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Bank of Japan

**The Practice and Theory of  
Unconventional Monetary Policy**

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the International Economic Association (IEA)  
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## **Introduction**

It is my great honor to have the opportunity to deliver a speech at the 17th World Congress of the International Economic Association. The topic of this session, "Monetary Policy in A Post-Crisis World," is currently one of the most critical topics for central banks around the world. Following the global financial crisis triggered by the collapse of Lehman Brothers, the Federal Reserve (Fed) and the Bank of England (BOE) introduced unconventional monetary policy measures such as *quantitative easing* and *forward guidance*, which in turn has given rise to a growing body of theoretical research on these measures.

The Bank of Japan was the first central bank ever to adopt what is often referred to as unconventional monetary policy. In fact, the Bank started pursuing various unprecedented monetary policies such as a zero interest rate policy and quantitative easing policy ahead of other central banks at the end of the 1990s, that is, prior to the global financial crisis. And although this is not widely known, it was the Bank that first introduced forward guidance. Therefore, in today's speech, with the title "The Practice and Theory of Unconventional Monetary Policy," I would like to offer my take on the unconventional monetary policies pursued by the Bank of Japan, including the quantitative and qualitative monetary easing, dubbed QQE, introduced in spring last year, as well as the relationship between actual policies and theory. In concluding, I will touch on remaining challenges in the realm of monetary theory concerning unconventional policy.

### **I. Ongoing Moderate Deflation and the Limits of Conventional Monetary Policy**

In talking about the circumstances of why the Bank adopted unconventional monetary policy ahead of other central banks, I have to start with developments in Japan's economy and monetary policy in the 1990s. At the start of the 1990s, Japan experienced the collapse of its bubble economy and, associated with this, the deleveraging of financial institutions against the backdrop of a series of corporate failures and the impairment of financial institutions' balance sheets. During this adjustment process, a vicious cycle took hold, with worsening economic conditions, increasing nonperforming assets, declining prices, and yen appreciation mutually reinforcing each other. As a result, both economic growth and inflation declined. In 1997, a large-scale financial crisis involving the failure

of a number of major Japanese financial institutions erupted, and, in the summer of 1998, the inflation rate fell below 0 percent. In this situation, the Bank consistently lowered its policy rate, which had stood at 6 percent in August 1990, to close to zero at 0.25 percent in September 1998. Hence, deflation and the zero lower bound on nominal interest rates no longer were a theoretical possibility but became a reality.

### ***Early theory of unconventional monetary policy***

Taking the situation in Japan as a cue, Professor Paul Krugman in 1998 constructed a theoretical model of unconventional monetary policy offering a prescription of how to escape a liquidity trap.<sup>1</sup> Specifically, he pointed out that Japan's economy at the time was suffering from a shortage of demand even at zero interest rates. He argued that the only way to overcome deflation was through monetary policy by substantially increasing the money supply and raising inflation expectations, thereby making real interest rates sufficiently negative.

It appears that Professor Krugman's model already incorporated elements of the unconventional monetary policy measures eventually adopted. However, given that in practice it is difficult for the central bank to directly control the money supply and that, moreover, the Bank was not sufficiently sure about the mechanisms through which monetary policy could influence expectations formation, the Bank did not put the theory straight into practice.

## **II. Previous Unconventional Monetary Policies -- the Zero Interest Rate Policy (ZIRP), Quantitative Easing (QE), and Comprehensive Monetary Easing (CME)**

### ***Introduction of the ZIRP***

Given a situation in which economic activity and inflation did not improve even though the policy rate had been lowered to 0.25 percent, the Bank discussed a series of unconventional monetary policy measures and put them into practice in stages.

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<sup>1</sup> Paul R. Krugman, "It's Baaack: Japan's Slump and the Return of the Liquidity Trap," *Brookings Papers on Economic Activity*, 1998, No.2: 137-205.

As a first step, in February 1999, the Bank introduced the *zero interest rate policy* (ZIRP), which guided the uncollateralized overnight call rate to around 0 percent by providing the market with more funds than necessary for financial institutions to meet their reserve requirements. Moreover, in April 1999, given that there was no room for further rate reductions, the Bank introduced qualitative forward guidance in order to flatten the yield curve by indicating the future expected path of the policy rate, stating that it would continue with the ZIRP until deflationary concern is dispelled.

Then, in August 2000, judging that Japan's economy was showing clear signs of recovery and that the downward pressure on prices stemming from weak demand had markedly receded, the Bank deemed that the economy had reached the stage where deflationary concern had been dispelled and hence lifted the ZIRP. However, toward the end of that year, Japan's economy experienced a slowdown, mainly because of the effects of the burst of the dot-com bubble in the United States.

