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How should the BOJ communicate with the public?

～Comparison of transparency among major central banks～

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[Summary]

1. The Bank of Japan (BOJ) raised interest rates in February for the first time since last July. In the process, market participants held different views of the BOJ's position of monetary policies, which caused instability of market expectations of interest rates. It is important for central banks to manage expectations to enhance the effectiveness of monetary policy. In this sense, the recent instability of market expectations reminded us of the importance of transparency and communication strategies of central banks. This paper considers how the BOJ should communicate with the public, comparing transparency and communication strategies of major central banks.
2. From a comparison of the disclosures among central banks in Japan, the U.S., Euro Area, the U.K., we can point out that there are a few additional measures for the BOJ to take in order to enhance "procedural transparency," including earlier releases of the summaries of Monetary Policy Committee (MPC) meetings. Meanwhile, as for "economic transparency," the BOJ could enhance transparency by providing economic outlooks in more detail. Ultimately, it might be a good idea for the BOJ in the future to release an "Inflation Report" which includes likely future paths of inflation, growth rate, and oil prices, among others, like the U.K.

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[Content]

1. Introduction

On February 21st of 2007, the Bank of Japan (BOJ) decided to raise the policy rate to 0.5 percent for the first time since last July. After the BOJ raised the rate by a quarter percent from zero last July, there were two MPC (Monetary Policy Committee) meetings other than the February meeting which many market participants anticipated a rate hike. One is the meeting on December 19th of 2006, which was the last chance of raising rates in 2006. The BOJ did not raise interest rates at the meeting because economic indicators were somewhat weak for personal consumption and prices at the time. The BOJ Governor Toshihiko Fukui said in a press conference that "when there are mixed bullish and bearish indicators, the indicators must be analyzed carefully."

The other is the meeting on January 18th of 2007, which attracted great attention among market participants and government officials because of the high possibility of a rate hike. The BOJ forwent the decision again to raise interest rates, although three members of the committee opposed the decision to keep interest rates at a quarter percent, insisting upon a rate hike. Governor Fukui said in a press conference that some members of the committee believe there is still some time left before they have to make a decision to raise the policy rate, while others want to raise the rate immediately, and that the difference in judgment between them is "extremely slight."

On February 15th of 2007, the government released the preliminary quarterly estimates of GDP revealing that Japan's real GDP grew a strong 4.8 percent in the fourth quarter of 2006, driven by robust private consumption. In response, the BOJ finally raised the policy rate by a 8-1 majority vote at the February meeting. The BOJ said in its statement that "the Bank judged that our economy is likely to continue its moderate expansion with a virtuous circle of production, income, and spending in place. (...) With respect to private consumption, the weakness observed in the last summer seems temporary, and it is judged that private consumption is on a moderate increasing trend."

In the private sector, market participants have been confused about the BOJ's strategies for months. The BOJ had reiterated since last spring that its basic strategies for monetary policies were "forward-looking." Weak data on inflation convinced most market participants that the BOJ had no rationale for a rate hike if monetary policies are conducted in a "backward-looking" way. Many market participants expected a rate hike to occur in the near future, and it is because the BOJ was expected to conduct monetary policy in a "forward-looking" way, and because the BOJ officials in fact showed willingness to raise rates on occasions to talk about monetary policies.

However, since last December, some market participants had to rethink that the bank is leaning toward "backward-looking" monetary policies because the bank started to stress the importance of incoming data which showed past economic activities. As a result, shortly before the February meeting for a rate hike was held, market views of monetary policy decisions divided. While about half the participants who believe the BOJ's "forward-looking" policies anticipated a rate hike in the February meeting, the other half who regarded the BOJ's monetary policy as sort of "backward-looking" did not factor in a rate hike.

For a theoretical point of view, it is important for effective monetary policies of central banks to manage market expectations, instead of making a surprise. In major countries, central banks seem to have been changing their styles and techniques to make well-managed monetary policies in recent years. The BOJ is not an exception. The BOJ has already tried a new kind of monetary policy using commitment in the environment in which the BOJ faced the zero bound on nominal interest rates. When the BOJ lifted the quantitative easing monetary policy in March 2006, it showed a new framework to manage market expectations and tried to make monetary policies more effective. However, judging from recent experiences of the BOJ, it does not necessarily seem easy for central banks to maintain smooth communication with the private sector in particular when weak economic indicators do not urge an immediate rate hike.

This paper considers communication strategies of major central banks and identifies some possible measures for the BOJ to implement as communication tools. Section 2 explains a new framework of monetary policies of the BOJ after March 2006, and then considers two kinds of theoretical monetary policies, which are "simple feedback policies" and "forecast-based policies." We point out that the essence of monetary policy framework of the BOJ is "forecast-based policies." Section 3 considers possible communication techniques for the BOJ to take by comparing the disclosure methods of central banks of Japan, U.S., Euro area, and U.K., in terms of both "procedural transparency" and "economic transparency." We point out that the BOJ has room to have more "economic transparency," by releasing an economic outlook in more detail.

