supplying Operations to Facilitate Corporate Financing, which was announced on December 2, 2008 and implemented from December 19, was a special funds-supplying operation that provided an unlimited amount of funds against the value of corporate debt at loan rates equivalent to the target for the uncollateralized overnight call rate. It was aimed at promoting the smooth flow of corporate financing by applying a range of corporate debt as eligible collateral.

The operation was initially slated to be conducted twice a month and to provide funds for a period of 1-3 months. It was due to be concluded at the end of March 2009, but it was decided on February 19, 2009 to extend the term to the end of September 2009. It was also decided that the operation should be conducted once a week for a longer period of three months. This operation

Figure 7　Amount Outstanding of Operations Utilizing Corporate Debt



Source: Bank of Japan

was targeted at trying to bring down interest rates on term instruments. The volume of the fund supplied was around 6-7 trillion yen every month. The operation continued until it was concluded at the end of March 2010. (Figure 7)

The purchase of shares held by banks and the subordinated loans to banks are two measures that the BOJ puts in a separate category from the above mentioned three policies of (1) reductions in policy rates etc. (2) measures to stabilize financial markets (3) and steps to facilitate corporate financing. The two steps are described as measures to secure the stability of the financial system.

The purchase of shares held by banks initially began in November 2002, during the period of BOJ's "quantitative easing" policy. A little over 2 trillion yen was spent by the end of September 2004. The shares in question have since October 2007 been sold back. After the sales of these shares were suspended in October 2008, the BOJ announced on February 3, 2009 that it would resume purchases (with an upper limit set at 1 trillion yen.) This purchase of shares held by financial institutions was not described as a monetary policy or monetary operation, but rather as a measure taken for the stability of the financial system. The decision for this measure was made by the BOJ Policy Board (and not the Monetary Policy Meeting). The purchases in question were concluded at the end of April 2010. It was also decided that the sales of the shares will not be conducted in the market until 2012, but will done by the end of September 2017.

The BOJ decided on March 17, 2009 to provide subordinated loans to banks and the first round of bids was held on May 29 in the same year. The move, which was aimed at enabling banks to maintain sufficient capital base, was an irregular measure not usually undertaken by the central

bank. Two types, a 10-year term, and perpetual were established. The ceiling for the total amount of loans was set at 1 trillion yen. The first round attracted bids worth 20 billion yen (perpetual), while the second to fourth rounds failed to draw any bids. Several factors can be attributed to this result, most notably that Japanese banks were not hit too badly by the recent financial crisis and this meant that the capital adequacy requirement did not hamper their activities.

These various measures caused structural changes in the BOJ's balance sheet, but these were not extensive when compared to those of the BOE or the Fed. The balance sheet increased, but not dramatically. (Figure 4) The balance sheet has nevertheless expanded to some extent, and I would like to emphasize once more that the establishment of the complementary deposit facility, which allows the remuneration of excessive reserves, contributed to the expansion.

That the Bank of Japan's balance sheet did not increase significantly, underscores the fact that Japanese banks managed to escape relatively unhurt from the recent financial turmoil. It also demonstrates that the BOJ, having experienced "quantitative easing," was the central bank that was best placed to know that there is relatively little relationship between the rise in base money (in particular an increase in reserve deposit) and price increases.

From this viewpoint, the BOJ's most serious concern is the increase in value of purchase operations of long-term government bonds. Purchasing of long-term government bonds is a regular measure undertaken by the BOJ to supply liquidity, but the amount of the purchase could come under outside pressure as demand for more monetary easing measures rises. This has a strong correlation with the government's budget discipline, and governments that face some difficulty in budget discipline will often fail to respect the independence of central banks. The worst scenario is for central banks to buckle under such pressure. Government bond prices will plunge if the market believes that is what has happened. A situation which can be interpreted as the monetization of the budget deficit must be avoided. The government's should show its commitment to protecting budgetary discipline, while the BOJ must try to decrease the volume of its buying operation of long-term government bonds in an appropriate fashion. As I mentioned earlier, the Fed, which began its large-scale purchase of government bonds in March 2009 halted the operation in October of the same year, because the results from the measure were unclear. The BOE also halted its large scale purchases of gilts, which it began in March 2009, in January 2010.