### ***Introduction of QE***

In response to this economic situation, the Bank in March 2001 introduced *quantitative easing* (QE), in which the operating target was the outstanding balance of current accounts at the Bank. At the same time, the Bank introduced the forward guidance that it would continue the policy until the annual rate of change in the consumer price index (CPI, excluding fresh food) registered zero percent or above in a stable manner.

The Bank's QE consisted of two features. The first feature is that it set the outstanding balance of current accounts, that is, reserves, which represent liabilities on the central bank's balance sheet, as the policy target. The provision of reserves was achieved mainly through the expansion of short-term funds-supplying operations instead of massive purchases of long-term government bonds as currently undertaken by some central banks in the advanced economies. In that sense, the policy could be labeled pure reserve targeting. The increase in reserves appears to have had the effect of dispelling anxiety about the financial system. With the nonperforming loan problem worsening, the deterioration of the financial system from 2001 through 2002, when measured in terms of the number of failed financial institutions and the amount of disposed nonperforming assets, was comparable to

that from 1997 through 1998, when Japan experienced the most acute phase of its financial crisis. In this situation, the provision of liquidity under QE by the Bank appears to have alleviated anxiety about the financial system and played an important part in avoiding a significant economic slowdown. Moreover, it appears that the lesson learned then -- that the provision of ample liquidity by the central bank at a time of financial crisis can help to restore stability -- has played a role in central banks' response to the recent global financial crisis.

The second feature of QE is that forward guidance was linked to the actual year-on-year rate of change in the CPI. Given that the lifting of the ZIRP in the previous year had given rise to the impression that the Bank had a deflationary bias, the Bank, in order to counter this impression, ventured to issue forward guidance with little room for discretion. As a result, the QE policy flattened the yield curve more than the ZIRP had done, and in this regard exerted substantial effects.

In pursuing QE, the Bank gradually increased its target for current account balances from initially about 5 trillion yen (about 1 percent of nominal GDP) to about 30 to 35 trillion yen (about 6 to 7 percent of nominal GDP) in January 2004 while consistently taking the economic situation into account. The economy subsequently recovered and the year-on-year rate of change in the CPI turned positive, meeting the condition set out in the forward guidance -- that QE would be pursued until the annual rate of change in the CPI (excluding fresh food) registered zero percent or above in a stable manner. In this situation, the Bank ended QE in March 2006 and raised the policy rate to 0.25 percent in July the same year. Japan's economy continued to recover for some time after the termination of QE, but experienced a severe negative shock stemming from the global financial crisis in 2008 and the year-on-year rate of change in the CPI fell into negative territory again.

### ***Central banks' responses to the global financial crisis and the Bank's CME***

During and after the global financial crisis, central banks promptly and flexibly addressed liquidity shortages in financial markets by providing massive liquidity through various measures. In addition, given that the malfunctioning of financial systems exerted

significant adverse effects on economic activity, a number of central banks adopted unconventional monetary policy measures as seen in the launch of massive purchases of government bonds by the Fed and the BOE.

Against this background, the Bank started *Comprehensive Monetary Easing* (CME) in October 2010. As the name suggests, the Bank purchased a comprehensive range of assets -- not only government bonds but also credit products such as CP and corporate bonds, equity financial products such as Exchange-Traded Funds (ETFs) and Japan Real Estate Investment Trusts (J-REITs) -- with the aim of directly lowering part of the yield curve up to three years and at compressing various risk premiums. Furthermore, in February 2012, almost at the same time that the Fed adopted an official inflation goal, the Bank introduced "the price stability goal in the medium to long term" and announced that it would set a goal in terms of the year-on-year rate of change in the CPI of 1 percent for the time being. Although these policies supported the economy by providing accommodative financial conditions, they were unable to change entrenched deflationary expectations among households and firms.

### ***Theories on the ZIRP and QE***

Let us look at developments in monetary policy theory at the time that the Bank was conducting the ZIRP and QE. Specifically, in 2003, Professor Michael Woodford and then IMF economist Gauti Eggertsson further developed Professor Paul Krugman's theory and formulated a theory for policy measures that would be effective under deflation and the zero lower bound on nominal interest rates.<sup>2</sup> They argued that the most important aspect is the management of the expectations of private entities and that, to that end, it is critical for the central bank to make a commitment that future monetary policy will be sufficiently accommodative. In this context, simply increasing the target amount of quantitative easing or diversifying the range of assets to be purchased would not bring about strong effects. They proposed that for the commitment to be effective it needs to be history dependent. To that end, the central bank should adopt a policy targeting a specific price level -- price

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<sup>2</sup> Gauti B. Eggertsson and Michael Woodford, "The Zero Bound on Interest Rates and Optimal Monetary Policy," *Brookings Papers on Economic Activity*, 2003, No.1: 139-233.

level targeting -- and commit itself to continuing with the zero interest rate until the target is achieved.