２．New monetary policy framework of the BOJ and its characteristics

(1) New monetary policy framework of the BOJ

In March 2006, when lifting the "quantitative easing monetary policy," the BOJ declared a new framework for the conduct of monetary policy. The new monetary policy framework has two perspectives.

The first one is that the bank examines "whether the outlook deemed most likely by the Bank of Japan follows a path of sustainable growth under price stability." The perspective is thought to be a declaration that the BOJ conducts monetary policies in a "forward-looking" way. "Forward-looking" monetary policies are common in major countries and it is natural that the BOJ set forth the strategy in monetary policy making.

The second perspective is that the bank examines "various risks that are most relevant to the conduct of monetary policy aimed at realizing sustainable growth under price stability." In particular, the bank "may examine risk factors that will significantly impact economic activity and prices when they materialize although the probability is low." This perspective is familiar as "risk-management approach[1]" of the former Fed Chairman Greenspan in the U.S. The "risk-management approach" has advantages of extinguishing risks in advance that are likely to be significant in the future, and of being able to judge beyond particular economic models. The BOJ appears to aim at getting such advantages in the second perspective of the new framework.

Regarding the first perspective, the BOJ provides vague conditions on how "forward-looking" monetary policies will be conducted.

First, the BOJ discloses a level of inflation rate that its members of the Monetary Policy Committee (MPC) currently understand as price stability from medium- to long-term price stability. It is set approximately between 0 and 2 percent (the median is 1 percent) at present. Although the inflation range is different from definitive numerical goals of inflation targeting, it is interpreted as a kind of commitment to inflation. A new monetary policy framework of the BOJ is thought to be a loose inflation targeting, although the BOJ does not declare it.

Second, the BOJ examines the outlook of economic activities and prices for a path of sustainable growth under price stability in "1 to 2 years into the future". The commitment decides how much ahead the BOJ sees as a policy window. The way to have an explicit policy window can be seen in inflation targeting frameworks.

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[1] Greenspan (2004)

Inflation targeting is not a rule to match current inflation strictly to an inflation target, but a framework to bring *inflation forecast* close to an inflation target. In this sense, inflation targeting is called "inflation forecast targeting[2]." For instance, when two-years-ahead inflation is used as an inflation target, the inflation targeting means $E_t\pi_{t+2} = \pi^*$ or $E_t\pi_{t+2} - \pi^* = c(E_t\pi_{t+1} - \pi^*)$, where π is inflation, c is constant. The BOJ appears to be trying to make use of the same framework as inflation targeting with a loose inflation target range.

Third, the BOJ will outline the current view on monetary policy periodically in the "Outlook for Economic Activity and Prices." This relates to disclosure methods to enhance transparency of monetary policies, as discussed in section 3.

Figure 1　The new framework of the BOJ's monetary policy

First Perspectives: (forward-looking monetary policy) The bank examines whether the outlook deemed most likely by the Bank of Japan follows a path of sustainable growth under price stability.
①　(A kind of numerical target) By making use of the year-on-year rate of change in the consumer price index, an appropriate range between 0 and 2 percent was generally consistent with the distribution of each Board member's understanding of medium- to long-term price stability. Most MPC members' median figures fell on both sides of 1 percent.
②　(Policy window) The bank examines economic activities and prices in1 to 2 years in the future.
③　(Disclosure method) The bank outlines the current view on monetary policy, and, as a rule, discloses it periodically in the Outlook for Economic Activity and Prices.
Second Perspectives: (risk-management approach) The bank examines various risks that are most relevant to the conduct of monetary policy aimed at realizing sustainable growth under price stability. In particular, the bank "may examine risk factors that will significantly impact economic activity and prices when they materialize although the probability is low.

Note: Made by the author using "A new framework for the conduct of monetary policy (2006/3/9) by the BOJ.

[2] Svensson (1997).

(2) "Simple feedback polices" and "forecast-based policies"

What characteristics does the BOJ's new monetary policy framework have? Bernanke (2004) gives us a useful concept of two different kinds of monetary policies in terms of transparency and communication of central banks. Bernanke (2004) categorized monetary policies into "simple feedback policies" and "forecast-based policies, which originally come from "simple instrument rules" and "targeting rules" in academics[3].

First, "simple feedback policies" are such that central banks declare that their monetary policy follow simple rules like "Taylor rules." According to Taylor (1993), "Taylor rules" are described as Eq. (1)[4], where i_t is the policy rate, π_t is inflation (the rate of GDP deflator), x_t is output gap.

$$i_t = 0.04 + 1.5(\pi_t - 0.02) + 0.5x_t \quad (1)$$

If central banks declare that they follow "Taylor rule" of Eq. (1), the public can calculate the policy rate using Eq. (1), given current variables of inflation and output gap. When you want to predict future course of interest rates, you can calculate future interest rates, using projected inflation and output gap in your own economic outlook. From the perspective of central bank transparency, it is important to stress that a current interest rate is determined by "current variables" of inflation and output gap in Eq. (1).

