Mission incomplete! This phrase neatly captures the progress made by the Bank of Japan (BOJ) in reflating the economy. In April 2013, under its new governor, the BOJ launched an unprecedented quantitative and qualitative monetary easing policy. Haruhiko Kuroda was certain that the 2% price stability target would be achieved within 2 years. About 4 years later, the BOJ lags behind other major central banks, with actual inflation and inflation expectations still well below 2%.

What went wrong? And what should the BOJ do next? This former policy maker’s account expertly traces and analyzes the policy’s consequences.

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MISSION INCOMPLETE
Reflating Japan’s Economy

SAYURI SHIRAI
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INTRODUCTION

Mission incomplete! This phrase neatly captures the progress made by the Bank of Japan (BOJ) in reflating Japan’s economy. In April 2013, under the new Governor Haruhiko Kuroda, the BOJ launched its unprecedented quantitative and qualitative monetary easing policy called Quantitative and Qualitative Monetary Easing (QQe). Mr. Kuroda was certain that the 2% price stability target would be achieved in 2 years since all necessary measures had been taken. About 4 years later, the BOJ lags behind other major central banks including the Federal Reserve, the European Central Bank (ECB), and the Bank of England (BOE). Actual inflation and inflation expectations have remained well below 2%. Achieving 2% inflation stably is likely to take time and longer than currently claimed by the BOJ (around fiscal year 2018) after repeated postponements. What went wrong? Why does it take so much time for the BOJ to achieve the 2% target? And what should the BOJ do next? This book provides a former policy maker’s account that traces and analyzes the policy contents and consequences.

The BOJ had always been a front-runner in terms of implementing unconventional monetary policies from the late 1990s to 2006. Because of Japan’s long-standing demand shortage and mild deflation, various tools were implemented during this time, including a zero interest rate policy, forward guidance, and quantitative easing. These measures did not necessarily generate sufficient demand and inflation, but many hold the view that this failure can be mainly attributed to an improperly timed exit and a limited degree of accommodation. Naturally, growing criticism emerged domestically and from abroad with regard to the BOJ’s seriousness about trying to overcome deflation—the BOJ’s credibility was increasingly at stake. Nonetheless, the BOJ’s practices later stimulated other major central banks to pursue unconventional monetary policies. Those central banks adopted them more aggressively.

Unconventional monetary policies became prevalent after the global financial crisis of 2008–2009. Learning from Japan's unsuccessful monetary easing experiences, the Federal Reserve led by the then Chairman Ben Bernanke aggressively implemented monetary easing without hesitation. After cutting the short-term interest rate rapidly and injecting massive liquidity into the markets, the Federal Reserve launched a series of large-scale Asset Purchase Programs and experimented with various forms of forward guidance. The BOE followed a similar approach. Under Governor Kuroda, the BOJ also introduced QQe without hesitation to overcome deflation and eliminate credibility issues. The ECB also implemented various types of unconventional monetary easing, especially under President Mario Draghi and preceded the BOJ in terms of adopting a negative interest rate.

Despite such unprecedented efforts made by these central banks, the overall impacts on domestic demand and inflation were not as powerful as their impacts on lowering long-term interest rates. And in some economies, side effects and financial instability risk have emerged as such unconventional monetary easing tools have been implemented for long periods of time. Some central banks seem to increasingly rely on generating an excessive depreciation of the exchange rate through expanding interest rate differentials to reflate the economy. While this may accelerate inflation relatively easily through imported inflation, the resultant decline in households’ purchasing power may not only undermine stable consumption, it may also increase resistance to the price hike and prevent a central bank from achieving its inflation target sustainably. It may also intensify tensions in the global community and trigger protectionist responses.
Since the BOJ introduced QQE, about 4 years have passed, and some insights can be gained from these experiences. I spent 5 years at the BOJ as a Policy Board member—2 years under the then Governor Masaaki Shirakawa and 3 years under Governor Kuroda. I supported the 2% price stability target when the BOJ first adopted it under the then Governor Shirakawa. Under Governor Kuroda, I also supported QQE in April 2013 and QQE expansion in October 2014, but voted against adoption of a negative interest rate in January 2016. During my time at the BOJ, I wrote and delivered many speeches and presentations in Japan and abroad, setting out my own analysis and thinking. I had a great number of intensive discussions with monetary policy makers, international organizations, investors, and academics about monetary policies and the global economy.

Drawing on my experience and original perspectives, this book attempts to clarify the purposes, conceptual frameworks, and effectiveness of each round of monetary easing policy, and the major instruments utilized by the BOJ. This is one of just a few books written by former monetary policy makers. It covers the periods of unconventional monetary policies adopted by the BOJ from 1999 to the present, especially the (1) the zero interest rate policy of 1999–2000, (2) quantitative easing of 2001–2006, (3) comprehensive monetary easing of 2010–March 2013, and (4) QQE and its evolution since April 2013. This book calls the monetary easing adopted since April 2013 “super-easy monetary policy.” This latest period is further divided into three phases: a first phase of QQE and QQE expansion, a second phase of a negative interest rate, and a third phase of yield curve control. It is becoming increasingly difficult to comprehend recent unconventional monetary policies due to their growing complexity and ambiguity. This book helps to provide richer information and describe the various challenges faced by the BOJ.

The book is comprised of six chapters. Chapter 1 provides an overview of periods (1) and (2). Chapter 2 provides a detailed analysis of period (3), which ended with the adoption of QQE. Chapters 3–5 shed light on period (4), with Chapter 3 analyzing the first phase of super-easy monetary policy, Chapter 4 the second phase, and Chapter 5 the third phase. My views leading to my voting actions at the BOJ’s Policy Board meetings are also touched upon. Chapter 6 will focus on some issues that may be affecting the effectiveness of super-easy monetary policy mainly based on Japan’s experience. Unresolved issues that have become important after adoption of the super-easy monetary policy will be pointed out. I sincerely hope that this book will deepen readers' understanding of Japan’s economy and monetary policy.
1.1 Long-Standing Mild Deflation since Late 1990s

What is the problem with having mild deflation in Japan when the unemployment rate has remained so low even throughout the global financial crisis?

This is the question people often ask me in Japan and when I go abroad. It is a legitimate question. It is true that Japan’s unemployment rate has been much lower than that of other economies: the highest level it has been so far was during the global financial crisis when it reached just 5.5% in July 2009. The average rate of unemployment from 1990 to late 2016 was around 4% (Figure 1-1). Deflation was persistent over this period, but it was mild and avoided a deflationary spiral (Figure 1-2). After the collapse of the real estate and stock price bubble in 1991, the rate of inflation exceeded 2% only three times: (1) following a consumption tax hike from 3% to 5% in fiscal year 1997 (from April 1997 to March 1998), (2) after a commodity price hike in mid-2008, and (3) after a consumption tax hike from 5% to 8% in fiscal year 2014. The rate of inflation dropped below –2% in 2009, reflecting the global financial crisis, but it did not last long. On the surface, therefore, the economic fundamentals appeared fine, so it was difficult to comprehend Japan’s underlying problems.

Figure 1-1: Unemployment Developments: 1990–2016 (%)
Even though deflation was mild, it continued to have an adverse effect on Japan’s economy because it reflected a long-standing negative output gap—defined as the difference between gross domestic product (GDP) and potential GDP as a percentage of potential GDP—suggesting chronic demand shortage since 1993. Also, the presence of mild deflation was closely associated with lower and sluggish potential growth rates observed after the global financial crisis (Figure 1-3). The decline in the potential growth rate was mainly attributable to a slowdown in total factor productivity (TFP) growth and capital stock accumulation, rather than a direct adverse impact caused by unfavorable demographic factors (Figure 1-4). Demographic factors such as labor hours and the number of people employed have continued to exert downward pressure since the 1990s. But such adverse impacts have mitigated somewhat in recent years, especially since the contribution of the number of employed on the potential growth rate turned from negative to positive—thanks to a greater number of over 65-year-olds and housewives participating in the labor market.
Figure 1-3: Output Gap: 1990–2016 (%)

Note: Data for 2016 is up to July–September.
Sources: Bank of Japan; Cabinet Office.

Figure 1-4: Potential Growth Rate and Its Decomposition: Fiscal Year 1995–Fiscal Year 2016 (%)

TFP = total factor productivity.
Note: Biannual data from April–September 1995 to April–September 2016.
Source: Bank of Japan.
Over the same period, Japanese firms’ economic growth outlook and own industry demand growth outlook deteriorated, especially after the global financial crisis (Figure 1-5). Firms’ industry demand growth outlook or sales growth outlook has been constantly lower than firms’ economic growth outlook for both the next 3 years and the next 5 years (Figure 1-6). If many firms expect their own industry demand growth to be lower than the economic growth outlook, firms’ average economic growth outlook may be subject to overestimation. Sluggish potential economic growth contributed to a weaker economic outlook and weaker aggregate demand, which made it difficult to eliminate the output gap quickly.

**Figure 1-5:** Real GDP Growth Rate and Firms’ Real Growth Outlook: Fiscal Year 1995–Fiscal Year 2015 (%)

![Graph showing real GDP growth rate and firms' growth outlook over the fiscal years 1995 to 2015.](image)

GDP = gross domestic product.
Sources: Annual Survey of Corporate Behavior; GDP Statistics, Cabinet Office.

**Figure 1-6:** Firms’ Industry Demand and Economic Growth Outlook: Fiscal Year 1995–Fiscal Year 2015 (%)

![Graph showing firms' industry growth and economic outlook over the fiscal years 1995 to 2015.](image)

Source: Cabinet Office. Annual Survey of Corporate Behavior.
Deflation is also closely associated with the long-term yen’s appreciation trends that amplified the pessimism of firms that had already been struggling to maintain price competitiveness (Figure 1-7). These phenomena—together with a decline in total population, the rapid pace of population aging, and the slow pace of structural reforms—have discouraged firms from actively engaging in business fixed investment and innovative activities, have led to households saving more because of growing concerns about the future, and have prompted financial institutions to undertake risk-averse investment strategies.

**Figure 1-7: Yen vis-à-vis US Dollar Developments: 1999–2016 (JPY to USD)**

![Diagram showing Yen vis-à-vis US Dollar Developments: 1999–2016 (JPY to USD)](source: Bank of Japan)

In this environment, households took the lower prices of goods and services for granted as they developed a belief that prices had already been high. Households are very sensitive to changes in food prices and tend to feel that prices in general are increasing and expect them to go up especially when food prices are on a rising trend. Declining incomes and low expectations of future income growth appear to have contributed to such price sensitivity. In response, firms have adopted deflation-oriented pricing behavior and have used the sale prices of their rivals and the purchasing behavior of customers to set their prices, even when the supply–demand balance improves. Moreover, financial institutions have increasingly adopted deflation-oriented investment strategies and shifted their investments from risk assets (such as stocks, corporate bonds, mutual funds, loans, real estate, and foreign securities) to safer assets (such as Japanese Government Bonds [JGBs], deposits, and cash).

Therefore, while long-standing mild deflation was welcomed by households, the economy lacked dynamism, which hampered active production, business investment, and innovative activities. In the absence of rises in their regular pay (permanent income), households maintained very risk-averse investment behavior without diversifying their portfolios and mostly placing their money at commercial banks.
1.2 Zero Interest Rate Policy and Forward Guidance of 1999–2000

Before falling into a prolonged mild deflation phase, Japan experienced the collapse of the bubble in real estate and stock prices in the early 1990s, subsequently followed by the financial crisis toward the second half of the 1990s. Over the same period, Japan suffered a prolonged recession and negative output gap notwithstanding several short-lived recovery phases (Figure 1-3 and Figure 1-4). The growth rate of the consumer price index (CPI), the CPI excluding fresh food (core CPI), and the CPI excluding food and energy (so-called core core CPI) gradually declined and shifted to a continuous modest decline from 1999 (Figure 1-2).

While the pace of deterioration of Japan’s economy moderated mainly due to an increase in public investment, corporate and household sentiment remained cautious and private sector activity stagnant. Financial conditions in inter-bank money market transactions and corporate funding remained accommodative (Figure 1-8), while the yen appreciated against the dollar and stock prices remained weak (Figure 1-7 and Figure 1-9). Such unfavorable market developments had an adverse impact on sentiments of firms and households and the future prospects of Japan’s economy.

**Figure 1-8: Lending Rate and Uncollateralized Overnight Call Rate: 1990–2016 (%)**

![Graph showing lending rate and uncollateralized overnight call rate from 1990 to 2016.](source: Bank of Japan)

**Figure 1-9: Stock Price Developments: 1990–2016 (Yen, Points)**

![Graph showing stock price developments from 1990 to 2016, including NIKKEI 225 and TOPIX indices.](source: Bloomberg)
A. Adoption of the Zero Interest Rate Policy

Against this background, the Bank of Japan (BOJ) introduced a so-called zero interest rate policy by providing larger short-term funds against pooled collateral such as JGBs to lower the uncollateralized overnight call rate to a level as low as possible in February 1999. To lower the interest rate smoothly, the BOJ guided initially to move around 0.15%, and subsequently induced a further decline.

Two months later, the then BOJ Governor Masaru Hayami provided a kind of guidance to signal a more accommodative monetary stance. He did so without formally specifying it in a Public Statement on Monetary Policy (hereafter called Public Statement). Instead, at the press conference immediately after the April 1999 Monetary Policy Meeting, he informally expressed his view that the BOJ will maintain its zero interest rate policy “until deflationary concerns are dispelled.” Regardless of the fact that the guidance was given informally, this action can be called forward guidance or a communication strategy as a way for a central bank facing the zero lower bound to generate additional monetary easing by committing to a longer duration of the zero interest rate policy than the public and markets expect. This could be classified as open-ended forward guidance, linked to the continuation of the zero interest rate policy.

In those days, this forward guidance was criticized by the public and markets for the definition of deflation being vague. Indeed, it allowed for a wide range of interpretations of and judgments on the exit timing or when the zero interest rate policy would be ceased. Also, the nine Policy Board members were likely to have diverging views and thus would find it difficult to reach a collective decision about the timing. The markets were also unlikely to be adequately convinced by unclear definitions.

B. Lifting of the Zero Interest Rate Policy and the Government’s Opposition

When the BOJ decided to cease the policy on 11 August 2000, industrial production and exports were improving, but the rate of change in the CPI and core CPI remained negative (Figure 1-2). Thus, it is difficult to say that deflationary concerns had been dispelled. Nevertheless, the BOJ at its August 2000 Monetary Policy Meeting decided to go ahead and terminate the zero interest rate policy, raising the uncollateralized overnight call rate (the so-called policy rate) to an average of around 0.25%. To justify its exit decision, the BOJ claimed that downward pressure on prices stemming from weak demand had markedly receded.