Based on this review of developments in monetary policy theory and looking back at the Bank's policies in the past, I think two elements may have been lacking in those policies.

The first element is a strong commitment to price stability. Forward guidance under the ZIRP was of a qualitative nature, stating that it would be continued until deflationary concern was dispelled. On the other hand, forward guidance under QE was quantitative in that it would be continued until the annual rate of change in the CPI (excluding fresh food) registered zero percent or above in a stable manner. In hindsight, however, the threshold of zero percent was too low. Moreover, the decision to lift QE turned out to be somewhat premature, even though it was the result of in-depth discussions about the economic situation and inflation at the time. In my view, this turn of events is the reason why the Bank has been unable to gain full credibility as a deflation fighter. As for the subsequent "price stability goal in the medium to long term," the figure set as the goal for the time being was also low at 1 percent. As a result of the weak commitment to price stability, expectation management was not sufficient, and the Bank could not dispel the deflationary sentiment that had taken hold among private entities.

The second element lacking in the past policies was extensive downward pressure on the entire yield curve. While the Bank succeeded in flattening the yield curve to some extent through forward guidance and purchases of long-term government bonds with remaining maturities of up to three years, it was not sufficiently successful in exerting downward pressure to lower the entire yield curve, including longer-term yields. Subsequent studies have shown that massive purchases of long-term government bonds by the Fed and the BOE during and after the global financial crisis have been effective and this could be considered as an example of central bank practice preceding theoretical developments.

### **III. Introduction of a New Phase of Monetary Policy -- Quantitative and Qualitative Monetary Easing (QQE)**

#### ***Introduction of QQE***

In April last year, the Bank introduced a policy of *quantitative and qualitative monetary easing*, dubbed QQE, which incorporates these two elements.

To reinforce the commitment to price stability, QQE includes the strong and clear commitment to achieve the price stability target of 2 percent within a time horizon of about two years and directly works on private entities' inflation expectations. Moreover, to underpin the commitment, the Bank decided to pursue a new phase of bold monetary easing in both quantitative and qualitative terms, in which the Bank will double the monetary base -- the money it directly provides -- in two years and purchase massive amounts of Japanese government bonds (JGBs), including bonds with longer remaining maturities. QQE differs from past policies in that it seeks to actively influence private entities' expectation formation.

Under QQE, the Bank has been purchasing long-term government bonds with various remaining maturities in order to put downward pressure on the yield curve as a whole. We believe that through this measure we can encourage a further decline in interest rates and thereby further stimulate private demand.

More than one year has passed since the introduction of QQE and it has been having the intended effects, leading to an improvement in financial markets, the real economy, prices, and expectations. With the clear commitment to promptly achieve the price stability target and with large-scale monetary easing, people's inflation expectations have been rising on the whole. On the other hand, the Bank's massive purchases of JGBs have kept 10-year government bond yields at a low level of about 0.6 percent. As a result, real interest rates have been negative and continue to decline, thereby providing stimulus to the real economy. Japan's economy has been growing led by domestic demand. The year-on-year rate of change in the CPI excluding fresh food was minus 0.5 percent in March last year, but it has reached to plus 1.5 percent in April this year after eliminating the direct effects of the consumption tax hike. Hence, QQE has put into practice the mechanism common to the



theories of Paul Krugman, Michael Woodford, and Gauti Eggertsson, which is to encourage a decline in real interest rates through raising inflation expectations and thereby stimulate the real economy.

### **Concluding Remarks -- Remaining Challenges with Regard to Theory of Unconventional Monetary Policy**

Let me conclude my speech by adding my own view concerning remaining challenges in the realm of monetary theory concerning unconventional policy.

The experience of the global financial crisis has proven in practice that, even if central banks are faced with a large negative shock at the zero lower bound, they can support economic activity and maintain price stability through unconventional monetary policy.

However, there remain unresolved issues concerning the effects and transmission mechanisms of unconventional monetary policy.