Meanwhile, "forecast-based policies" mean monetary policies based upon projections of future economic variables. "Forecast-based policies" come from "targeting rules" proposed by Lars Svensson. According to Svensson (1993), "targeting rules" of monetary policies are obtained from optimizing models to minimize loss functions of central banks.

Suppose an economy is described by the IS curve and the AS curve (Phillips curve) in a New Keynesian way as expressed in Eq. (2) and Eq. (3)[5], where $\pi \equiv E[\pi_t]$ is the average inflation, $x_{t+\tau+1,t}$ is the expected output gap of period $t+\tau+1$ at period t,

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[3] There is a controversy over which rule is better for monetary policy. See Svensson (2003, 2005), McCallum and Nelson (2005).

[4] In Eq. (1), the constant term in parenthesis (0.02) means that the target inflation is 2 percent, and the constant term (0.04) means that the federal funds rate in the long-term is 4 percent, 2 percent of which is the real federal funds rate in the long-term. The coefficient of an inflation factor is 1.5, which shows the importance of the "Taylor principle" which suggests that a higher rise of the funds rate hike is necessary than that of inflation.

[5] Svensson (2003) considers not only forward-looking models but also backward-looking models.

$\pi_{t+\tau+1,t}$ is the expected inflation of period $t+\tau+1$ at period t, $i_{t+\tau+1,t}$ is the expected interest rate of period $t+\tau+1$ at period t, $z_{t+\tau+1,t}$ is the expected judgment column vector of period $t+\tau+1$ at period t (exogenous variables), $r^*_{t+\tau+1,t}$ is the expected real natural interest rate of period $t+\tau+1$ at period t (exogenous variables), α_x and β_r are positive constants, α_z and β_z are coefficient row vectors.

IS curve : $x_{t+\tau+1,t} = x_{t+\tau+2,t} - \beta_r(i_{t+\tau+1,t} - \pi_{t+\tau+2,t} - r^*_{t+\tau+1,t}) + \beta_z z_{t+\tau+1,t}$ (2)

AS curve : $\pi_{t+\tau+1,t} - \pi = \delta(\pi_{t+\tau+2,t} - \pi) + \alpha_x x_{t+\tau+1,t} + \alpha_z z_{t+\tau+1,t}$ (3)

Suppose the loss function of the central bank is expressed as the deviation of inflation from the target and the output gap as in Eq. (4), where π^* is an inflation target, $\lambda > 0$ is a weight of stabilization of the output gap relative to that of inflation, δ is a discount factor.

Loss function : $L_t = \sum_{\tau=0}^{\infty} \delta^\tau \frac{1}{2}[(\pi_{t+r,t} - \pi^*)^2 + \lambda x^2_{t+\tau,t}]$ (4)

Then, optimal conditions provide Eq. (5) [6].

$$\pi_{t+\tau+1,t} - \pi^* = -\frac{\lambda}{\alpha_x}(x_{t+\tau+1,t} - x_{t+\tau,t}) \quad (5)$$

"Targeting rules" require monetary policy to have Eq. (5) hold. That is, the central bank conduct monetary policies so that the inflation gap is proportional to the change of output gap. By substituting Eq. (5) into Eq. (3), one gets the optimal future path of inflation and output gap, and by substituting those into Eq. (2), one gets an implied reaction function of the interest rate of Eq. (6).

Implied reaction function : $i_{t+\tau+1,t} = r^*_{t+\tau+1,t} + \pi^* + (1 - \frac{\alpha_x}{\lambda\beta_r})\frac{\lambda}{\alpha_x}(\pi_{t+\tau+2,t} - \pi^*) + \frac{\beta_z}{\beta_r} z_{t+\tau+1,t}$ (6)

Eq. (6) looks much more complicated than "Taylor rules" described in Eq. (1). From the perspective of central bank transparency, it is important to focus on the fact that Eq.

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[6] We use "timeless perspective" of Woodford (1999). Eq. (2) is not a restriction for optimization, and is used as implied reaction function of the interest rate.

(6) includes a "future variable" of inflation. To calculate the optimal interest rates in time $t+\tau+1$, you need a "future variable" of inflation in time $t+\tau+2$. It means that current optimal interest rates are affected by inflation projections.

Under "forecast-based policies," monetary policies are affected by forecast of economic variables which are not accessible to the public unless central banks provide them. Therefore, central banks are required to provide their economic outlook and risk assessment on the economy. Under "simple feedback rules," the public does not need to know central banks' economic projections because the projections themselves do not necessarily affect interest rate decisions of central banks. If you have reliable economic projections of your own, the projections are sufficient to predict future monetary policies using simple rules like Taylor rules. Meanwhile, under "forecast-based policies," the public has to know the economic outlook of central banks because central banks' views (not yours) of future economic activities decide monetary policy decisions. From a different point of view, it implies that central banks have the potential to enhance the predictability of monetary policy by giving information on their own economic outlook to the public.