The process leading to the decision took the form of a proposal presented by the then Governor Hayami who also chaired the Monetary Policy Meeting. He elaborated that termination of the policy signified a small adjustment to the degree of monetary easing in line with an improvement of the economy; the uncollateralized overnight call rate thereafter would still be extremely low and support economic recovery; and the termination of the policy might raise the public’s confidence that the economy was recovering and enhance the dynamism of the markets.

But the representatives from the Ministry of Finance and the Economic Planning Agency (now Cabinet Office) acted against the Chairman’s termination proposal. The Ministry of Finance and the Economic Planning Agency representatives have the authority to attend the Monetary Policy Meeting as observers and are allowed to express opinions at the meeting according to Article 19, Paragraph 1 of the Bank of Japan Act. Under Article 19,
Paragraph 2, these representatives can submit proposals concerning monetary control matters or request that the Policy Board postpone a vote on proposals on monetary control matters submitted at the meeting until the next Monetary Policy Meeting. Article 19, Paragraph 3 states that the Policy Board shall decide whether to accommodate such a request to postpone a vote in accordance with the Policy Board’s voting practice.

In line with Article 19, the two representatives requested the Chairman to adjourn the meeting on 11 August 2000 to discuss the government’s stance on the proposal—sometimes this can involve contacting the Minister of Finance and the Minister of Economic Planning Agency—which is the usual process when the Chairman presents a new action. The Chairman approved the request and adjourned the meeting at 2:51 p.m., reconvening it at 3:10 p.m. The two representatives filed a request that the vote on the Chairman’s proposal be postponed until the next Monetary Policy Meeting on the grounds that it was premature to terminate the zero interest rate policy given the economic situation and recent developments in financial markets—pursuant to Article 19, Paragraph 2 of the Bank of Japan Act. The Policy Board then conducted monetary discussions, and the government’s request to postpone the vote on the Chairman’s policy proposal was put to the vote—pursuant to Article 19, Paragraph 3 of the Bank of Japan Act. The government’s proposal that a vote on the Chairman’s proposal be postponed was defeated with one vote in favor and eight against, hence the zero interest rate policy was decided to be lifted by majority. This was a rare event. Several economists and market participants subsequently also expressed the view that the exit decision came too early.

About 6 months later, this decision was reversed. In February 2001, the increase in the policy rate ceased, and was lowered from 0.25% to 0.15% (with effect from March). Because of the presence of deflation during the lifting of the decision and the subsequent reversal of the policy, many shared the view that the BOJ’s decision to discontinue the zero interest rate policy was inappropriate and had negatively affected its credibility.

### 1.3 Quantitative Easing (QE) of 2001–2006

After August 2000, it soon became apparent that Japan’s economy had been adversely affected by the bursting of the information technology (IT) bubble in the United States (US) in the same year. Accordingly, exports and production dropped sharply in early 2001, while the rate of change in the CPI remained in negative territory.

#### A. The Features of the QE Policy

In this environment, the BOJ adopted a new monetary easing framework called *Quantitative Easing* (QE) in March 2001 under the then Governor Hayami. At a time when the uncollateralized overnight call rate was virtually zero, QE consisted of the following three main elements.

First, the main operating target for money market operations was shifted from the policy rate (uncollateralized overnight call rate) to the *current account balance at the BOJ (or roughly required and excess reserves)—a transformation from interest rate targeting to reserve targeting*. The target balance was then increased gradually.

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by expanding excess reserves. The target amount was raised nine times from the initial 5 trillion yen (which is higher than the required reserve level of 4 trillion yen) to around 30–35 trillion yen in January 2004 in response to the deteriorating economy (Figure 1-10). Thereafter, the same target amount was maintained until the end of the QE policy. Achieving this reserve target was attempted mainly through providing short-term funds with various maturities of 1 year or less. Under QE policy, the uncollateralized overnight call rate stayed at around zero percent owing to the ample liquidity provision. To be precise, the interest rate under the QE policy declined to 0.001%—a level even below the 0.02%–0.03% that had prevailed during the zero interest rate policy of 1999–2000.

**Figure 1-10**: Current Account Balances at the Bank of Japan and Uncollateralized Overnight Call Market Rate (% Trillion Yen)

Second, the BOJ provided forward guidance when QE was introduced by making a clear commitment to maintaining this policy until the condition of the core CPI registering “stably zero percent on a year-on-year increase” was met. This policy aimed at lowering future short-term interest rates by promoting market expectations that the virtually zero percent interest rate will be maintained for some time in the future even after economic conditions have improved. The forward guidance was clarified further in October 2003 by the introduction of two exit conditions: (1) the most recently published core CPI registers zero percent or above, and this holds for at least several months; and (2) the projected core CPI is no lower than zero percent. These were regarded as necessary
conditions as there may be cases where the BOJ would judge it appropriate to continue with QE even if these two conditions are fulfilled. This was state-contingent guidance, linked to the continuation of the QE policy. It should be noted that the economic condition used in the guidance was based on the actual performance of the core CPI and was thus clearer than in the earlier zero interest rate policy case.

Third, it was decided to increase the outright purchase of JGBs if deemed necessary to facilitate meeting the targeted current account balance.

**B. Improved Economic Performance during 2001–2006**

During 2001–2006, expansionary economies overseas contributed to an increase in Japan’s export growth. Thus, after the trough in January 2002, Japan’s economy was finally able to enter a recovery phase (Figure 1-5). Corporate profits grew during this period despite a rise in imported crude oil prices and other commodity prices. Reflecting growing production capacity constraints, business fixed investment—especially in the export manufacturing sector—recorded high growth; however, the level of investment remained below the scale of cash flow. Household income rose moderately owing to an increase in employment, but also partly thanks to a moderate per-worker nominal wage increase (driven mainly by an increase in working hours), an increase in dividend income, and a rise in stock prices.

The economy had been recovering steadily from the beginning of 2002, and the recovery trend was getting stronger. It seemed that economic growth would continue for the foreseeable future. It was clear that the main engine of growth was exports and associated domestic business fixed investment activities, which had been supported by favorable worldwide economic growth and a depreciation of the yen (Figure 1-7). The yen’s depreciation, especially vis-à-vis the US dollar and the euro, was caused mainly by the growing yen carry trade—selling yen and buying foreign currencies without hedging against exchange rate risk—in the face of interest rate differentials and the risk-taking behavior of investors. This view is consistent with the fact that large as well as small and medium-sized firms in the manufacturing sector indicated more favorable sentiment regarding business conditions than their counterparts in the nonmanufacturing sector.

**C. Moderately Improved Price Performance during 2001–2006**

Regarding price developments, the core CPI—having moved into negative territory in the late 1990s and having remained more or less in a mild deflation phase—finally turned positive in late 2005. This was followed by larger increases from early 2006. Several firm-based surveys indicated that companies faced very strong capacity constraints in terms of capital stock and employment, suggesting that the negative output gap had been mostly eliminated. Indeed, the output gap had already entered positive territory in 2005 based on the BOJ estimate, while the estimate of the Cabinet Office suggested it still remained negative (Figure 1-3). Since the economy had been expected to expand at a pace above its potential, it was thought that the output gap would likely become positive and then widen moderately.
One concern was that unit labor costs (ULCs) had continued to decline, as increases in hourly productivity had been large. However, wages began to increase in 2005 as the supply and demand balance of labor became tighter over a relatively wide range of industries and the unemployment rate declined (Figure 1-1). Moreover, the rate of productivity increase had been expected to slow during the prolonged stage of economic recovery. Thus, it was projected that in the near future ULCs would start increasing moderately and thus generate upward pressure on prices. Moreover, various surveys indicated that firms and households were adjusting inflation expectations upward for the short term and for the medium to long term.

D. Decision to Exit from QE Policy and Government’s Concerns over the Exit Decision

Like other advanced countries, Japan had been witnessing the phenomenon of the rate of increase in the CPI becoming less sensitive to changes in the output gap over recent years—the so-called flattened Phillips Curve. Nonetheless, the BOJ assessed that CPI inflation was likely to rise gradually based on the already mentioned considerations: (1) positive inflation from end-2005 until January 2006 (the latest data available at the time of the March Monetary Policy Meeting was for January); (2) an expected further improvement in the output gap; (3) expected tighter labor market conditions, partly as a result of growing economic activity; and (4) rising inflation expectations of firms and households. The increase in international commodity prices and the yen’s depreciation also contributed to the rising inflation prospects.

Based on these observations, it was expected that the upward trend in the CPI would probably be achieved, even though those movements would be partially offset by downward pressure stemming from intense competition among domestic firms, intensified cross-border competition due to deepening globalization, and advances in IT. The growth rate of core CPI was thus estimated to be within the range of 0%–1% in fiscal year 2006 and would approach a level slightly below 1% in fiscal year 2007.

On 9 March 2006 (the second day of the 2-day Monetary Policy Meeting), the BOJ concluded it was time to exit QE policy since the conditions laid out in the commitment had been fulfilled. As was the case with the discontinuation of the zero interest rate policy, the process took the form of a proposal presented by the then Chairman Toshihiko Fukui who had become Governor in March 2003 and had strengthened the existing QE by adding monetary accommodation. The proposal was to reintroduce the standard uncollateralized overnight call rate as an operating target for money market operations instead of the outstanding balance of current accounts at the BOJ. Also, the new target for the uncollateralized overnight call rate was set at effectively zero percent.

Subsequently, the Ministry of Finance and the Cabinet Office representatives requested the Chairman to adjourn the meeting to discuss the government’s stance on the proposal, and they may have needed to contact the Minister of Finance and the Minister of State for Economic and Fiscal Policy. The Chairman approved the request and the meeting was adjourned at 1:17 p.m. and reconvened at 1:46 p.m. This time, the two representatives did not file a request for the vote to be postponed until the next Monetary Policy Meeting, as had been the case in 2000. Instead, they expressed their strong dissatisfaction and hesitation regarding the Chairman’s proposal to discontinue QE policy. The Ministry of Finance representative stated that the government hoped that the BOJ would continue to implement appropriate monetary policy consistent with
the government’s economic policy. The Cabinet Office representative expressed strongly that the government would like to request that the BOJ continue its policy efforts to overcome deflation in cooperation with the government by ensuring its efforts are fully consistent with the government’s basic policy for the economy when examining termination of its QE policy. Termination of QE policy would mean that the commitment in terms of policy duration would not be honored. The Chairman’s policy proposal was put to the vote and approved by a 7-1 majority among nine Policy Board members.2

E. Introducing an Understanding of Price Stability

At the March 2006 Monetary Policy Meeting, the BOJ adopted a new framework for the conduct of monetary policy by introducing a longer-run inflation outlook—the so-called understanding of medium- to long-term price stability. This is the level of the CPI inflation rate recognized as price stability by each member of the Policy Board of the BOJ. An agreement was reached among board members that the inflation rate would remain approximately between zero and 2% with the median of 1%. It was also agreed that the rate would be reviewed annually. This understanding was not an inflation target.

The BOJ’s inflation range specified as part of the understanding was lower than that of many other advanced countries. This is because the BOJ found it important to take into account past price movements—the average rate of inflation over the previous few decades had been lower than that of major overseas economies and had been low even during the bubble period of the 1980s. In addition, Japan had experienced a prolonged period of lower rates of inflation since the 1990s. In such a low inflation environment, it was considered to be likely that the rate of inflation at which households and firms perceived prices to be stable would also be low.

After March 2006, interest rates turned positive as a result of the BOJ’s decision to raise the policy rate twice in light of favorable developments in economic activity and prices: from zero percent to 0.25% in July 2006, and further to 0.5% in February 2007. This policy rate was maintained until October 2008.

F. Reflection of the Exit Timing over the QE Policy

The revision of the CPI is conducted every 5 years to change the base year and adjust the weights allocated to each item. The Statistics Bureau of the Ministry of Internal Affairs and Communications released the revised data in mid-2006 based on the change in the base year from 2000 to 2005 and a change in the weights. The scale of adjustment of the year-on-year change in the index was larger than it had been in the past, leading to an unexpectedly larger downward adjustment from the perspective of the BOJ. The revision resulted in a decline of 0.5% on average from January to July 2006 according the Statistics Bureau (Figure 1-11).

As mentioned above, the BOJ’s assessment that inflation was positive from late 2005 to January 2006 turned out to be wrong since the rate of change in the core CPI recorded 0.1% in November and December 2005, but was –0.1% in January 2006—the reference months used in the March 2006 Monetary Policy Meeting. In retrospect, this means that one of the BOJ’s exit conditions—that the most recently published core CPI is

zero percent or higher for several months—was not satisfied (Figure 1-12). Moreover, year-on-year changes in the CPI and the CPI excluding food and energy (core core CPI) remained negative over this period. For this reason, many at the time considered it to be premature for the BOJ to abandon QE in March 2006, and it was felt that the BOJ was rushing too fast toward normalization of its monetary easing. It turns out that the deep concerns raised by the government at the Monetary Policy Meeting were justified and appropriate.

**Figure 1-11:** CPI before and after the Revision of Base Year and Weight: (2015 = 100)

![Graph showing CPI before and after the revision of base year and weight.](image)

CPI = consumer price index.
Note: Base year was adjusted from 2000 to 2005.
Source: Statistics Bureau, Ministry of Internal Affairs and Communications.

**Figure 1-12:** Rate of Change in CPI: 2005–2006 (%)

![Graph showing rate of change in CPI.](image)

CPI = consumer price index.
Note: Based on a new index with 2005 as base year.
Source: Statistics Bureau, Ministry of Internal Affairs and Communications.
Regarding long-term inflation expectations of economists and trend inflation, they remained at around 2% in the early 1990s, but then dropped sharply over the course of the 1990s. While QE was in place, developments in long-term inflation expectation indicators were mixed: some remained below 1%, while others improved and remained just above 1% (Figure 1-13). Moreover, it is not clear why long-term inflation expectations remained positive and more or less at around 1% when the rate of change in CPI—especially CPI excluding food and energy (core core CPI)—remained negative (Figure 1-2). This may be attributable to some upward bias of inflation expectations, perhaps reflecting the BOJ’s constantly optimistic projections. It may be said that the gap between the rate of change in CPI and inflation expectations should have been examined more carefully before deciding on the timing of the exit (see Chapter 6).