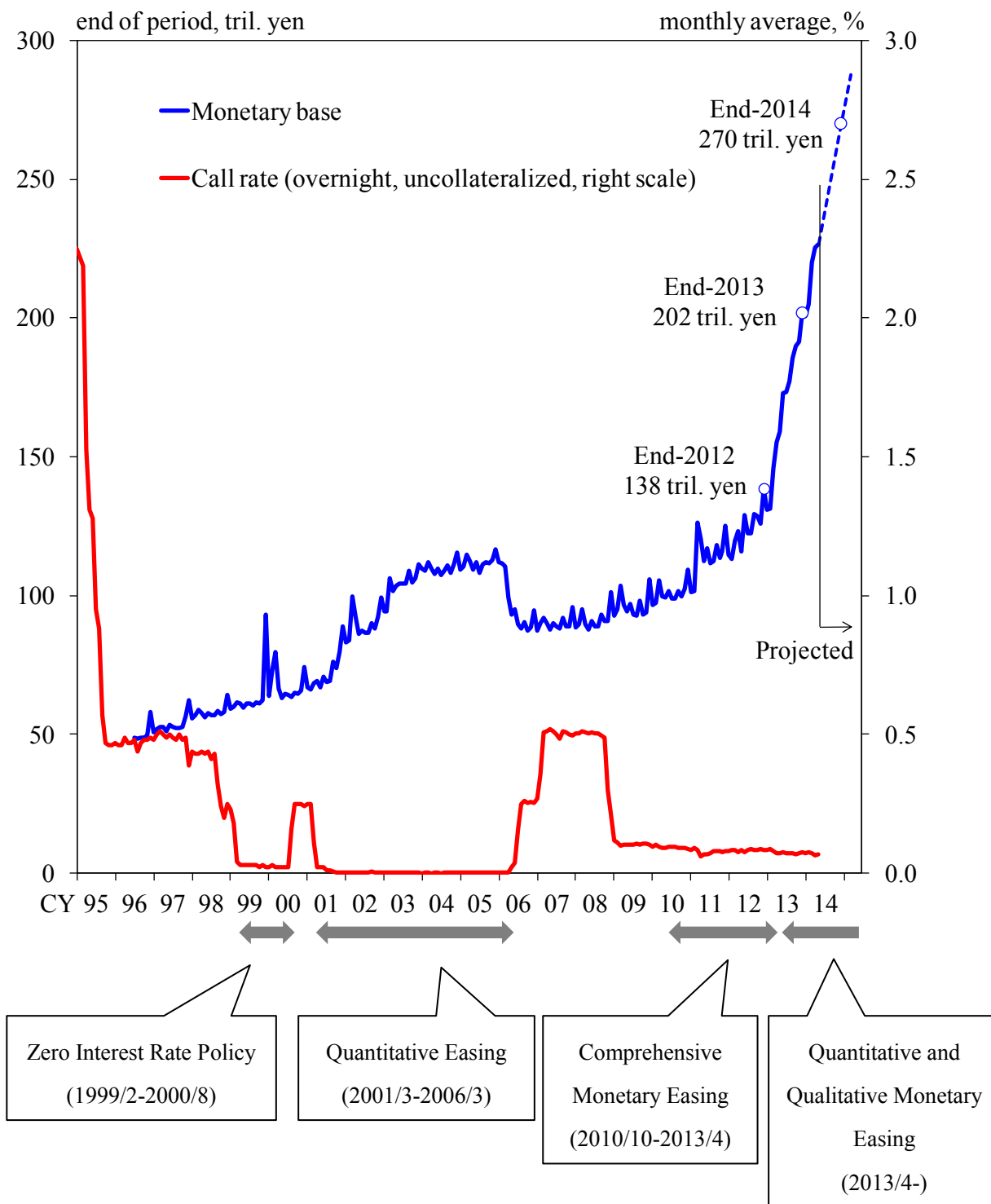
One reason why there remain unresolved issues is that, to date, no central bank has exited from the unconventional policies pursued after the global financial crisis, meaning that there is no practical experience that would allow an assessment of unconventional policy as a whole.

Another reason is that although *expectations* play an important role in unconventional monetary policy, the development of a theoretical underpinning concerning this role of expectations has been lagging. The importance of anchoring inflation expectations has been widely recognized and many central banks consider well-anchored inflation expectations as one measure to gauge the effectiveness of monetary policy. However, as yet there are no established theories on how inflation expectations should be brought back to the target once they have drifted downward. In particular, we do not have established theories that explain how inflation expectations can be raised at the zero lower bound and that suggest feasible policy measures to achieve this. I am looking forward to theoretical developments in the future, and in this regard, the experience with QQE must be useful.

A deeper understanding of the effects and transmission mechanisms of "Monetary Policy in A Post-Crisis World," namely, unconventional monetary policy, is important for both central banks and academia. I wish you every success and productive discussions.

Thank you.

## Monetary Policy in Japan



Source: Bank of Japan.