In the U.S., it is said that in the decision-making process of monetary policy, several kinds of Taylor rules (simple feedback policies) and economic projections based upon several economic models (forecast-based policies) are also used. Bernanke (2004) noted that the Fed mainly makes use of "forecast-based policies" because monetary policy decisions largely depend upon economic projections under different policy plans. Greenspan (2004) commented on the risk of relying too heavily on any particular model, theories, or data series, and insisted that good policies must be primarily forecast-based. Bernanke (2004) noted that Greenspan's "risk-management approach" is "forecast-based."

It seems that not only the Fed but also other central banks including the BOJ decide monetary policies by using economic projections and predicted economic events. As described earlier, the BOJ officially declared in March of 2006 that it conducts monetary policies in a "forward-looking" way. It means that the BOJ virtually declared "forecast-based policies." Therefore, the BOJ is required to enhance its transparency in order to have more effective monetary policies.

In the next section, we consider how best central banks are able to communicate with the public. And then we find possible tools of disclosure for the BOJ to introduce.

3．How should central banks enhance transparency?

First, we categorize central bank transparency into 5 groups following Geraats (2002).

① Political transparency：Objectives of monetary policy, central bank independency, etc.

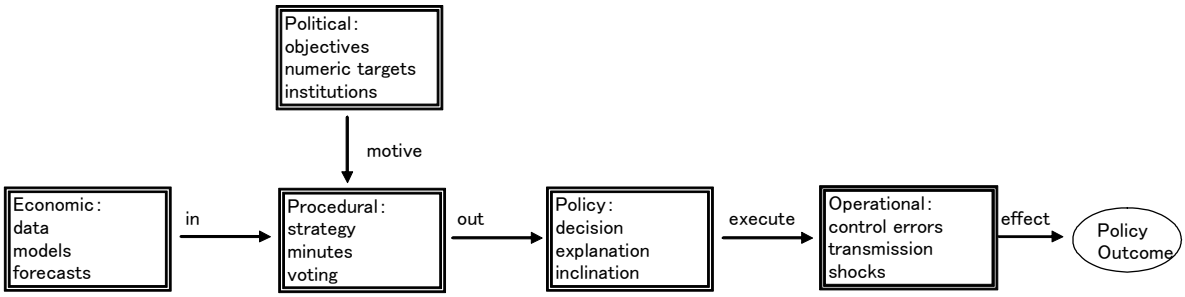
② Economic transparency：Economic data, economic model, economic outlook, etc.

③ Procedural transparency：Monetary policy rule, an account of policy deliberation, typically through minutes and voting records, etc.

④ Policy transparency：A prompt announcement and explanation of policy decisions, and an indication of likely future policy actions.

⑤ Operational transparency：discussion of control errors for the operating instrument and macroeconomic transmission disturbances.

Figure 2　A conceptual framework for transparency



Note: Made by the author using Geraats (2002).

In what follows, we consider two of these transparencies, (a) procedural and policy transparency (③＋④) (hereafter we call (③＋④) just “procedural transparency”) and (b) “economic transparency” (②) for Japan, U.S., Euro area, and U.K. “Procedural transparency” includes monetary policy rules, release of minutes, announcement on policy decisions, and shows how central banks communicate with the public. Meanwhile, “economic transparency” includes economic models and economic outlooks, and is associated with what information central banks should provide to the public.

(1) Disclosure methods (procedural transparency)

a. Communication measures

As measures of "procedural transparency," we compare the statements of monetary policy committees (MPCs), the press conferences of the governors (or the chairman), the minutes of MPCs, the voting records of MPCs, the characteristics of MPCs, and monetary policy rules in Japan, U.S., Euro area, and U.K. (**Figure 3, 4**).

As regards the first three items of the statements of MPCs, the press conferences of the governors (or chairman), and the minutes of MPCs, there is no fundamental difference between countries (area), with only minor differences existing against a backdrop of their own circumstances.

In Japan, only when the policy interest rate is changed in the MPC, the outlook of the real economy, inflation, and monetary policy stance are presented in a statement. Regular press conferences are held once a month, most of which is shortly after the MPC. While the summary of the contents can be obtained on the web, there is no web-casting service of press conferences of the governor. The summary of the MPC minutes is released within a month after the MPC. As noted later, the timing of the release of the minutes is later than in the U.S. and the U.K.