Conclusion

Motohiko Nishikawa wrote in the preface of his 1984 book, "Chuo Ginko (Central Banks)" (Nishikawa [1984]) that there are few books with that name because the use of the term is

relatively new, and that it has only become a common term over the past 50 years or so (p. iv). He stressed in his book that central banking is an art form. He said in the conclusion of his book that while art itself is an elusive concept, central banking has a clear goal which is to work to "achieve a better currency".

Roughly a quarter of a century has passed since the book was published, and the world now faces a once-in-a-century financial crisis. Looking back on recent theories about central banks or monetary policy, the expression that comes to mind is "science replacing art" rather than "from utopia to science." Unfortunately, however, the recent financial turmoil has led to skepticism towards inflation targeting and optimal monetary policy in a New Keynesian model, which saw monetary policy as a science. We are also seeing a re-emergence in the theory that central bank monetary policy is still in a stage of development.[10)]

When carefully considered, it is clear that a "comprehensive decision" is imperative for monetary policies, while at the same time it is crucial for central banks to remain independent from governments. Moreover, inflation targeting as a constrained discretion has not necessarily been applied as a rigid policy rule even by the various countries where it is practiced. However, there is some inflation targeting of a very bad standard that is being practiced. For example there is the almost hysterical reaction to deflation. When looked at levelly, deflation is only a statistic which is measured by looking at the consumer price index, in comparison with the year-earlier figure. And as such, it is obvious that a slightly negative figure for a statistic, which after all can be measured various ways, should not spell hell, while a slightly positive figure represent heaven. Moreover, deflation is the consequence of depression, and not its cause.

One of the issues about the management of monetary policy that emerged from the current global crisis is how central banks should deal with the change in asset value. The so-called Fed View, which argues that measures to respond to asset bubbles should be implemented flexibly after the bubble has burst since the bubble cannot itself be determined in advance, will have to be dropped.

From this viewpoint, the BOJ's response to the current global financial crisis can be applauded for introducing the complementary deposit facility which helped establish a system where excess reserves can be funded without seeing the nominal interest rate in the short-term money market at zero. This was achieved, while at the same time warding off outside pressure as well as taking non-conventional monetary measures. However, central banks must rationally study whether the emergency measures that were adopted outweigh the consequences of the expansion in their balance sheets.

In concluding, it is worth noting that the concept of macroprudence has gained importance as a result of our experience from the global crisis. Macroprudence is a concept that central banks are

expected to take note of as they implement their monetary policies. That is to be expected, but at the same time it is important to recognize that the idea could endanger central bank autonomy from governments and regulatory authorities. Surely capitalism provided central banks with the wisdom to act independently so that they could work to create "a better currency."

Notes

1) An economist's (at Credit Suisse Tokyo branch) speech at the BOJ's "Money market forum" (March 1, 2007). At the time of this speech, the interest rates for the loan facility for the Fed, ECB and BOE were 100 basis points above the policy interest rates.
2) The BOE, itself, called this program The Reserves Scheme. Details of the BOE's May 2006 revision to monetary operation can be found in Saito [2007].
3) For more details of the changes to the reserve deposit, please see chapter 2 of Saito and Sudo [2009].
4) See Benford et al. [2009].
5) For more details on U.K.'s yield curve, see Sudo [2009].
6) The case that is often mentioned as a problem is the existence of the stigma problem attached to borrowing from the Fed's discount window. This refers to the stigma that borrowing from the Fed was an indication of some serious weakness that prevented borrowing from elsewhere. The introduction of TAF can be seen as an attempt at resolving the stigma problem as the rate is determined by auction. The BOE praised the system in October 2008, saying that it was easy to use. It revised and introduced its system in October, reducing the standing facility fee to 25 basis points over or below the base rate. It also began to publish data on its use on an aggregate, averaged basis with a lag, rather than on a daily base, in a change that was probably implemented with the stigma problem in mind. Moreover, the move to narrow the gap with the policy rate can be interpreted as aimed at decreasing the volatility with the short-term interest rate.
7) Apart from this, there is the clearing balance, which is reserve deposit based on a contract, and this is remunerated.
8) A representative case of this can be found in Iwata [2009].
9) At this BOJ Monetary Policy meeting, three members said the policy interest rate target should be cut to 0.25 percent
10) Alan S. Blinder, previously a vice chairman at the Federal Reserve, told the Nihon Keizai Shimbun in an interview on March 6, 2010 that the role of the central bank is still ing early development stage.

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