**Figure 1-13: Long-Term Inflation Expectations: 1990–2010 (%)**

![Graph showing long-term inflation expectations from 1990 to 2010.](image)

In April 2013, the Bank of Japan (BOJ) adopted a super-easy monetary policy or Quantitative and Qualitative Monetary Easing (QQE), which will be the focus of the following chapters. To understand the essence of QQE, it is crucial to review the effectiveness and limitations of Comprehensive Monetary Easing (CME) adopted in October 2010 under the then Governor Masaaki Shirakawa who had been in his position from April 2008. This is because QQE was introduced as an extension of CME, especially in terms of types of assets purchased, although QQE represents a drastic leap from CME with regard to the boldness and scale of monetary accommodation. This chapter first provides an overview of the situation prior to the adoption of CME and then sheds light on the CME framework and the factors that contributed to the adoption of QQE.

2.1 BOJ’s Policy Actions prior to the Adoption of CME

Global economic conditions deteriorated sharply at the end of 2008 with the intensification of turmoil in the US and European financial systems and in global financial markets. Japan’s exports decreased significantly due to sharp downturns in its overseas trading partners. Business fixed investment also declined substantially, which reflected a deterioration in corporate profits and financial conditions. Moreover, the yen began to appreciate against the US dollar from August 2007 due to a weakening of global risk appetite and an unwinding of the yen carry trade (Figure 2-1). The nominal exchange rate of the yen also appreciated drastically (Figure 2-2). In the household sector, private consumption weakened against a backdrop of deterioration in consumer sentiment and the employment and income situation. It seemed likely, therefore, that the economic growth rate for fiscal year 2008 would decline further from around 1.5% in fiscal year 2007. Meanwhile, the CPI and CPI excluding fresh food (core CPI) rapidly increased and exceeded 2% in the summer of 2008, which was due mainly to a surge in commodity prices. Thereafter, the effects of commodity prices gradually waned, and the headline and core CPI had started to moderate by late 2008 (Figure 1-2).

Against this background, a series of accommodative monetary policy measures was adopted. First, the policy rate was lowered twice: from 0.5% to around 0.3% in October 2008 and further to around 0.1% in December 2008. Thus, the period during which the policy rate was raised lasted only from 2006 to 2008. Similarly, the interest rate applied to the Complementary Lending Facility (a backstop to provide liquidity to financial institutions) was cut from 0.75% to 0.5% in October 2008, and further to 0.3% in December 2008. In October 2008, a Complementary Deposit Facility was established and the interest rate applied to excess reserves (total reserves excluding required reserves) set at 0.1%. The Complementary Deposit Facility is related to the negative interest rate policy adopted by the BOJ in January 2016. Details about negative rates will be provided in Chapter 4.

3 Regarding the interest rate applied to the Complementary Lending Facility before 2008, a rate of 0.1% was maintained from September 2001 to July 2006. In July 2006, it was raised to 0.4% and further to 0.75% in July 2007 in accordance with an increase in the policy rate.
Figure 2-1: Yen vis-à-vis US Dollar: 2007–2016 (JPY to USD)

Figure 2-2: Nominal and Real Effective Exchange Rates: 2007–2016 (January 2007 = 100)

NEER = nominal effective exchange rate, REER = real effective exchange rate.
Source: Bank of Japan.
Second, the BOJ adopted a 3-month Funds-Supplying Operation against Pooled Collateral at the fixed interest rate (0.1%) up to a total amount of 10 trillion yen in December 2009. This operation was aimed at bringing about a further decline in longer-term interest rates in the money market. In March 2010, the amount involved in this operation was raised to 20 trillion yen. In August 2010, an additional 6-month Funds-Supplying Operation was introduced with a maximum amount of 10 trillion yen, taking the total amount provided under this operation up to 30 trillion yen.

Third, Special Funds-Supplying Operations to Facilitate Corporate Financing were established in December 2008 to ensure stability in the financial markets and facilitate corporate financing. The BOJ provided financial institutions with an unlimited amount of funds (as much as they would like to obtain) against the value of corporate debt submitted to the BOJ as collateral at the policy rate. The range of corporate debt as eligible collateral was also expanded by easing the criteria on credit ratings from “A-rated or higher” to “BBB-rated or higher.” The collateral prices for newly accepted BBB-rated bonds with remaining maturity of 10–20 years and higher were set lower than those for AAA-rated bonds. While the operations had initially been scheduled to continue until the end of March 2009, the BOJ ended up extending them three times until completing them in March 2010. Corporate bonds and commercial paper (CP) were also purchased in 2009.

Fourth, the expression understanding of medium- to long-term price stability (introduced in March 2006) was clarified further in December 2009 by eliminating the possibility of a zero percent rate of price change—the expression was changed to in a positive range of 2% or lower with a midpoint of around 1%. This was aimed at removing public concern that zero percent inflation would be tolerated by the BOJ.

After the Lehman shock, overseas economies temporarily leveled out and showed a sharp recovery from the second half of 2009 thanks to active fiscal and monetary policies adopted collectively by major economies. However, the pace of global economic growth began to slow somewhat after mid-2010, mainly because of the waning demand-boosting effects of fiscal policy measures. Moreover, global investors became increasingly risk-averse in 2010 as the sovereign debt problem in some peripheral European countries grew into a focus of concern and uncertainty heightened over the outlook for the global economy, especially in the US. Consequently, credit spreads on corporate bonds mainly in the US and Europe widened from 2010, and stock prices in many countries including Japan became unstable.

With regard to Japan’s economy, signs of a moderate recovery were evident in 2009, but the pace of recovery began to slow as growth in exports and production decelerated in mid-2010. The slow pace of recovery had also been expected for the near future due to the continued slowdown in overseas economies, the ending of the government’s demand-boosting fiscal policy measures to promote spending on durable consumer goods, and the continued appreciation of the yen. The yen continued to appreciate since it has been viewed as a relatively safe currency, meaning it tends to appreciate when global investors’ risk appetite weakens.
### 2.2 Basic Features of CME

Generally, the first thing a central bank does in a recessionary phase is to cut the very short-term nominal interest rate target—the *policy interest rate*. In Japan this is the uncollateralized overnight call rate, and in the US it is the federal funds rate. There are some cases, however, where such a policy interest rate drops to nearly zero percent, leaving limited room for a further decline. Major central banks faced this situation after their policy interest rates were reduced to nearly zero percent (Figure 2-3); in the case of the BOJ, this occurred immediately after the collapse of Lehman Brothers in the fall of 2008 after it had lowered its policy rate from around 0.5% to around 0.3% in October 2008 and further to around 0.1% in December 2008. Given that the uncollateralized overnight call rate had been very low even before the Lehman Shock, Japan’s room for further monetary easing by means of an interest rate cut was very limited compared with the US. There the Federal Reserve was able to begin lowering the federal funds rate from a relatively high level—lowering it by 50 basis points from 5.25% to 4.75% in September 2007, followed by seven subsequent cuts toward 0%–0.25% in December 2008 and maintaining the same level until the abandonment of the federal funds rate target in December 2015.

**Figure 2-3:** Policy Interest Rates: Japan, the United States, and the United Kingdom: 1990–2013 (%)
A. Establishing the Asset Purchase Program

Faced with the virtually zero lower bound, the BOJ thus needed to come up with other monetary easing tools. This led to the adoption of CME in October 2010. Under CME, the BOJ lowered the uncollateralized overnight rate from around 0.1% to around 0%–0.1%, effective immediately. This amounted to adopting the so-called \textit{virtually zero interest rate policy} again. This target range was maintained until the adoption of Quantitative and Qualitative Monetary Easing (QQE) in April 2013.

More importantly, the main element of CME was to create an Asset Purchase Program. It was meant to generate a more accommodative monetary environment by exerting downward pressure on relatively \textit{longer-term} interest rates, which remained in positive territory despite the policy rate reaching nearly zero. For this purpose, the BOJ purchased Japanese Government Bonds (JGBs) with remaining maturity initially of 1–2 years and extended to 1–3 years in April 2012, as well as treasury discount bills (T-Bills). Yields on JGBs with 1-year, 2-year, and 3-year remaining maturity stayed at around 0.11%, 0.13%, and 0.15%, respectively at end-September 2010. Since JGB yields function as the benchmark for measuring long-term fixed interest rates related to mortgages, loans, and corporate bonds, downward pressure on JGB yields was expected to lower funding costs, which makes it easier for firms and households to increase their economic activities. The BOJ attempted not only to lower the funding cost, but also to exert downward pressure on the \textit{risk premia}, thereby supporting the foundation of risk asset markets and inducing a \textit{portfolio rebalancing effect}. Moreover, a wealth effect was envisaged. To enhance those effects, the BOJ also purchased various risk assets directly.

For these purposes, the \textit{Asset Purchase Program} was established to newly purchase JGBs (with remaining maturity \textit{from 1 to 3 years}), T-Bills, commercial paper (CP), corporate bonds, exchange-traded funds (ETFs), and Japan real estate investment trusts (J-REITs). The amount of the Asset Purchase Program counted the amount of the fixed-rate Funds-Supplying Operations against Pooled Collateral. Thus, the size of the program looked bigger than the actual amount of assets purchased, as indicated below. The BOJ concentrated its purchases of JGBs to exert downward pressure on relatively \textit{longer-term} interest rates than in the past.

The total amount outstanding of the Asset Purchase Program was increased initially to 35 trillion yen (about 5 trillion yen in assets to be newly purchased and 30 trillion yen in fixed-rate Funds-Supplying Operations). The amount of 5 trillion yen on newly purchased assets was decomposed into JGBs (around 1.5 trillion yen), T-Bills (around 2 trillion yen), CP and corporate bonds (around 0.5 trillion yen each), ETFs (around 0.45 trillion yen), and J-REITs (around 0.05 trillion yen). The size of the program was then increased to 40 trillion yen in March 2011, to 50 trillion yen in August 2011, to 55 trillion yen in October 2011, to 65 trillion yen in February 2012, to 70 trillion yen in April 2012, to 80 trillion yen in September 2012, and further to 91 trillion yen in October 2012. In December 2012, the amount was expanded further to 101 trillion yen, which was scheduled to be reached by end-2013—JGBs (44 trillion yen), T-Bills (24.5 trillion yen), CP (2.2 trillion yen), corporate bonds (3.2 trillion yen), ETFs (2.1 trillion yen), and J-REITs (0.13 trillion yen), as well as the fixed-rate Funds-Supplying Operations (25 trillion yen). In January 2013, it was decided to expand it further to 111 trillion yen, which was scheduled to be reached by end-2014, and thereafter the amount of 111 trillion yen was to be maintained indefinitely (Figure 2-4).
B. Introducing an Open-Ended Asset Purchasing Method from 2014

As for the continuation of the Asset Purchase Program after 2014, the BOJ decided in January 2013 to introduce an open-ended asset purchasing method, which was to start in early 2014. This meant that the BOJ would purchase financial assets of about 13 trillion yen monthly—comprising about 2 trillion yen of JGBs, 10 trillion yen of T-Bills, and 1 trillion yen of CP and corporate bonds—without setting any termination date.

Based on this monthly purchase, the amount outstanding of the Asset Purchase Program was expected to rise by 10 trillion yen to 111 trillion yen in 2014. The amount outstanding of 111 trillion yen was scheduled to be maintained from 2015 onward since the quantity of monthly purchased JGBs and T-Bills would roughly meet their maturing totals. The amount outstanding of JGBs held by the BOJ was scheduled to increase to 44 trillion yen by end-2013 and further to 48 trillion yen by end-2014, with this amount scheduled to be maintained from 2015 onward.4

4 T-Bills are the second largest assets held by the BOJ, and the amount outstanding was scheduled to grow to 24.5 trillion yen by end-2013 and further to 30.5 trillion yen by end-2014. The amount of 30.5 trillion yen was scheduled to be maintained from 2015 onward. Regarding CP and corporate bonds, the amount of 1 trillion yen would be allocated from 2014 onward to roughly meet the maturing total.
2.3 Forward Guidance and Adoption of the 2% Price Stability Target

Let me now describe the forward guidance with regard to the BOJ’s future monetary easing stance under CME. The BOJ made a significant step by finally formally adopting a clear inflation target, set at 2% under the then Governor Shirakawa.

A. Evolution of Forward Guidance on the Monetary Easing Stance

The initial forward guidance statement under CME indicated that the BOJ will maintain the virtually zero interest rate policy until price stability is in sight on the basis of the understanding of medium- to long-term price stability, on the condition that no serious risk factors were identified. In addition, medium- to long-term price stability was defined as a positive range of 2% or lower, with the midpoints of most members’ understanding being around 1%. This was state-contingent guidance, based on the outlook for prices and linked to the policy interest rate. It was also a conditional commitment, as a risk factor consideration was introduced for the first time as an additional constraint.

In February 2012, the forward guidance was further strengthened with the following statement.

“*For the time being, the Bank [BOJ] will pursue powerful monetary easing by conducting its virtually zero interest rate policy and by implementing the Asset Purchase Program . . . with the aim of achieving the goal of 1 percent. The Bank will continue pursuing the powerful easing until it judges that the 1 percent goal is in sight,*” on the condition that no significant risk factors were identified. This refined forward guidance was state-contingent, linked to the maintenance of both the policy interest rate and asset purchases.

This forward guidance was clearer and more powerful than the earlier one for several reasons. First, it used the word “goal” (which is uniformly set by consensus among all members of the Policy Board) rather than “understanding” (which was simply a collection of different members’ views). Second, it clarified that the BOJ sets the goal at 1% for the time being, while maintaining the medium- to long-term goal within a positive range of 2% or lower.

B. BOJ’s Initial View on Price Stability

Notwithstanding the progress made on the forward guidance, the following question remained: Why did the BOJ not adopt a simpler pinpoint target such as 2% from the outset? This was because the expression had to cover the diverging views of the nine Policy Board members with respect to the appropriate level of medium- to long-term inflation. Moreover, adopting such an expression was done to take into account past price movements and to accommodate the view that a longer-term goal could be achieved in conjunction with efforts to reinforce potential economic growth through various constituents, including the government, firms, and financial institutions. These factors reflected the BOJ’s long-standing view that it would take considerable time to achieve the 2% target.
Therefore, the numerical value of 2% was not excluded from the price stability goal. Nonetheless, the word "goal" (especially the connotation of the related term medo, which was adopted in the Japanese version) and the ambiguous references to the range had connotations of passiveness. As a result, it was not clear to the public and market participants whether the BOJ was ultimately pursuing the 2% level or a lower one, and whether the BOJ was firmly determined to overcome deflation.

C. Adoption of the 2% Price Stability Target through the Joint Statement with the Government

Given this background, the BOJ’s adoption of a single inflation target was a big leap from its past practices. On 22 January 2013, the BOJ shifted from a price stability goal to a price stability target and defined the latter as 2% of the year-on-year change in the consumer price index (CPI). Achieving the 2% price target refers to realizing 2% inflation in a stable manner, namely, achieving inflation of around 2% on average over time.