In the U.S., the statements of FOMC have played an important role in recent years. In the statements, the outlook of the real economy and inflation are accompanied by the risk balances, and sometimes commitments to future monetary policy are shown. While there is no press conference of the chairman, testimonies to Congress or speeches of the chairman or governors are released. In particular, testimonies to Congress have attracted a great deal of attention. All testimonies of the chairman to Congress are broadcasted on TV media such as CNBC. The speeches of the chairman and governors often appear on the headlines of the next day's newspaper.

The summary minutes of the FOMC had been released after the next FOMC before 2005. They are now released three weeks after the latest FOMC (before the next FOMC). By an earlier release, the discussion of the FOMC has become easier to be transmitted to the public, and seemed to have increased in importance than before.

Figure 3　"Procedural transparency" in Japan and the US

	BOJ	Fed
Statements of Monetary Policy Committees (MPCs)	・ Comments on real economy and inflation are released only when the policy interest rate is changed. ・ There are often commitments to future policy.	・ Every time FOMC meetings are held, comments on the outlook of the real economy and inflation are shown in the statement. ・ There are often commitments to future policy.
Press conferences of the Governor (Chairman)	・ There is a press conference of the governor once a month, but no web-casting. ・ The summaries of press conferences are released on the next day.	・ There is no press conference of the chairman. ・ Testimonies to Congress attract the greatest attention among the public. ・ Much information is provided to newspaper journalists.
Minutes of MPCs	・ The summary is released one month after the MPC meeting.	・ The summary is released three weeks after the FOMC meeting.
Voting records and characteristics of MPCs	・ Voting records are released in the statements of MPC. ・ Policy decisions are between collegial and individualistic. There can be votes against a proposal of the governor.	・ Voting records are released in the statements of FOMC. ・ Policy decisions are between collegial and individualistic, but most voting records are unanimous consent.
Inflation target or reference	・ There is no inflation target or reference. ・ "An understanding of medium- to long-term price stability" is shown 0 to 2 % (median 1 %) in terms of the core CPI growth rate	・ There is no inflation target or reference. ・ The public believes that the Fed thinks 1 to 2 % is desirable in terms of the core PCE deflator.

The Governor of the ECB provides press conferences shortly after Governing Council meetings, instead of releasing statements. In press conferences, the Governor set forth an explanation on the outlook of the real economy and inflation provided by the ECB staff, and then responds to questions by reporters. There are web-castings service and release of full transcript including Q&A of them. Meanwhile, the minutes of Governing Council meetings are never released in order to guarantee straightforward exchanges among member countries of views on monetary policies.

The BOE releases statements including comments on the outlook of the real economy and inflation only when the policy interest rate is changed in the MPC. The Governor's press conferences are held not after the MPC, but after the release of the quarterly "Inflation Report." There is also web-casting service of press conferences. The summary minutes of the MPC are released two weeks after the latest MPC, which is the earliest release of minutes of the MPC among major central banks.

Figure 4 "Procedural transparency" in the Euro area and UK

	ECB	BOE
Statements of Monetary Policy Committees (MPCs)	・ No statement is released after the Governing Council meetings.	・ The comments on real economy and inflation are shown in the statement only when the policy interest rate is changed.
Press conferences of the Governor (Chairman)	・ There is a press conference of the Governor after the Governing Council meetings. There is web-casting. Full transcripts including Q&A are released shortly.	・ There is no press conference of the Governor after the MPC meeting. ・ Instead, there is a regular press conference after the release of "Inflation Reports" four times a year. There is web-casting.
Minutes of MPCs	・ None.	・ The summary is released two weeks after the MPC meeting.
Voting records and characteristics of MPCs	・ There is no voting record. ・ Policy decisions of the Governing Council meeting are completely collegial, at least officially.	・ Voting records are released in the minutes of the MPC meeting. ・ Policy decisions of the MPC are completely individualistic. The governor may fail to get the majority of votes on his proposal.
Inflation target or reference	・ There is an inflation reference of HICP growth rate of "below, but close to, 2 %" over the medium term.	・ There is an inflation target of CPI growth rate of 2%.

b. Characteristics of MPCs

Next, comparing four countries in terms of characteristics of the MPCs, one can find a significant difference between them. In terms of central bank transparency, it is important whether the MPCs are collegial or individualistic because the public can get information on the way the MPCs is heading from the difference of views among the committee members in the case of individualistic committees.

The ECB Governing Council is completely collegial. The voting records of Governing Council meetings are always unanimous, at least officially. In the meeting, the Euro area is taken as a whole, instead of considering each county's own economic situation.

The BOE is at the opposite side of the ECB. In the votes of the MPC, each member of the MPC behaves freely in making decisions of monetary policies. The Governor may fail to obtain a majority of votes for his own proposals. The differences of views on monetary policies reflected in the voting records are critical messages of monetary policy decisions to the public.

The FOMC of U.S. and the MPC of Japan are thought to be between collegial and individualistic. Although the FOMC is officially individualistic, most voting records showed unanimous consent in the former Chairman Greenspan's era, which made the FOMC virtually collegial. This is because in the U.S., if the chairman loses in votes on his proposals, he is considered to lack leadership as a chairman of FOMC. Indeed, Paul Volcker, who was Mr. Greenspan's immediate predecessor, resigned as the chairman at

the heels of defeat in a vote, feeling lack of leadership as FOMC chairman. In the case of Greenspan, he purportedly went around to each governor's office and discussed controversial subjects before FOMC meetings, and as a result he was successful in taking unanimous consent in most cases. Under the new Chairman Bernanke, who aims at a democratic and transparent central bank, the FOMC has moved somewhat toward an individualistic decision-making process since last year. However, the process does not seem to become so individualistic that each governor behaves freely on their own judgments as in the BOE.

The BOJ is also between collegial and individualistic. The voting records show unanimous consent very often, and the votes against the governor's proposals usually include only one or two persons, if any. More recently, the BOJ appears to be leaning toward an individualistic committee. In the MPC meeting this February, the voting results differ even among leadership of the committee (Governor and two deputy governors) for the first time under revised BOJ Law enacted in 1998. In speeches of MPC members, each relatively represents their own view on monetary policies, which can often send a strong message on monetary policy expectations. Last year, Kiyohiko Nishimura, who is a MPC member of the BOJ, noted in a speech that only the Governor should represent a view on monetary policies to enhance the effectiveness of communication[7]. However, for now, obvious changes cannot be seen in the style of speeches of MPC members.

Lastly, as a framework of monetary policy, the BOE is the only one of the four major countries which adopts inflation targeting. The BOE sets an inflation target of CPI growth rate of 2%. As for the ECB, the Fed, and the BOJ, while they do not adopt explicit inflation targeting frameworks, they have already had similar frameworks to the BOE. The ECB has an inflation reference of HICP[8] growth rate of "below, but close to, 2%" over the medium term. Although the Fed has continued to resist adopting inflation targeting, the perception that the Fed thinks the core PCE inflation of 1 to 2 % is desirable is prevalent. In this sense, US monetary policy has already had elements of inflation targeting (implicit inflation targeting)[9]. Also in Japan, the BOJ recently declared "an understanding of medium- to long-term price stability" of 0 to 2% (median 1%) in terms of core CPI growth rate. The BOJ's framework of monetary policy is considered to have the same effect as those in the U.S. and Euro area.

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[7] 2006/6/27.

[8] Harmonized Index of Consumer Prices.

[9] Goodfriend (2005), among others.

(2) What should central banks release? (economic transparency)

Next, we consider "economic transparency." "Economic transparency" relates to what information the bank should disclose to enhance the effectiveness of monetary policy.

It goes without saying that the more the projected economic indicators are connected to monetary policy decisions, the more important those indicators are. Suppose a country adopts an inflation targeting framework. Inflation targeting central banks are required to provide its own inflation forecast to the public because inflation forecast decides monetary policies. Since inflation forecasts depend upon other economic variables, it is desirable that the projections of related economic variables are also presented. The same thing can be applied to countries which have "forecast-based policies," regardless of whether they officially declare inflation targeting. In what follows, we consider the disclosure of economic outlook including inflation and GDP growth rate, the assumptions of the policy interest rate and oil prices, and the projections of output gap and loss function.

a. Forecasts of inflation and GDP growth rate

First, we compare Japan, U.S., Euro area, and U.K. in terms of inflation and GDP growth rate.

In Japan, as **Figure 5** shows, the "Outlook for Economic Activity and Prices" is released twice a year in Japan. The average (median) forecast of inflation and GDP growth rate are shown there. Since the projections on a quarterly basis are not released, there is uncertainty about the exact future paths of the projected variables.

In the U.S., the "Monetary Policy Report to the Congress" which includes GDP growth rate, inflation, and unemployment rate is released twice a year. This is thought to have about the same disclosure level as the "Outlook for Economic Activity and Prices" of the BOJ. Meanwhile, in the U.S., more enriched economic outlook is shown in the "Green Books," which are not released in principle (until five years later) and are used in FOMC meetings. The "Green Books" provide information on current situation of economic activity, baseline projections, and alternative scenarios based upon possible events which might happen in the future. While the projections are made using a large econometric "FRB/US" model, it is said to be essentially the Fed staff's projections which are modified by their insight into the real economy[10]. The "Green Book" is distributed to the members of FOMC before meeting and is used as reference material on the day of FOMC meeting. Some authors including Blinder (2004) insist that the

[10] Meyer (2004), Bies (2005).

"Green Book" should be disclosed to the public because the release of economic forecast allows the public to predict the course of monetary policy more easily. However, the "Green Book" remains closed to the public in part because the credibility of central banks might be damaged if their projections were off the mark.