The 2% price stability with massive monetary easing was a part of the December 2012 election campaign promises for the House of Representatives led by Mr. Shinzo Abe. Therefore, the price stability target was adopted together with the government as a part of stronger policy coordination efforts to achieve a common goal—overcoming long-standing mild deflation and achieving sustainable economic growth. In the Joint Statement of the Government and the Bank of Japan on Overcoming Deflation and Achieving Sustainable Economic Growth issued on 22 January 2013 by the Ministry of Finance, the Cabinet Office, and the BOJ, the government committed to revitalizing the economy by flexibly managing macroeconomic policy (perceived as conducting fiscal stimulus) and carrying out various actions to reform the economic structure by concentrating resources on innovative research and development (R&D), strengthening the foundation for innovation, carrying out bold regulatory and institutional reforms, and better utilizing the tax system. Moreover, the aim of establishing a sustainable fiscal structure to ensure the credibility of fiscal management was said to be pursued.5

On the BOJ side, the Joint Statement stipulated that the BOJ would pursue monetary easing to achieve this price stability target as early as possible. At the same time, however, the BOJ reiterated that it may take considerable time to achieve 2% in a sustainable manner. This reflects the view that the target is achievable provided the key players—government, firms, financial institutions, etc.—make greater efforts toward strengthening the competitiveness and growth potential of Japan’s economy. The BOJ also made it clear that it would monitor whether there is any significant financial instability risk arising from monetary easing.

The adoption of the 2% target in January 2013 was a very important step for the BOJ as the problems mentioned above—such as ambiguity and doubts about the BOJ’s determination to overcome deflation—were finally eliminated. Furthermore, since my appointment as a member of the Policy Board, it has been my view that long-term inflation should be well above 1% and eventually move toward 2%—or the same level as that targeted by major central banks. Therefore, I regarded the adoption of the 2% target as a major change in the history of the BOJ’s conduct of monetary policy.

With the adoption of the 2% price stability target, the BOJ’s Public Statement released after the January 2013 Monetary Policy Meeting indicated that the BOJ “will pursue aggressive monetary easing, aiming to achieve the 2% target, through a virtually zero interest rate policy and purchase of financial assets, as long as the Bank [BOJ] judges it appropriate to continue with each policy measure respectively.” This was a remarkable change from the BOJ’s past monetary policy conduct. Nonetheless, some doubts were expressed by the public and markets as to whether the 2% target was really achievable within the existing monetary policy framework (such as the existing asset purchase schedule and a method to purchase assets without defining the end date to be introduced in January 2014), as described in detail in the following subsection.

2.4 Issues and Criticism Related to the Framework of CME

One of the criticisms against CME was the complexity arising from the coexistence of two types of asset purchase operations. In particular, a seriously confusing problem arose from the fact that the purchase of JGBs was conducted through two types of operations: (1) one under the Asset Purchase Program, and (2) the other as a regular JGB purchase operation (which is informally referred to as a Rinban Operation). Since my appointment as a member of the Policy Board, I have repeatedly emphasized that the BOJ should integrate these two operations to avoid unnecessary complexity, as compared with other central banks, and other related problems, as explained below.

A. Complexity Arising from the Two Asset Purchase Operations

A Rinban Operation aims to purchase JGBs (on the asset side of the BOJ) according to an increase in the banknotes issued (on its liability side). An increase in the amount outstanding of JGB holdings under the Rinban Operation was limited relative to that of the Asset Purchase Program—despite the large amount outstanding of around 65 trillion yen at end-2012. However, the Rinban Operation purchased a wide range of remaining maturities from just under 1 year up to 30 years. This differed substantially from the Asset Purchase Program, under which JGBs were purchased with a remaining maturity of around 1 to 3 years only. Furthermore, the maximum amount of JGB holdings under the Rinban Operation was set at the amount outstanding of banknotes issued. The imposition of a cap on JGB holdings—often called the Banknote Principle—reflected two purposes: one was to provide the so-called Growth Currency (Seicho Tsuka in Japanese) and the other was to avoid the misperception of monetization.

Issues from the Viewpoint of Growth Currency

With regard to the first purpose, the BOJ positioned the Rinban Operation as a means of providing Growth Currency so that this operation could be separated from that for monetary easing. The idea reflects the view that the amount outstanding of banknotes issued tends to rise in line with the size of the economy (i.e., nominal GDP). Since economic growth calls for a more or less proportionate growth in the amount outstanding of banknotes issued, those banknotes could be regarded as Growth Currency. Banknotes could be considered a long-term liability of the BOJ since they are related to the size of the economy; therefore, it was appropriate to purchase JGBs as a long-term asset according to the amount outstanding of banknotes issued.
In such a situation, purchasing JGBs could be regarded as relatively neutral to short-term business cycles and price movements; it would therefore have a limited impact on the JGB market. In other words, the purchase of JGBs to fulfill this long-term purpose did not constitute an operation for monetary easing. Indeed, other central banks such as the Federal Reserve and the Bank of England (BOE) engage in purchasing their treasury securities (including long-term ones) in normal times as a counterpart to the increase in the amount outstanding of banknotes issued; thus, a regular purchase operation similar to the Rinban Operation is normally adopted elsewhere.

However, it seems that such a viewpoint no longer prevails among major central banks in the downturn triggered by the global financial crisis. In my view, this is because the recent increase in the amount outstanding of banknotes issued is caused by factors other than economic growth—specifically, aggressive monetary easing and its effects. For example, the declining opportunity cost of holding banknotes (and coins) caused by extremely low short-term interest rates may have led to higher demand for banknotes relative to the growth of the economy. This may lead to difficulties in differentiating the purchase of treasury securities between that corresponding to the increase in the amount outstanding of banknotes issued and that related to monetary easing.

Since the global financial crisis began, the Federal Reserve and the BOE have deviated temporarily from the regular purchase operation similar to a Rinban Operation and have purchased treasury securities (and other assets) far beyond the outstanding amount of banknotes. Moreover, all those purchased assets tended to be regarded as a result of monetary easing. In other words, other central banks maintained the same purchasing method of regular operations by switching the purpose to an accommodative monetary policy and, in some cases, lengthening the maturity of the purchase operation.

**Issues from the Viewpoint of Monetization and Complexity**

The BOJ differentiated the JGB purchase under the Asset Purchase Program from the regular Rinban Operation, and it regarded the former only as a tool of “temporary” monetary easing. This action reflected the view that avoiding the misperception of monetizing the fiscal deficit was a priority. Since the establishment of the Asset Purchase Program in October 2010, however, the duration of monetary easing became longer, and the total amount of JGBs purchased under the two operations already exceeded the amount outstanding of banknotes; this has virtually broken the Banknote Principle.

In addition, the separation of the two operations caused a problem in that the true scale of monetary easing (as well as the average maturity length of JGBs purchased) was underestimated by the public and market participants; this is in contrast with the actions of the Federal Reserve and the BOE, which covered the total amount of asset purchases. The BOJ decided, therefore, in August 2011 to place a footnote describing the yearly amount of JGB purchases under the Rinban Operation in the Public Statements whenever monetary easing was increased.

Contrary to the initial purpose, however, inserting the footnote appears to have amplified perceptions of complexity without promoting an understanding of the BOJ’s intention. Furthermore, the BOJ occasionally explained to the public and market participants that the scale of its monetary easing was similar to that of other central banks by comparing the size of the BOJ’s balance sheet both in its absolute value and in terms of GDP.
However, this behavior may have caused some kind of inconsistency since the balance sheet reflected the results of JGB purchases under the two operations—despite the BOJ’s declaration that only the Asset Purchase Program constituted monetary easing.

To deal with this complexity and inconsistency, I therefore believed that there was a strong rationale for merging the two operations. In particular, I strongly believed that it was necessary to integrate the two operations when I started to consider a maturity extension of JGB purchases under the Asset Purchase Program from the maximum 3 years to about 5 years from late 2012. This was because lengthening the maturity under the Asset Purchase Program was likely to give a sense of overlap with the Rinban Operation—given that, as of March 2013, the average maturity of the Rinban Operation was about 4 years and that of the Asset Purchase Program about 2 years. This view was reflected in my proposal submitted in March 2013, as described in Chapter 3.

B. Perceived as a Piecemeal Approach and Lack of Boldness

There was growing criticism domestically and abroad that the BOJ’s policy lacks credibility. A factor contributing to this perception was related to the way the BOJ conducted monetary easing. Since its introduction in October 2010, the size of the Asset Purchase Program has been increased nine times. If the total size of the increase under the Asset Purchase Program is taken into account, it is fair to say that the BOJ’s monetary easing was quite substantial. Nonetheless, the scale of increase undertaken each time was in the range of 5–10 trillion yen, and it seems that many people viewed this piecemeal approach as lacking boldness.

In addition, it was pointed out that the BOJ’s communication strategy was not so effective, and the perception spread domestically and globally that the BOJ was being passive in tackling deflation. Moreover, there are deep-rooted views that exiting accommodative monetary policies in the past—for example, the zero interest rate policy in August 2000 and Quantitative Easing (QE) in March 2006—was done too early, as mentioned in Chapter 1. Such past experiences appear to have added to the view that the BOJ might not be a determined deflation fighter.

C. Limitation of the Asset Purchase Program under CME

Another factor contributing to a perceived lack of credibility was associated with the eroding effectiveness of monetary easing under the Asset Purchase Program. The intensified purchase of JGBs up to a maximum remaining maturity of 3 years has already flattened the yield curve within that maturity zone, leaving limited room for further decline.

The next possible move that could then be considered is extending the maturity beyond 3 years. We may recall the case of extending the maximum maturity from 2 years to 3 years in April 2012. At that time, market expectations over the maturity extension preceded the BOJ’s decision—based on the observation that the increase in the committed amount under the Asset Purchase Program was gradually getting harder to achieve. With such market expectations, extending the maturity not only reduced the effectiveness of monetary easing, but it also generated a sense that the BOJ was being passive with respect to monetary policy. Since the early part of 2013, market expectations about the maturity possibly being extended to 5 years have emerged, and these mainly reflect a sense of deadlock under the program. And such market expectations were already reflected in the yield curve. This experience suggested that it was necessary for the BOJ to look for a completely different framework for purchasing JGBs.
To achieve the 2% price stability at the earliest possible time, the Public Statement released on 22 January 2013 indicated that the BOJ will pursue aggressive monetary easing through a virtually zero interest rate policy and purchase of financial assets. While this was a remarkable jump in the history of the BOJ’s monetary policy conduct, some doubts were expressed by the public and market participants as to whether the target is achievable within the existing monetary policy framework.

2.5 Macroeconomic Performance under CME

The effectiveness of CME on macroeconomic performance seemed limited not only because mild deflation persisted for long, but also because long-term inflation expectations remained unanchored. With regard to the effectiveness of CME on yields, JGB yields and the risk premia fell significantly, which supported the economy. JGB yields on the 1-year, 2-year, and 3-year JGBs dropped from 0.11%, 0.12%, and 0.13%, respectively, at end-September 2010 (before the CME introduction) to 0.05%, 0.057%, and 0.05%, respectively, by end-March 2013. Moreover, the JGB purchases with maturity up to 3 years induced longer-term yields as well. For example, 10-year yield had dropped from 0.94% at end-September 2010 to 0.56% by end-March 2013.

A. Yen’s Overvaluation and Sluggish Stock Price Developments

Nevertheless, the yen continued to appreciate against the US dollar over this period until the dissolution of the Lower House of the Diet on 16 November 2012 by the then Prime Minister Yoshihiko Noda of the then ruling Democratic Party of Japan (now Democratic Party) and subsequent growing expectations that a new economic stimulus package was to be introduced by Shinzo Abe, leader of the then opposition Liberal Democratic Party after the election to be held the next month.

The yen appreciated against the US dollar from around 84 yen in September 2010 to around 76 yen immediately after the Great East Japan Earthquake and Tsunami of 11 March 2011. This led to coordinated intervention in the foreign exchange market on 18–19 March 2011 by the Minister of Finance of Japan with the BOE, the Federal Reserve, and the Bank of Canada, with the total amount of intervention reaching about 800 billion yen (of which Japan contributed about 693 billion yen or 87% of the total amount). The yen again appreciated to around 76 yen on 4 August 2011, which led to another intervention in the foreign exchange market, but this time conducted solely by the Ministry of Finance of Japan on a massive scale of 4.65 trillion yen. However, the yen continued to move below 80 yen, which led to further interventions on 31 October 2011 with an amount of 8.7 trillion yen and on 1–4 November 2011 with an amount of around 1 trillion yen.

Since then, the Ministry of Finance has stopped intervening in the foreign exchange market. Instead, the criticism by the public and markets against the BOJ strengthened, for BOJ failed to provide sufficient monetary easing given the overvaluation of the yen. The yen remained at around or below 80 yen until October 2012. After that, the yen began to depreciate vis-à-vis the US dollar to around 84 yen in December 2012 and 95 yen by March 2013 immediately prior to the introduction of QQE (Figure 2-1). The yen’s nominal effective exchange rate also depreciated (Figure 2-2).

Similarly, Japanese stock prices remained stagnant for most of the same period (Figure 1-9). The Nikkei 225 rose from around 9,367 yen at end-November 2010 to over 10,000 yen between end-December 2010 and end-February 2011, but has since remained below 10,000 yen except in March 2012. The Tokyo Stock Price
Index (TOPIX) was about 830 points at end-September 2010 and remained more or less at this level from October 2010 until it dropped to below 800 points from August 2012 to November 2012. In anticipation of the new so-called Abenomics stimulus package, stock prices rose from November 2012 to March 2013: the Nikkei 225 rose from around 9,446 yen to around 12,397 yen, and TOPIX from around 781 points to around 1,013 points. Therefore, a decline in JGB yields under CME generated an accommodative monetary environment, but this was somewhat offset by the yen's sharp and continuous appreciation and sluggish stock prices until end-2012 (Figure 1-9).

Moreover, CME was not successful in conquering deflation—partly owing to a series of domestic and external events, such as the Lehman shock, the European Sovereign Debt Crisis, the Great East Japan Earthquake and Tsunami, and the Thailand Floods of 2011 (Figure 1-2). More importantly, there was a growing opinion in Japan and abroad that the 2% price stability target was unachievable under CME. This meant that the BOJ’s framework was regarded as having limited credibility.