At the moment, the Fed has been considering an introduction of inflation targeting and more disclosure of economic outlook under the new Chairman Bernanke who wants to enhance the transparency of the Fed. With strong voices against inflation targeting, the argument appears to be concentrating on how best to adopt disclosure methods to enhance transparency. They are thinking about increasing the number of the release and enriching the contents of "Monetary Policy Report to the Congress."

Figure 5　The release of economic forecast of the major central banks

	BOJ	Fed
Release of economic forecast	・ The "Outlook for Economic Activity and Prices" is released twice a year. The average forecast of real GDP and core CPI are shown on an annual basis. ・ The "Regional Economic Report" is released four times a year. It started to be released in April 21st of 2005.	・ The "Monetary Policy Report to the Congress" is released twice a year. The forecast of FOMC members in nominal GDP, real GDP, core PCE deflator, and unemployment rate are released on an annual basis. ・ The "Beige Book" is released 2 weeks before FOMC. Each Reserve Bank reports economic activity in its own area.

	ECB	BOE
Release of economic forecast	・ In "Monthly Bulletin", economic forecasts by Euro system staff and by ECB staff are shown four times a year. Real GDP, household consumption, government consumption, capital spending, exports, imports, and HICP growth rate are released on an annual basis.	・ The "Inflation Report" is released four times a year. When it is released, the governor of BOE holds a press conference. The growth rate of real GDP and CPI are shown in the form of "fan chart." The baseline projections are based on a variable interest rate, while alternative projections are based on a fixed interest rates.

In the ECB, the Monthly Bulletin shows the projections of Euro system staff and ECB staff. Each projection is implemented twice a year, respectively, at different times. These projections include not only rates of growth in HICP and the real GDP but rates of growth in private consumption, government consumption, capital spending, exports, and imports on an annual basis.

The BOE discloses the most detailed economic forecast among the four major central banks. The BOE releases an "Inflation Report" on a quarterly basis, which shows

projected paths of the rate of growth in real GDP, CPI, among others. The projections are shown in the form of a "fan chart" with probability, which allows the public to anticipate the future paths of economic variables with some risks. An "Inflation Report" does not explain the detail of the discussion of monetary policies in the MPC, but represents the systematic method of monetary policies by its economic analysis. Since central banks are required to give explanations about why the judgments in the past have been altered recently, their monetary policy decisions become rule-based, and it therefore induces the banks to make efforts to give their views on monetary policies to the public.

The comparison of four major central banks above shows that Japan and the U.S. release economic forecasts on a smaller scale because they include only inflation and GDP growth rate on an annual basis. These projections do not appear sufficient for the public to judge the intent of monetary authorities correctly, causing the expectations of future monetary policy to disperse. The BOJ possesses the capacity to disclose its economic outlook in more detail. Ultimately, in the future, it might be a good idea to show "fan charts" of the future paths of inflation and growth rate in the "Inflation Report" in the future, like in the U.K.

b. Assumptions of economic outlook

Next, we consider the assumptions of economic outlook, in particular the policy interest rate and oil prices. The policy interest rates are endogenous when they are variable in the setting in economic outlook, while oil prices are usually exogenous.

With respect to the policy interest rate, it is important whether the rates are assumed to be a fixed rate or variable rates. Traditionally, the policy interest rate was set to be fixed in the economic projections. If inflation forecast is higher than an inflation target under the assumption of a fixed rate, it has been interpreted that the policy interest rate will be raised sooner or later. However, fixed interest rate assumptions are problematic because ① if a fixed rate is unrealistic, the projections of inflation and the output gap are also unrealistic, ② while the policy interest rate is fixed, exchange rate, stock prices, bond prices, and residential prices are often assumed market values.

Recently, a fixed interest rate tends to be substituted by variable ones in economic outlooks of central banks. In the "Inflation Report" of the BOE, variable rates has became the main assumption of baseline projections since August of 2004 (the projections under the assumption of a fixed rate are shown as a reference case). Also in Japan, variable interest rates have begun to be used in the "Outlook for Economic Activity and Prices" since April of 2006. Recently, the ECB started to adopt variable

interest rate assumptions since June of 2006. In terms of disclosure, while the future path or annual value of interest rates are made public in the "Inflation Report" of the BOE and the "Monthly Bulletin" of the ECB, they are not disclosed in the "Outlook for Economic Activity and Prices" of the BOJ. It would be an option for the BOJ to reveal the interest rate setting to enhance transparency of economic outlook. The Fed does not refer to interest rate projections in the "Monetary Policy Report to the Congress." Members of the FOMC are said to make their economic views based upon their own interest rate projections.

The presentation of exogenous variables in an economic outlook is also important because it affects the forecast of endogenous variables in economic outlook. While the future path or annual numbers of oil prices are made public in the "Inflation Report" of the BOE and the "Monthly Bulletin" of the ECB, they are not disclosed in the "Outlook for Economic Activity and Prices" of the BOJ and the "Monetary Policy Report to the Congress" of the Fed.