B. Sluggish Price Developments and Long-Term Inflation Expectations

Regarding prices, the year-on-year rate of change in the CPI remained either negative or fluctuated at around zero percent during the period of CME (Figure 2-5). The price performance remained well below that of the eurozone, the US, and the United Kingdom. Looking at long-term inflation expectations, economists’ inflation expectation indicators remained positive and above 1% so that a significant, consistent gap existed between a rate of inflation expectations and a realized rate of change in core CPI (Figure 2-6)—the same phenomenon pointed out in Chapter 1. Moreover, households’ inflation expectations remained stable at around 2%-3% during this period, suggesting the presence of significant upward bias (Figure 2-7). Therefore, it appears that these long-term inflation expectations were not very relevant to the realized rates of the CPI. No apparent impact from such inflation expectations to actual price developments could be observed. It is not clear whether the BOJ took the gap very seriously or felt relieved given that inflation expectations consistently exceeded actual inflation.

Figure 2-5: Rates of Change in the CPI in Major Economies: 2005–2013 (%)
Figure 2-6: Long-Term Inflation Expectation and Rate of Change in Core CPI: 1990–2012 (%)

CPI = consumer price index.
Sources: Consensus Economics Inc. Consensus Forecasts; Statistics Bureau, Ministry of Internal Affairs and Communications.

Figure 2-7: Households’ Long-Term Inflation Expectations: 2007–2013 (%)

Note: Data is based on median of respondents. The responses exclude the effects of the consumption tax hikes from the June 2013 survey.
C. Experiences in the United Kingdom

In retrospect, a number of other advanced economies successfully lowered their long-term inflation expectations from the high levels in the 1990s, and those expectations gradually converged to more or less 2%. Such a decline also coincided with a drop in actual inflation. There is a consensus among central banks that this phenomenon is closely associated with the establishment of central bank independence and the adoption of inflation targeting or a framework to emphasize price stability in a high inflation environment.

In the case of the United Kingdom, for example, the BOE adopted inflation targeting in 1992, with the initial target being set in the range of 1%–4% with the retail price index as a basis. The target was subsequently changed to 2.5% in 1997. In 1997, the BOE achieved operational responsibility for setting interest rates and established the Monetary Policy Committee. In late 2003, the target price index was shifted from the retail price index to the consumption price index and the latter was defined as 2% (Figure 2-8). More or less in line with the target, the long-term inflation expectations in that country converged at around 2.5% in the 1990s and have been around 2% since 2004. For the United Kingdom, which has been successfully stabilizing those expectations at around 2%, the current view is that expectations should be maintained at the current stabilized level. Inflation below 2% is judged to be just as bad as inflation above 2%. If actual inflation becomes more than 3% or less than 1%, the Governor of the BOE must write an open letter to the Chancellor of the Exchequer, explaining the reasons for such a deviation and providing prescriptions for correcting it.

Figure 2-8: Inflation Rates and Long-Term Inflation Expectations in the United Kingdom: 1990–2012 (%)
In the case of the US, the Federal Reserve conducts monetary policy to promote price stability and maximum employment under the Federal Reserve Act. For a long time, it had been known that the Federal Reserve regards the price stability objective as around 2% inflation on the personal consumption expenditure (PCE) price index basis. Therefore, there was no surprise when it clarified that 2% inflation was the longer-run goal in January 2012. The Federal Reserve and the BOE share the view until today that their long-term inflation expectations are anchored at around 2%, and thus a convergence of realized inflation toward the 2% target is possible.

To achieve the 2% price stability target, the BOJ needs to firmly establish 2% long-term inflation expectations in the minds of the public and markets. In other words, the BOJ needs to undertake an accommodative monetary policy with two main aims: achieving economic recovery and anchoring inflation expectations at the target level. Contrast this with the situation of other economies’ central banks. Their inflation expectations are already well anchored at the target level of inflation, and thus their primary aim is achieving economic recovery.

In Japan, the second aim of anchoring inflation expectations requires the BOJ to first help transform the deflation-oriented behavior of some entities—particularly firms—and then to steadily raise their inflation expectations. In this context, the BOJ’s task can be considered more challenging than in other economies, and its forward guidance operates under different circumstances. It needs to particularly target price movements and have a stronger commitment regarding monetary easing policies; these views led to adoption of the massive monetary easing in April 2013. Moreover, such massive monetary easing should accompany well-designed communication strategies targeting the public and well-informed market participants separately. Communication strategies are as important as implementation of monetary easing measures since raising inflation and inflation expectations are counterintuitive, and thus it is difficult to obtain public support for them.
This chapter sheds light on super-easy monetary policy called Quantitative and Qualitative Monetary Easing (QQE) in place since its adoption in April 2013 under Haruhiko Kuroda’s governorship. There is no doubt that the degree of monetary accommodation realized by QQE was unprecedented in Japan and beyond the expectations of the public and domestic and foreign market participants. While its Asset Purchase Program was extended from the previous Comprehensive Monetary Easing (CME), its scale of asset purchases was expanded almost to the maximum level and the maturity of the Japanese Government Bonds (JGBs) that could be purchased by the BOJ was extended to the maximum 40 years.

3.1 The Three Phases of Super-Easy Monetary Policy

In my view, the period from the introduction of QQE in April 2013 to the present can be classified into the following three phases: (1) the first phase from April 2013 to mid-January 2016 (QQE and QQE expansion), (2) the second phase from end-January 2016 to mid-September 2016 (negative interest rate policy and exchange-traded fund [ETF] purchase expansion), and (3) the third phase from late September to the present (yield curve control), as shown in Figure 3-1. This chapter will focus on the first phase, during which the basic framework of QQE was set up, Chapter 4 will shed light on the second phase, and Chapter 5 will focus on the third phase. This chapter first provides an overview of my proposal on an expansion of monetary easing submitted at the March 2013 Monetary Policy Meeting prior to the adoption of QQE, followed by detailed descriptions of QQE and its effectiveness.

Figure 3-1: Three Phases of Super-Easing Monetary Policy since 2013

ETFs = exchange-traded funds, QQE = Quantitative and Qualitative Monetary Easing.
Source: Author.
3.2 My Proposal on Monetary Expansion Submitted in March 2013

As mentioned in Chapter 2, I have been a long-term advocate of integrating the two operations (the Rinban Operation and the operation under the Asset Purchase Program) for purchasing JGBs. Since 2015, I have also raised this issue in addition to making the case for a further monetary easing package and decided to present it as an official proposal at the March 2013 Monetary Policy Meeting. It was the last meeting under then Governor Shirakawa; and therefore, I thought a submission of the proposal was particularly meaningful to remind Policy Board members about some of the policies that I always thought were important to change under CME. The action of clarifying my stance again was my way of taking responsibility and thus had to be done at the final Monetary Policy Meeting before the Policy Board members change—this was my thinking at that time.

The content of my proposal can be roughly summarized as follows: First, the maximum remaining maturity of JGB purchases under the Asset Purchase Program should be extended to around 30 years (since the Rinban Operation was purchasing JGBs with maturity up to 30 years) by integrating the two operations to exert downward pressure on the whole yield curve. An extension of the maturity of JGB purchases would likely facilitate the BOJ’s operations, enhance the effectiveness of monetary easing, and signal its firm determination to overcome deflation.

Second, the monthly purchase of JGBs should increase from the existing 4 trillion yen (namely, the combined amount of the two operations and including the amount of reinvestment) to at least about 5 trillion yen; and the open-ended asset purchasing method should be brought forward from early 2014 to the earliest possible date.

In addition, my view was that the average remaining maturity of JGB purchases should be extended from the current level of slightly under 3 years (after the combined amount) to over 4 years by increasing the purchase of JGBs with a remaining maturity of about 5 years. Regarding the zoning of the remaining maturities, I felt that it could be divided into the following four zones: up to 3 years, 3–5 years, 5–10 years, and 10–30 years. This was because the zone up to 3 years includes 2 years, the zone for 3–5 years includes 5 years, and the zone for 5–10 years includes 10 years, whose maturities coincide with those of newly issued bonds, respectively. And, newly issued bonds tend to be more liquid than off-the-run issues. However, since the scale of potential demand in each zone is uncertain, my proposal stated that such details should be determined based on input provided by the BOJ’s staff.

3.3 The Features of the QQE Policy

Mr. Haruhiko Kuroda, who had been President of the Asian Development Bank since 2005, was appointed as Governor of the BOJ on 20 March 2013. His mission was to achieve the 2% price stability target within 2 years. He had long been known as a critic of the BOJ’s monetary policy and had already expressed confidence in being able to achieve 2% in 2 years before he was officially nominated as a candidate for the governorship.

Mr. Kikuo Iwata, who became Deputy Governor when Mr. Kuroda became Governor, was also known as a monetarist who believes in a clear relationship between an increase in the monetary base and inflation expectations (and inflation). Also a long-term critic of the BOJ’s policies, Mr. Iwata, a former professor
at Gakushuin University, also declared his confidence in achieving 2% inflation within 2 years during the confirmation hearing before the House of Representatives panel of the Diet. At the panel, he stated that the BOJ should be entirely responsible for achieving 2% inflation and inject more quantitative easing to maintain the yen’s depreciation and the stock price hike. He suggested he would resign from the Deputy Governor post as the best way to take responsibility if the BOJ fails to achieve the 2% target.

At Mr. Kuroda’s first Monetary Policy Meeting on 4 April 2013, the BOJ therefore announced an aggressive QQE. QQE was adopted after analyzing the effectiveness and limitations of the previous monetary policy practices conducted by the BOJ. The scale of monetary easing far exceeded that of market expectations, and the resultant positive market reaction—these market reactions having already materialized since mid-November 2012. After the dissolution of the House of Representatives on 16 November 2012 by the then Prime Minister Yoshihiko Noda of the Democratic Party of Japan and the subsequent general election of 16 December followed by the inauguration of Prime Minister Shinzo Abe’s government, the markets incorporated expected massive monetary easing and the 2% price stability target as well as other radical economic reform packages and policies.

A. Monetary Base Control under QQE

QQE was adopted to achieve the price stability target of 2% at the earliest possible time, with a time horizon of about 2 years. It was comprised of (1) the adoption of the monetary base control, (2) an associated increase in JGB purchases and their maturity extension, and (3) an increase in purchase of ETFs and Japan real estate investment trusts (J-REITs), as summarized in Figure 3-2.

Figure 3-2: The First Phase of Super-Easy Monetary Policy

1st Phase: QQE and QQE Expansion

- **Monetary Easing Stance:** Achieving 2% at the earliest possible time with a time horizon of about 2 years. QQE will continue as long as necessary to achieve the 2% target in a stable manner. The BOJ will not hesitate to add easing.

- **Policy Target:** Change from the policy interest rate to the Monetary Base

**QQE (April 2013):** Quantity (monetary base) and Quality (risk assets, JGB maturity)
- Annual increase of the monetary base: 60–70 trillion yen ($550–$650 billion)
- Annual increase of (1) JGBs (50 trillion yen) with maturity up to maximum 40 years, (2) ETFs (1 trillion yen), and (3) REITs (30 billion yen)
- Average remaining maturity of JGB purchase: 7 years (6–8 years)

**QQE Expansion (October 2014)**
- Annual increase of the monetary base and JGBs: 80 trillion yen each
- Annual increase of ETFs (3 trillion yen) and REITs (90 billion yen)
- Average remaining maturity of JGB purchase: 7–10 years

**source:** Author.

ETFs = exchange-traded funds, JGB = Japanese Government Bond, QQE = Quantitative and Qualitative Monetary Easing, REITs = real estate investment trusts.
Monetary base control is the most important element of QQE; it indicates a shift of the main operating target for money market operations from the uncollateralized overnight call rate to the monetary base. This symbolizes the priority given to “quantity” under Mr. Kuroda’s governorship. Specifically, the guideline for money market operations is set as follows: The BOJ will conduct money market operations so that the monetary base will increase at an annual pace of about 60–70 trillion yen. To achieve this scale of monetary base expansion, the amount of JGB purchase was set to increase substantially. Also, longer-term JGB purchase is quite important with a view to encouraging a further decline in interest rates across the yield curve. Thus, the BOJ decided to purchase JGBs with all maturities up to maximum 40-year bonds so that their amount outstanding will increase at an annual pace of about 50 trillion yen. Also, the BOJ introduced guideline for the average remaining maturity for the JGB purchases and set it at about 7 years (a range from about 6 to 8 years), substantially extending it from slightly less than 3 years under CME.

Although the scale of purchases is certainly not as large as that of JGBs, the amount of ETF and J-REIT purchases were increased with a view to lowering risk premia of asset prices—ETF and J-REIT purchases would be made such that their amounts outstanding increase at an annual pace of 1 trillion yen and 30 billion yen, respectively. As for commercial paper (CP) and corporate bonds, the BOJ decided to continue with those asset purchases as had been set in December 2012 and January 2013 under CME, increasing them until their amounts outstanding reach 2.2 trillion yen and 3.2 trillion yen, respectively, and thereafter maintaining those amounts outstanding.

To demonstrate its intention to achieve 2% inflation at the earliest possible time, with a time horizon of about 2 years, the BOJ announced that it would double the monetary base and the amounts outstanding of JGBs and ETFs in 2 years, and more than double the average remaining maturity of JGB purchases. At the same time, the BOJ decided to continue QQE, aiming to achieve the price stability target of 2%, as long as it is necessary for maintaining that target in a stable manner. It will examine both upside and downside risks to economic activity and prices, and make adjustments as appropriate. These expressions could be regarded as conditional and state-contingent forward guidance or the guideline on the future monetary easing stance, as described in subsection 3.5.

B. Mr. Kuroda’s Confidence about Achieving 2% Inflation in 2 Years

As described in Chapter 2, the BOJ previously held the view that it might take some time to achieve the 2% target because people have been accustomed to a low-price environment in the past and substantial collective efforts are necessary to strengthen potential economic growth and hence inflation expectations. Contrary to this view, Mr. Kuroda’s confidence in achieving 2% in 2 years appeared to reflect his view that monetary policy alone could do so even in the absence of comprehensive and drastic structural reforms.

My view was that it would likely take at least 3 years to get close to 2% under the condition that households and firms understand the need to achieve the target and support it. While I still took the BOJ’s original view manifested in the Joint Statement, I supported QQE because I felt that the BOJ should maximize its monetary easing measures to demonstrate its strong determination to conquer deflation and achieve the 2% target. This is especially so given that the BOJ had lost credibility to a significant degree over a series of past monetary easing policies adopted to cope with mild deflation beginning in 1999.
Also, the timing seemed appropriate. For example, the government adopted expansionary fiscal measures in addition to making (still ongoing) reconstruction efforts after the 2011 Great East Japan Earthquake and Tsunami, while expressing its clear determination to raise potential economic growth through various reforms. Expectations of stronger monetary easing since end-2012 had already favorably affected some markets, including the exchange rate, stocks, and the J-REIT markets. Firms and households had developed a more positive outlook for the economy. In this favorable environment, I held the view that it might be possible to raise long-term inflation expectations in a stable manner by adopting a bold monetary policy.

C. Similarities and Differences between QQE and My Proposal

Common features between QQE and my proposal in March 2013 include the following: (1) an emphasis on JGBs as the most important financial asset purchased by the BOJ to achieve the 2% price stability target as soon as possible, (2) an emphasis on exerting downward pressure on the whole yield curve, and (3) integration of the Rinban Operation with the Asset Purchase Program.

However, there are differences in the size of the purchase. QQE concentrates on purchasing about 50 trillion yen in JGBs (on a net basis) annually over 2 years. Converting the yearly purchasing pace into a monthly pace and calculating it on a gross basis (including the amount of reinvestment), QQE is scheduled to purchase 7+ trillion yen monthly over 2 years—much greater than the amount of at least 5 trillion yen to be purchased through the open-ended asset purchasing method, as suggested under my proposal. The monthly pace of purchase of about 5 trillion yen was estimated based on the assumption that monetary easing would continue for longer periods. However, QQE attempts to achieve the 2% target at the earliest possible time and it includes a time horizon of about 2 years; thus, the purchase rate naturally became greater. Although I considered that the rate of about 5 trillion yen was a reasonable figure, after submitting my proposal in March 2013 I began to believe that bolder action was necessary to send a strong signal about the BOJ’s determination to achieve the 2% target.

Furthermore, when QQE was introduced, I supported the monthly purchase rate of 7+ trillion yen for two reasons. First, the amount appeared to hit the right balance between the amount under my proposal and about 10 trillion yen (which is roughly equivalent to the monthly gross issue of JGBs by the Ministry of Finance). If the amount had been closer to 10 trillion yen, the markets may have misunderstood this as an operation to monetize the fiscal deficit. Second, the scale of the operation was comparable to that of other central banks, including the Federal Reserve. In the past, the BOJ’s monetary easing had not been considered to be as bold as that of the Federal Reserve.

D. Comparable to the Federal Reserve’s Asset Purchase Program

Under QQE, the monthly purchase of JGBs by the BOJ on a net basis amounted to about 4 trillion yen, whereas that of securities by the Federal Reserve in those days was about 85 billion US dollars (of which 45 billion US dollars is accounted for by US Treasury securities and 40 billion US dollars by agency mortgage-backed securities [MBSs]). After the Lehman Shock and a sharp slowdown in the economy, the Federal Reserve announced a series of large-scale asset purchases (LSAPs) starting in November 2008.
According to the Federal Reserve, LSAPs continued from late 2008 until October 2014 when the amount of monthly asset purchases dropped to zero and the process to cut the monthly asset purchase amount (so-called tapering) was completed—LSAP 1, LSAP 2, Maturity Extension Program (MEP), and LSAP 3. Among them, LSAP 1 (from late 2008 to late 2009) purchased in total about 1.25 trillion US dollar equivalent in US treasury securities, agency MBSs, and agency debt. LSAP 2 (from late 2010 to mid-2011) purchased in total about 600 billion US dollar equivalent in treasury securities. MEP (from September 2011 to late 2012) started with a monthly purchase of about 40 billion US dollars, and this was increased to around 45 billion in mid-2012 to purchase treasury securities with remaining maturity of 6–30 years in exchange for selling the equivalent amount of treasury securities with remaining maturity below 3 years. LSAP 3 (September 2012 to October 2014) started with a monthly purchase of 40 billion US dollar equivalent in agency MBS; the monthly purchase amount was then increased to 85 trillion US dollars by adding a monthly purchase of 45 trillion yen equivalent in treasury securities from January 2013 to December 2013. Under LSAP 3, tapering was decided in December 2013 and began from January 2014 by cutting about 10 trillion US dollars at each Federal Open Market Committee (FOMC) and ended in October 2014 by cutting the remaining 15 billion US dollar.

Given that Japan is about 40% the economic size of the US (in terms of nominal GDP), the BOJ’s monthly purchase amount of about 4 trillion yen could be regarded as relatively large. In addition, extending the average remaining maturity of JGB purchases by the BOJ to about 7 years (6 to 8 years) has made it more or less comparable to that of securities purchases by the Federal Reserve (about 9 years in the case of US Treasury securities).

3.4 Four Features Related to the QQE Framework

In my view, QQE has essentially four distinct features compared with previous monetary easing measures adopted by the BOJ.

A. Emphasis on Inflation Expectations with the Monetary Base Target

First, QQE emphasized people’s inflation expectations or projected inflation as one of the most important channels for achieving the 2% target. While inflation expectations could refer to both short-term (inflation expected within a time horizon of less than 1 year) and long-term (inflation expected with a time horizon of over 1 year), inflation-targeting central banks including the BOJ put emphasis on long-term inflation expectations. This feature draws a clear line between QQE and the previous CME. If people expect inflation to rise in the long term, this may positively affect the current levels of sale prices and wages. Moreover, as long as the pace of increase in inflation expectations exceeds that in long-term nominal interest rates, long-term interest rates in real terms will decline and thus support an accommodative monetary environment.
**Why Was the Monetary Base Chosen?**

The question then is how to raise long-term inflation expectations. For this purpose, the BOJ decided to change the main operating target for money market operations from the uncollateralized overnight call rate (i.e., short-term interest rates) to the monetary base (i.e., “quantity”). The monetary base is comprised of cash (banknotes and coins in circulation) and reserve deposits (or roughly financial institutions’ current account deposits with the BOJ).

There are several reasons for having chosen the monetary base. First of all, using the monetary base makes it intuitively easier for the public and markets to grasp the scale of monetary easing: an increase in the quantity can easily be connected to a large-scale supply of cash, thereby creating an image of inflation. In addition, the monetary base is often used in the foreign exchange and financial markets as a reference for measuring the scale of monetary easing across central banks. Moreover, the monetary base is a basic concept presented in macroeconomic textbooks, and so it is globally known. Finally, changing the main operating target effectively signals a change in the monetary policy framework. In addition, one board member stressed a clear relationship between an increase in the monetary base and inflation expectations. Thus, it was decided that the monetary base should rise at an annual pace of about 60–70 trillion yen over 2 years; this would double the amount outstanding from 138 trillion yen at end-2012 to about 200 trillion yen at end-2013 and further to 270 trillion yen at end-2014 (Figure 3-3). The last figure would account for nearly 60% of nominal GDP.

![Figure 3-3: Initial Schedule for Monetary Base and JGB Holdings (Trillion Yen)](image-url)

Source: Bank of Japan.
B. JGB Purchases as a Main Monetary Easing Instrument

The second characteristic of QQE is the purchase of JGBs as the most important tool. The integration of JGB purchases under a regular purchase operation (informally called a Rinban Operation) with the Asset Purchase Program was finally achieved. Moreover, the average remaining maturity of JGB purchases was extended from the previous level of slightly under 3 years (after integrating the two operations) to about 7 years (6 to 8 years) by purchasing JGBs with maturities up to a maximum 40 years; this was done to exert further downward pressure on the whole yield curve. The yearly pace of increase in the amount outstanding of JGBs held by the BOJ was set at about 50 trillion yen, and it would continue over 2 years, thereby doubling the amount outstanding from the end of 2012 to the end of 2014 (Figure 3-3).

These changes constitute a considerable departure from previous practices both in terms of “quantity” (the size of the monetary base and its associated JGB purchase program) and “quality” (the average remaining maturity of JGB purchase as well as risk asset purchases as mentioned further below).

C. Increasing the Amount of Risk Asset Purchases

The third characteristic of QQE is an increase in the purchase of two risk assets—ETFs and J-REITs. Considering the market size and the risk volume borne by the BOJ, the yearly purchase amount was set at 1 trillion yen and 30 billion yen, respectively, over 2 years. This would double the amount outstanding of ETFs from end-2012 to end-2014. Regarding commercial paper (CP) and corporate bonds, it was decided to maintain the amounts outstanding of these holdings given the already low levels of risk premia (expected excess returns demanded by investors relative to safe assets).

D. Clear and Effective Communication Strategies with Keyword “2”

The fourth characteristic of QQE is that the BOJ uses the number “two” a great deal: 2% price stability target, a time horizon of about 2 years, doubling the monetary base and the amounts outstanding of JGBs and ETFs, and doubling the average remaining maturity of JGB purchases. The BOJ does so to send a clear message about the new framework and its strong determination to achieve the 2% target. Indeed, positive reactions were received both domestically and abroad regarding the clarity of the new communication strategy.

E. Differences between QQE and Past Practices

In summary, QQE differs from CME in the following aspects: (1) a greater emphasis on the expectations of the public and markets about the future monetary policy stance (this is why aggressive measures and an active use of forward guidance were adopted); (2) recognition of the importance of their long-term inflation expectations; and (3) larger-scale purchases of longer-term JGBs. Therefore, the effectiveness of QQE was thought to be greater than that of CME—mainly through exerting greater downward pressure on the entire yield curve, through a stronger impact on the portfolio rebalancing and wealth effects, and through an indirect impact on the yen’s exchange rate. QQE was also likely to promote an increase in inflation expectations, thereby contributing to lowering long-term interest rates in real terms.
3.5 Forward Guidance on the Stance of Monetary Policy under QQE

The BOJ has a long history of practicing forward guidance to generate more monetary easing under the so-called zero lower bound. There are some empirical analyses pointing to the effectiveness of this policy in Japan, particularly with regard to the impacts on financial markets. Forward guidance also constitutes an important element of QQE. I will first explain the forward guidance used under the QQE policy, then provide my views on the rationale for its structure.

A. Forward Guidance under QQE

The BOJ released Public Statement on 4 April 2013, with the introduction of QQE, containing the following two descriptions regarding the time span of monetary accommodation:

*The Bank [BOJ] will achieve the price stability target of 2 percent . . . at the earliest possible time, with a time horizon of about two years (I will call this the first set of forward guidance).*

*The Bank [BOJ] will continue with QQE, aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner. It will examine both upside and downside risks to economic activity and prices, and make adjustments as appropriate (I will call this the second set of forward guidance).*

Regarding the relationship between these two descriptions, Governor Kuroda explained in his speech on 12 April 2013 that QQE included all the necessary measures to achieve the 2% target with a time horizon of approximately 2 years. He stressed, however, that because there is uncertainty in any economy and always a degree of latitude in people’s expectations, it was appropriate to state that the BOJ would continue with monetary easing as long as it was necessary to achieve the 2% target in a stable manner so that everyone was convinced that sufficient monetary easing would be implemented. Thus, these two descriptions are closely connected to reinforce the credibility of the BOJ’s commitment to achieving its stated target. Taking an overview of the BOJ’s current and past forward guidance practices, it can be said that both the price stability objective and the related monetary policy conduct are clearer under QQE than they had been in the past.

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B. Relationships between the Two Descriptions

In my view, this unique structure of providing two sets of forward guidance is attributable to the BOJ’s challenging tasks of transforming the deflationary mindset and of increasing inflation expectations to anchor around the 2% level. The first set of forward guidance was included in the first part of the released Public Statement and was positioned as the rationale for introducing “a new phase of monetary easing both in terms of quantity and quality.” To implement this bold new monetary policy, the BOJ decided to adopt the monetary base as the main operating target for money market operations. Decisions were also made to double the monetary base and the amounts outstanding of JGBs and ETFs in 2 years by end-2014, and to more than double the average remaining maturity of JGB purchases.

The purpose of this first set of forward guidance was to signal to the public and markets the BOJ’s strong determination to achieve its 2% target within a time horizon of about 2 years, which used to be pursued in normal conditions by other major central banks under the inflation targeting framework. The guidance combines both calendar-based (i.e., about 2 years) and state-contingent (i.e., 2%) features. The calendar-based feature was considered to be essential to gain the confidence of the public and the markets in both the BOJ’s intention and the possibility of achieving 2% at the earliest possible time. An improvement in confidence may accelerate the pace of increasing long-term inflation expectations and may enhance the responsiveness of price changes to the supply–demand balance.

The second set of forward guidance was placed under the subheading “the continuation of QQE” in the middle part of the Public Statement. It is a conditional commitment, because the continuation of monetary easing is subject to the examination of upside and downside risk factors. It is also a state-contingent one (i.e., 2% in a stable manner), linked to the continuation of QQE, and plays a greater role than the first set of forward guidance in stabilizing long-term inflation expectations at around 2%.

These two sets of forward guidance are not mutually exclusive, as the first set of guidance can be considered the necessary condition for achieving the second, whereas the second set of forward guidance shows a strong commitment to continue QQE for as long as necessary to stably achieve the 2% target. Therefore, while the time horizons of these two sets of guidance overlap, the second set of guidance may imply a somewhat longer time horizon. In addition, the second set of guidance plays an essential role in reducing volatility of long-term interest rates, and in preventing them from overshooting.

In my view, this second set of guidance calls for any necessary actions by the BOJ beyond the 2-year horizon, if it judges it necessary in light of stably achieving 2%. It also suggests that the BOJ will not consider an exit from monetary easing before this state-contingent guidance is achieved.

C. What Does “In a Stable Manner” Mean?

As a related issue, the expression “in a stable manner” described in the BOJ’s second set of forward guidance may give the impression of a vague description of the conditions. However, I viewed this expression to be appropriate at that time, because the formation of long-term inflation expectations entails uncertainty. This is especially true when the BOJ attempts to raise inflation expectations, and subjective judgment by the Policy Board members is unavoidable on whether long-term inflation expectations will be stabilized at around 2%, and when.
Moreover, to my knowledge there is no example in other major economies where central banks raised inflation targets and inflation expectations, for the BOJ to use as a reference. Some measurement constraints also exist, including the fact that (1) there are no precise indicators measuring the inflation expectations of households and firms; (2) statistical bias is included in some survey data—for example, households’ inflation expectations tend to be upward-biased in Japan as pointed out in Chapter 1 and Chapter 2, while the diffusion index (DI) for expected sale prices in the Tankan (Short-Term Economic Survey of Enterprises in Japan) tends to be downward-biased; (3) in terms of market-based indicators, the impact of the BOJ’s JGB purchases needs to be taken into account since the breakeven inflation rate indicator reflects the differences in liquidity between fixed-rate and inflation-indexed bonds; and (4) inflation swap rate, which is another market-based indicator, faces limited liquidity in the inflation swap markets, and market participants are frequently dominated by foreign investors.

Nevertheless, as prices and economic activity steadily increase and as the process of increasing inflation expectations becomes clearer, the BOJ should refine the second set of guidance with more specific information so that the public and markets would better understand the duration of continuing QQE.