When oil prices show wild fluctuations, the disclosure of the projected path of oil prices would play an important role for the public to predict future monetary policies. The disclosure of oil price assumptions allows us to predict the effect of oil price developments upon the course of monetary policies. The BOJ would be able to disclose at least the assumptions of annual oil prices, like the ECB.

c. Output gap and loss function

Finally, we look at disclosure of the output gap and loss function in major four countries (or area).

Although the output gap significantly relates to inflation pressures, none of the central banks in the four major countries (or area) discloses the output gap projections probably because of the technical difficulty of robust estimation of output gap. As a reference, looking at inflation targeting countries, there are some central banks which reveal the output gap, including New Zealand, Norway, Czech Republic, and Iceland (**Figure 6**). In particular, it is notable that New Zealand, Norway, Iceland disclose all items of projections of inflation rate, GDP growth rate, policy interest rate, output gap, as shown in **Figure 6**. Considering the fact that inflation targeting countries have taken the lead in disclosure methods, the disclosure methods of New Zealand, Norway, and Iceland may suggest a long-term trend to go forward for many countries.

Regarding loss functions, which are important in "targeting rules," there is no country even among inflation targeting countries probably because of the difficulty of reaching an agreement in MPCs.

Figure 6　The disclosure of the projections in inflation targeting countries

	Inflation	Growth rate	Policy interest rate	Output gap
Australia	○	○	×	×
Canada	○	○	×	×
Czech Republic	○	○	×	○
Hungary	○	○	×	×
Iceland	○	○	○	○
New Zealand	○	○	○	○
Norway	○	○	○	○
Poland	○	○	×	×
Sweden	○	○	○	×
Switzerland	○	○	×	×
U.K.	○	○	○	×

Note: ○ shows "disclosed", × shows "not disclosed." Made by the author using Mishikin (2004) and modifying it by the information from HP of each central bank.

(3) Implication for the BOJ's monetary policy

From the foregoing, we can draw some conclusions regarding the BOJ's strategies to enhance transparency.

First, there is not much difference among Japan, U.S., Euro area and U.K. in terms of "procedural transparency." One of a few things for the BOJ to improve is to have earlier release of the minutes of the MPCs. Since 2005, the Fed shortened the time period from the meeting to the release date of the minutes of FOMC to three weeks. The BOE has been releasing the minutes of the MPC two weeks after the meeting in recent years. The earlier release of the minutes of the MPC would enable the BOJ to enhance more "procedural transparency."

Moreover, the ECB and the BOE release press conferences of the governor not only in the form of the full transcript but in the form of web-casting service. Web-casting service of press conferences of the governor might allow the BOJ to convey the intent more quickly and more widely.

Second, the BOJ could enhance "economic transparency" by providing more detailed economic outlooks. The BOJ releases projections of inflation and GDP growth rates only on an annual base. It would be possible for the BOJ at least to release the rate of growth in GDP components in the "Outlook for Economic Activity and Prices," like the ECB. The ultimate means of disclosure would be the release of an "Inflation Report" which includes the future path as "fan charts" of inflation rate, GDP growth rate, the policy

interest rate, among others, like the BOE.

In the context of the current situation in Japan, it is also critical to disclose the assumptions of exogenous variables such as oil prices which substantially affect the core CPI. In the absence of the release of exogenous variables, when the BOJ's assumptions of exogenous variables turn out irrelevant in the future, it would not be easy for the BOJ to explain the change of monetary policies reflecting the developments of exogenous variables. On the contrary, if the projections of oil prices are disclosed, even in the event unexpected developments of oil prices occur, the market can anticipate the change of the BOJ's monetary policy soon without disruption.

Since the public understands well that perfect economic projections are impossible even for the central bank, the credibility of the BOJ would not be damaged decisively by the failure of economic projections. Rather, with economic forecasts not disclosed, since the public cannot understand the change of the BOJ's economic view, the logic of monetary policies may seem inconsistent in some situations. In this case, the credibility of the BOJ's whole monetary policy might be damaged. The enhancement of economic transparency would be helpful to attain the BOJ's long-term credibility.

4. Conclusion

We saw that when monetary policy is implemented using economic forecast in a "forward-looking" way, disclosure of information is important for central banks to convey the intent of monetary policy. Of course, the way central banks communicate with the public changes, depending upon the personality of the governor (or the chairman) and the characteristics of financial market. Indeed, "maestro" like the former Fed Chairman Greenspan could conduct sound monetary policies without disclosing detailed economic outlooks. It is difficult to decide the best way of communication which can be applied to all countries.

However, from the standpoint of an international trend, monetary policy styles in which central banks enhance transparency appear to work better in many countries in the absence of a charismatic leader. Central banks around the world including the BOJ have been continuing to take a trial-and-error approach in an attempt to find better communication strategies. The BOJ should move forward in enhancing transparency in order to have more effective monetary policies.

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