### 3.6 Transmission Mechanism for Achieving the 2% Target and Market Reactions

It is widely known that long-term (nominal) interest rates can generally be decomposed into two components: (1) the risk premia and (2) the expected path of future short-term (nominal) interest rates (Figure 3-4). QQE aimed at lowering long-term interest rate in real terms (long-term real interest rates) or long-term JGB yields in real terms. The risk premium or term premium is comprised further of inflation risk (reflecting market risk caused by inflation uncertainty), liquidity risk (related to the liquidity and functioning of the JGB market), credit risk (related to solvency of the government), and other risks (such as risk related to real economic growth and consumption growth). The expected path of future short-term interest rates is decomposed into long-term inflation expectations and the expected path of future short-term real interest rates. The latter reflects a saving–investment gap, potential economic growth, etc.

To measure the long-term interest rate, 10-year JGB yield is most-frequently used among major central banks. The long-term real interest rate is generally measured roughly by the difference between 10-year government bond yield and long-term inflation expectations (and risk premia).

**Figure 3-4: Factors Affecting the Long-Term Interest Rate**

Source: Author.
A. QQE’s Expected Impacts on Long-Term Interest Rates

Based on this understanding, JGB purchases are expected to generate downward pressure mainly on the risk premia and then on the expected path of short-term (nominal) interest rates (this latter effect is called the Signaling Effect). Moreover, the BOJ’s commitment to continue with QQE as long as it is necessary for maintaining the 2% price stability target in a stable manner is also likely to intensify the downward pressure. Meanwhile, an improvement in the economic outlook and a gradual rise in long-term inflation expectations may lead to an increase in the expected path of short-term interest rates. This path may also be influenced by a rise in overseas long-term interest rates, which reflects improvement in overseas economies and a tightening of monetary policy in major central banks.

Developments in long-term interest rates since the adoption of QQE were expected to reflect those downward and upward pressures. As for the outlook, even in the phase of intensified upward pressure, the continuation of the large-scale asset purchases was projected to maintain that downward pressure, and it may even reinforce that pressure with the cumulative growth of the amount purchased (the so-called Stock Effect)—in addition to the commitment to achieve the 2% target in a stable manner. These effects, together with a gradual rise in long-term inflation expectations, would be reflected in long-term interest rates, which would eventually stabilize at levels consistent with the 2% price stability target.

B. Major Transmission Channels through Lowering Real Interest Rates

Under QQE, two major channels were considered. Regarding the first channel, a clear commitment to achieving 2% price stability target with massive monetary easing would raise long-term inflation expectations. In addition, the anticipation of higher inflation may lower long-term real interest rates. The second channel is to lower long-term interest rates in real terms, through the aforementioned increase in long-term inflation expectations and a decline in nominal interest rates. On the latter, a decline in nominal interest rates would be achieved by exerting downward pressure on the entire yield curve largely through the BOJ’s massive purchases of JGBs and thus risk premia. The decline in real interest rates would increase business investment by firms as well as residential investment and consumption of durable goods by households. The expansion of aggregate demand would lead to an improvement in the output gap and inflation.

Based on the first and second channels, higher long-term inflation expectations and an improved output gap would push up the observed inflation rate. The higher inflation rate would thereby lead to a further increase in long-term inflation expectations as people adopt their inflation expectations and further reinforce this inflation-generating process.

C. Transmission Channel through Portfolio Rebalancing

Other important channels are the portfolio rebalancing effect and the asset price effect. As for a portfolio rebalancing effect, the BOJ aims to encourage financial institutions and investors to change the composition of their portfolios, thereby lowering funding costs and raising asset prices directly. When the BOJ purchases JGBs from the markets, the amount of JGBs held by financial institutions declines against the increase in their current account balances at the BOJ. Since the current account balances and JGBs are incomplete substitutes, financial institutions would likely try to increase JGBs again and reduce their current account balances accordingly, leading to a decline in the long-term interest rate.
As a result, financial institutions may find it more attractive to invest in other potentially riskier financial assets with relatively higher returns. The lower the substitutability between the current account balances and JGBs, the greater the portfolio rebalancing incentive. Moreover, the longer the remaining maturity of JGBs purchased by the BOJ, the lower the substitutability between the current account balances and JGBs. In other words, the BOJ's purchases of longer-term JGBs would result in a decline in the net supply of these bonds circulating in the markets, so that the average remaining maturity of JGBs transacted in the markets would be shortened. This would lead to a decline in the term premium.

Generally, the longer the average maturity of government bonds purchased by a central bank, the greater the downward pressure on the risk premium. As a result, financial institutions would face a decline in the interest rate risk volume, which would enhance their capacity to take on greater risk and their incentive to invest in riskier assets. Initially, investment in riskier assets would be most likely to take place in financial assets with a high degree of substitutability for government bonds—such as corporate bonds and loans—or whose expected returns are highly correlated with those of government bonds. As increased investment in such assets results in a decline in their returns, financial institutions would be encouraged to invest in riskier assets with relatively higher returns—such as low-rated corporate bonds, stocks, real estate, investment trusts, and foreign investments. Through such a continuous process, an increase in a wide range of asset prices and a decline in funding costs in a range of markets are expected to materialize. The resultant asset price effect refers to increases in the prices of stock, real estate, etc. The asset price effect would not only improve economic activities and help raise general prices directly, but also improve them indirectly through generating accommodative financial conditions for households, firms, and financial institutions.

D. Transmission Channel through the Exchange Rate Effect

The exchange rate effect is likely to promote a depreciation of the yen as a second order effect. A depreciation could be expected partly because some market participants in the foreign exchange markets used to project the yen–dollar exchange rate movements based on differences in the monetary base between Japan and the US. Also, the greater interest rate differentials between Japan and the US could lead to a weaker yen vis-à-vis the US dollar. Since the global financial crisis in 2008, the yen had appreciated excessively against the US dollar and other currencies since the yen is regarded as a safe-haven currency. The yen’s overvaluation contributed to depressing domestic prices and putting Japanese exporters in a less advantageous position in terms of international competitiveness. Therefore, the yen’s depreciation was expected to raise exports of goods and services and thus improve the output gap, while helping to raise domestic prices through imported prices.

E. Impact of the QQE Policy on Financial Markets

Before the QQE was announced, the JGB yields had already begun to decline from late February 2013. This happened after Prime Minister Shinzo Abe had nominated Mr. Kuroda to succeed Mr. Shirakawa as the next Governor of the BOJ on 28 February. For example, the 10-year yield had dropped from 0.7%–0.8% to around 0.61%–0.69% by end-February and further to below 0.6% from mid-March 2013 after Mr. Kuroda’s nomination had been approved by a vote at the Diet on 15 March 2013 (Figure 3-5). The decline reflected an anticipation of massive monetary easing to achieve 2% inflation.
**QQE Initiation Leading to Volatile Interest Rates in the JGB Market**

When QQE was announced on 4 April 2013, JGB yields began to show fluctuations that lasted for about 6 months. For example, the 10-year yield initially dropped from around 0.55% on 1–3 April to around 0.4% on 4 April. But it then rose to 0.65% on 15 April and exceeded 0.8% from 15 May to 19 July (Figure 3-5). On an intraday basis, the yield reached around 1% in late May. The rise occurred partly because bond market participants have mixed views on the impact of QQE. Some became cautious about investment in JGBs due to (1) higher interest rate volatility, (2) a rise in market-based long-term inflation expectations (such as inflation swap rate) driven mainly by the yen’s depreciation, (3) higher stock prices, and (4) “taper tantrum” or sharply-rising bond yields in the US caused by the then Federal Reserve Chairman Ben Bernanke’s remark about possible tapering (a cut in the monthly asset purchase amount) by late 2013.

By September 2013, the 10-year yield had finally become more stable, moving around 0.6%–0.7%. By October 2013, it had returned roughly to the level prior to the introduction of QQE. Thereafter, the yields followed a declining trend as bond market participants’ views converged and became more stable and the downward pressure driven by massive JGB purchases by the BOJ began to be felt. This led to a steady decline in new lending interest rates and an increase in credit growth (Figure 3-6). Year-on-year loan growth extended by domestic banks started to pick up and exceeded 2% from January 2013, and rose further from 2.5% in April 2013 and strongly to 3.8% in August 2013. After it had fluctuated at high levels until November 2013, however, the loan growth rate declined until September 2014. This suggests that earlier strong loan growth was helped by a front-loaded increase in consumption and residential investment by a consumption tax hike from 5% to 8% in April 2014.
Meanwhile, the exchange rate of the yen vis-à-vis the US dollar and nominal effective exchange rates began to depreciate from December 2012 in anticipation of the Abenomics stimulus package. Similarly, stock prices such as Nikkei 225 Stock Average and TOPIX had also maintained a rising trend since Abenomics began (Figure 1-9). Thus, QQE generated accommodative financial conditions among firms and households.

3.7 BOJ’s Decision to Expand QQE in October 2014

About one and a half year after the initiation of QQE, the BOJ decided to expand QQE at the second day of the 2-day Monetary Policy Meeting on 31 October 2013. The main reason was a sharp decline in households’ expenditure caused by a consumption tax hike in April 2014. A decline in long-term inflation expectations caused by weaker domestic demand and an oil price drop from mid-2014 was another factor leading to the decision to expand QQE.

A. Large-Scale Expansion of the Monetary Base and JGB Purchase

The most important change was the BOJ’s decision to accelerate the annual pace of increase in the monetary base—the main operating target for money market operations—from about 60–70 trillion yen to about 80 trillion yen (an addition of about 10–20 trillion yen).

To achieve this monetary base targeting, the amount outstanding of JGB holdings was increased from an annual pace of about 50 trillion yen to about 80 trillion yen (an addition of about 30 trillion yen). With a view to encouraging a further decline in interest rates across the entire yield curve, moreover, the BOJ extended
the average remaining maturity target of JGB purchases from about 7 years (6–8 years) to about 7–10 years and called this an extension of about 3 years maximum. In addition to the JGBs, the BOJ decided to increase purchases of risk assets such as ETFs and J-REITs, tripling their amounts outstanding and increasing their annual pace of purchase from about 1 trillion yen to about 3 trillion yen and from about 30 billion yen to about 90 billion yen, respectively. The BOJ also included the ETFs that track the JPX-Nikkei Index 400 as ETFs eligible for purchase.

B. Communication Strategy Using Keyword “3”

To send a clear message about the boldness of QQE expansion, the BOJ intentionally utilized keyword “3” this time, as compared with keyword “2” when QQE was launched. For example, the BOJ emphasized the annual increase in its JGB holdings by “+30 trillion yen.” It further stressed that the average remaining maturity target of JGB purchases was also extended by “+3 years” (from around 6–8 years to 7–10 years). The pace of purchases of ETFs and J-REITs, moreover, was to be “tripled” from 1 trillion yen to 3 trillion yen and from 30 billion yen to 90 billion yen, respectively.

C. BOJ’s Rationales for Expanding QQE

The BOJ’s view was that Japan’s economy continued to recover moderately as a trend and would be expected to continue growing at a pace above its potential. However, on the price front, the BOJ found it appropriate to take preemptive action—it was concerned that somewhat weaker-than-expected developments in demand following the consumption tax hike and a substantial decline in crude oil prices had been exerting downward pressure on prices.

A weakness in demand could be transitory and start to wane, and the decline in crude oil prices could have positive effects on economic activity through improvements in the terms of trade and real disposable income, which may eventually help to push up prices. Nevertheless, the BOJ was concerned that if the current downward pressure on prices remained, even in the short term, there would be a risk that conversion of the deflationary mindset—which had been progressing steadily—might be delayed or reversed. To preempt such risks manifesting themselves and to maintain the momentum of inflation expectation formation, the BOJ judged that it was appropriate to expand QQE. The most important reason behind the decision was that the BOJ considered Japan’s economy to be facing a critical moment in the process of conquering deflation and that its unwavering determination to do so should again be conveyed.

D. My Outlook on Prices and My Support for QQE Expansion

Since the introduction of QQE in April 2013, I consistently held the view that it would likely take longer than 2 years to achieve the 2% target in a sustainable manner. And regarding my outlook for prices, I openly stated that the rate of CPI inflation would rise closer to 2% toward the end of fiscal year 2015 (around March 2016)—around 3 years after the introduction of QQE in April 2013. Thus, my projections on the rate of change in the CPI were consistently lower than the medium of Policy Board members and I frequently voted against the BOJ’s projected timing to achieve 2% inflation in view of their lack of objective analyses and assessments.
I believed that the BOJ was conducting monetary easing with the aim of achieving 2% inflation in a stable manner with sustainable economic growth—rather than merely trying to achieve 2% in a specific year but possibly failing to meet the target in subsequent years. This approach is called a flexible inflation targeting framework. Under this framework, I had repeatedly expressed my view in the past that it is desirable to attempt to achieve the 2% target with a time span of more than 2 years to avoid imposing an excessive burden on firms and households. In line with this view, my outlook for economic activity and prices had assumed the continuation of QQE during and beyond fiscal year 2015.

**My Thoughts that Had Led to Supporting the QQE Expansion**

Regarding the continuation of QQE as of April 2014, my thoughts had been that an annual pace of increase in the monetary base of about 60–70 trillion yen could be maintained at least until around April 2015. This timeline had seemed appropriate, since the doubling of the monetary base—as clearly stipulated in the BOJ’s Public Statement released on 4 April 2013—was expected to be achieved by around April 2015 at the annual pace of increase of about 60–70 trillion yen. Thereafter, one likely option would have been a continuation of monetary easing with the same annual pace of increase in the monetary base in an open-ended form with the same composition of asset purchases for a while. Since I personally had held the view that the 2% target would likely be reached by fiscal year 2016, an alternative possibility would have been a greater focus on the continuation of monetary easing at the annual pace of 60–70 trillion yen until around then, but changing the composition of asset purchases with greater weights allocated to risk assets (i.e., ETFs) and less weights allocated to the JGBs.

In 2013, meanwhile, I had referred to two potential cases for considering additional easing. The first had been the case where downside risks to the BOJ’s outlook for economic activity and prices materialized, and it would have been necessary for the BOJ to sharply revise downward its outlook. The second had been the case where the BOJ’s credibility over monetary policy conduct would be at risk of being questioned by the public and the markets. For example, there could be a risk that the BOJ would be perceived as not doing enough to fulfill its commitment—a commitment that had been emphasized repeatedly since the introduction of QQE. That is, if the BOJ’s outlook changes due to the manifestation of downside risk factors regarding prices and economic activity, the BOJ should consider making adjustments if this was judged necessary for achieving the 2% price stability target.

Since the consumption tax hike in April 2014, domestic demand had begun to weaken with a lag. Initially at the time of the tax hike, many firms and the BOJ were relatively more optimistic about its adverse impact on households’ expenditure. But as unsold goods piled up due to a decline in demand, the adverse impacts were gradually beginning to be felt by firms. For example, the BOJ’s September 2014 Tankan survey indicated that the diffusion index (DI) for actual business conditions for all industries—calculated by subtracting the percentage share of firms responding that business conditions are “unfavorable” from the share of those indicating that business conditions are “favorable”—deteriorated from 7 (percentage points) in June 2014 to 4 in September 2014. In particular, the business conditions DI of large nonmanufacturing enterprises dropped sharply from 19 to 13 over the same period. Moreover, the September Tankan showed that the year-on-year rate of change in projected current profits of all industries for fiscal year 2014 recorded −4.0% (−2.6% in manufacturing and −5.1% in nonmanufacturing). Weakened domestic demand was evident from a greater declining rate in current profits projected for nonmanufacturing.
Given weaker firm sentiment and a generally deteriorating economic environment, together with CPI inflation and some other indicators related to long-term inflation expectations showing some decline, this time I felt that there was a higher likelihood that the aforementioned two cases could materialize. To avoid this, I concluded that it was necessary to give first priority to ensuring the path toward the 2% price stability target by means of additional action was maintained. By not acting, the BOJ might risk its credibility and also undermine the feasibility of the 2% target itself. On the effectiveness of monetary policy, I was thinking that it might be better to put greater emphasis on monetary easing effects that promote the portfolio rebalancing channel. Therefore, I expected that the additional easing, which lengthened the average remaining maturity of long-term JGBs and increased the purchases of risk assets, would further enhance the transmission channels of monetary policy.

Many media outlets reported that the motivation behind QQE expansion was the BOJ’s attempt to induce the government to implement the second round of the consumption tax hike from 8% to 10% as had been scheduled for October 2015. This reflected that Governor Kuroda was a former official of the Ministry of Finance and a strong supporter of implementing the consumption tax hike in two rounds. Nevertheless, in November 2015—less than a month after QQE expansion—Prime Minister Abe announced a postponement of the scheduled second hike to April 2017. As a result, the media reported that the BOJ had been ignored. In my view, the judgment on QQE expansion was made purely based on price and economic developments.

### 3.8 Assessment of QQE and QQE Expansion and BOJ’s Evaluation

When assessing QQE and QQE expansion undertaken over the first 3 years from fiscal year 2013 to fiscal year 2015, the super-easy monetary policy—together with a front-loaded increase in consumption and residential investment and the government’s economic stimulus policy—showed some positive outcomes.

#### A. Revised GDP Data and Stagnant Sales and Wage Growth

Of those 3 years, the highest economic growth was achieved in the first fiscal year (from April 2013 to March 2014). The preliminary estimate of the GDP growth rate for fiscal year 2013 was 2% as of the November 2016 release, but was subsequently revised upward substantially to 2.6% in the December 2016 revision. The preliminary real GDP growth rate for fiscal 2014 recorded –0.9%, mainly due to the adverse impact of the consumption tax hike, but this data was also revised upward to –0.4% in the December 2016 revision. The real GDP growth rate for fiscal year 2015 was also revised upward from the preliminary estimate of 0.9% to 1.3% in December 2017 (Figure 3-7).

The December 2016 revisions of real GDP growth rates were quite substantial for fiscal years 2013–2015 as compared with fiscal year 2012, which remained virtually unchanged. The revisions incorporated (1) an improvement in the methodology to estimate private nonresident investment; (2) additionally available information on households’ consumption; and (3) the introduction of the Benchmark Year Revision of 2011 including the implementation of the System of National Accounts 2008 (which, for example, includes Research & Development [R&D] and some military products in the gross capital formation data). The upward revisions for fiscal year 2013 and fiscal year 2014 were mainly attributable to higher private nonresident investment, while the revision for fiscal year 2015 was mainly due to higher household consumption growth. As a result,
the 3-year average real GDP growth rate turned out to be 1.1%—a relatively large upward revision from the preliminary estimate of 0.67%. Thus, the average real GDP growth rate for the first 3 fiscal years since the introduction of QQE was slightly above the rate of 0.9% for fiscal year 2012—a non-negligible change from the earlier assessment that the average real GDP growth rate was below the level for fiscal year 2012. These technical revisions indicated that Japan’s economy was in better shape than what had been assumed by the public and the markets.

The puzzle then emerges as to why price developments remained weak and the output gap remained moderately negative, leading to the suspicion that the BOJ had underestimated the potential GDP growth rate (Figure 1-3). Nonetheless, despite the upward revision of real GDP data, many firms and households generally felt the economic recovery was not particularly strong or hardly noticeable, especially for fiscal year 2014 and fiscal year 2015. According to the BOJ’s Tankan survey, for example, firms’ operating profits and current profits rose sharply in fiscal year 2013 and thereafter increased moderately or remained at high levels in fiscal year 2014 and fiscal year 2015; however, firms’ sales remained almost unchanged (Figure 3-8). Despite stagnant sales over the same period, high levels of profits were achieved owing to the yen’s depreciation, cost-cutting efforts, provision of higher value-added goods and services, and a drop in the oil price from mid-2014.

Moreover, the monthly Economy Watchers Survey compiled by the Cabinet Office—the survey of employees in positions that allow them to observe developments related to household activity, corporate activity, and employment—indicates that economic activities remained largely unchanged or worsened somewhat during most of fiscal year 2014 and fiscal year 2015, as indicated by the total diffusion index (DI) for current conditions (Figure 3-9). The DI records 50 if economic conditions are unchanged, above 50 if they are better, and below 50 if they are worse. Only in the latest November and December 2016 survey, did the DI exceed 50. In other words, achieving around 1% average economic growth may not be sufficiently high for firms and households to feel that the economy is recovering.

Figure 3-7: Revised and Preliminary Real GDP Growth Rates: Fiscal Year 2012–Fiscal Year 2015 (%)

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</thead>
<tbody>
<tr>
<td>Revised GDP</td>
<td>0.9</td>
<td>2.6</td>
<td>-0.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Preliminary GDP</td>
<td>0.9</td>
<td>2.0</td>
<td>-0.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

GDP = gross domestic product.
Note: Revised data released in December 2016; preliminary data released in November 2016.
Source: Cabinet Office.
**Figure 3-8:** Firms’ Operating Profits, Current Profits, and Sales: Fiscal Year 2000–Fiscal Year 2015 (100 Million Yen)


**Figure 3-9:** Economy Watchers Survey Diffusion Index for Current Economic Conditions: 2001–2016 (%)

Source: Cabinet Office.
B. Favorable Changes in Firms’ Price-Setting Behavior

Overall, QQE helped to mitigate deflationary pressure caused by the excessive appreciation of the yen and fierce discount-based competition in the distribution sector, and provided an incentive for firms to explore an opportunity to set higher prices. This price setting continued until mid-2014 before oil prices dropped significantly. Figure 3-10 indicates that firms’ sale prices rose in fiscal year 2013 and fiscal year 2014, suggesting more aggressive price setting behavior by firms than in the past. However, caution is necessary for this interpretation since an increase in firms’ sale prices was in line with an increase in their input prices so that the profit margin did not improve compared with previous years. Moreover, the growth rate of firms’ sale prices dropped in fiscal year 2015 as their input prices declined. Thus, an increase in firms’ sale prices might have been the result of merely passing their rising input costs on to sale prices, rather than necessarily in response to growing demand.

Without rising trends in sales, firms are likely to find it difficult to raise sale prices steadily. If the exchange rate depreciation and oil price drops are regarded as unsustainable, it might be difficult for firms to project high profits on a sustainable basis. Perhaps this is why firms have been not very active in undertaking business investment (to an extent that results in an accumulation of capital stock) and raising wages rapidly (Figure 3-11). Going forward, firms are likely to come under increasing pressure to update or change their business models and management styles to respond to several challenging issues—how to maintain profitability in the presence of stagnant sales growth, volatile imported material prices, and a rising labor shortage. In spite of a growing labor shortage, favorable wage developments have not materialized yet. Nominal wages stopped declining from 2014, but real wages dropped sharply in 2014 due to a consumption tax hike and yen’s depreciation. Real wages continued to drop further in 2015 since nominal wage growth did not catch up with an increase in prices (Figure 3-11).

**Figure 3-10: Firms’ Average Sales and Input Prices: Fiscal Year 2003–Fiscal Year 2015 (Y/Y, %)**

![Figure 3-10: Firms’ Average Sales and Input Prices: Fiscal Year 2003–Fiscal Year 2015 (Y/Y, %)](image)

Source: Cabinet Office. Annual Survey of Corporate Behavior.
The CPI turned positive in June 2013. The maximum CPI achieved was 3.7% in May 2014, but was 1.6% when excluding the direct impact of the consumption tax. In terms of all items excluding fresh food (core CPI), the highest inflation was 3.4% recorded in May 2014, but was only 1.4% when excluding the direct impact of the consumption tax hike. Inflation excluding the direct impact of the consumption tax hike was achieved largely due to higher imported prices caused by the sharp depreciation of the yen ranging from oil prices, home electronics, food, capital goods, and construction materials. To some extent, higher inflation reflected an improvement of the output gap, as well as a rapid increase in foreign tourists and resultant higher hotel prices, driven by the government’s deregulation of visa issuance and tourism promotion efforts, as well as the yen’s depreciation.

In the background section of its report entitled *Outlook for Economic Activity and Prices* (so-called *Outlook Report*) released in April 2015, the BOJ assessed the effects of QQE—about 2 years after the QQE adoption. The report stressed that the actual CPI rise of “plus 1 percentage point” over the past 2 years exceeded the estimated value from the Quarterly Japanese Economic Model because the actual degree of improvement in the output gap was better than the estimated value. Nonetheless, the 2% price stability target had yet to be achieved, mainly because of the rapid decline in crude oil prices. But the BOJ also admitted that another important factor was the slow pace of the rise in long-term inflation expectations, which remained at around plus 0.7 percentage point at most. The *Outlook Report* stipulated that a further rise in inflation expectations would be necessary to achieve the 2% target in a stable manner.

This judgment is consistent with my repeated remarks over recent years. Inflation expectations of economists and market participants could be useful in evaluating the consistency of the BOJ’s outlook and its practicality, and it is possible that they may also gradually affect the inflation expectations of households and firms. However, in assessing price stability, I always stressed that greater attention should be paid to households’ price perceptions and their inflation expectations that tend to be upward biased. In response to households’ perceptions and resistance to price hikes, firms generally find it very difficult to raise sale prices. This point will be touched upon again in Chapter 6.

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CHAPTER 4

QQE WITH A NEGATIVE INTEREST RATE: SECOND PHASE OF SUPER-EASY MONETARY POLICY FROM JANUARY TO SEPTEMBER 2016

On 29 January 2016, the Bank of Japan (BOJ) surprised the public and the markets by suddenly announcing a negative interest rate policy effective from 16 February. The negative interest rate policy is applicable to current accounts that financial institutions hold at the BOJ. The surprise was natural as a possible adoption of a negative interest rate had repeatedly been rejected by the BOJ for many years and by Governor Haruhiko Kuroda many times. The negative interest rate policy generated a more challenging environment for the BOJ’s continuation of its Japanese Government Bond (JGB) purchase program. Given that the two policy tools were not fully consistent with each other, it is appropriate to state that the negative interest rate policy fundamentally changed the Quantitative and Qualitative Monetary Easing (QQe) framework. Therefore, super-easy monetary policy should be viewed as having entered the second phase (Figure 3-1). This phase continued until the implementation of yield curve control. Chapter 4 will explain the framework of a negative interest rate in detail and examine the pros and cons associated with the policy. The July 2016 decision that almost doubled the exchange-traded fund (ETF) purchase and announced a comprehensive review of monetary easing to be released in the next September Monetary Policy Meeting will be touched upon as well.

4.1 Main Features of QQE with a Negative Interest Rate

A negative interest rate is a deposit rate applied by the BOJ to the current account balances of financial institutions with the BOJ. Since adopting the Complementary Deposit Facility in October 2008, the BOJ had initiated payment of positive interest on the current account balances and maintained 0.1% until adoption of a negative interest rate. Out of the current account balances, no interest rate (zero interest rate) is applied to required reserve balances. Required reserves refer to the balances held to satisfy financial institutions’ Reserve Requirement System (whose reserve requirement ratio has remained at 0.1%–1.3% since 1991 depending on the size and type of deposits). More importantly, a positive rate is applied to the balances in excess of required reserves and special reserve balances in normal times. Special reserve balances refer to the balances held by financial institutions not subject to the Reserve Requirement System, including securities companies and money market brokers. The aggregate current account for December 2015 averaged 252 trillion yen and the amount excluding required reserves reached around 243 trillion yen. The BOJ thus paid roughly 243 billion yen on an annualized basis to financial institutions.

The BOJ adopted a negative interest rate on part of excess reserves and special reserve balances to achieve 2% inflation at the earliest possible time (Figure 4-1).9 The BOJ’s view was that a negative interest rate would expand aggregate demand and inflation expectations, thereby accelerating the path toward 2% inflation.

In the BOJ’s view, this inflation objective could be achieved by lowering the short-end of the yield curve by charging a negative interest rate and also by exerting further downward pressure on interest rates across the entire yield curve, in combination with existing large-scale JGB purchases.

In practice, a negative interest rate of −0.1% was applied from 16 February 2016—the first day of the February reserve maintenance period. The BOJ adopted a three-tier system—three interest rates (0.1%, zero, and −0.1%) were applied to the total current account balance. The negative interest rate is applied to a marginal increase in the total current account balance but only up to around 10–30 trillion yen. This amount is very small relative to the total current account balance of about 252 trillion yen and 255 trillion yen for the December and January maintenance periods, respectively.

Figure 4-1: The Second Phase of Super-Easing Monetary Policy

2nd Phase: A Negative Interest Rate Policy

- **Monetary Easing Stance:** QQE with a negative interest rate will continue as long as necessary to achieve the 2% target in a stable manner. The BOJ will not hesitate to add monetary easing in three dimensions (quantity, quality, and interest rate).
  - **Policy target:** maintain the monetary base control, continue an annual increase in the monetary base, and purchase JGB for 80 trillion yen each.
  - **Average remaining maturity of JGB purchase:** 7–12 years (extended in December 2015)

- **Introduction of a Negative Interest Rate under Three-Tier Reserve System:** three interest rates on reserves (+0.1%, 0%, −0.1%)

- **Increase in ETF Purchase (July 2016):** Almost doubled from 3.3 trillion yen to about 6 trillion yen
- **Announcement of Comprehensive Assessment over monetary easing since 2013 in the next September meeting**

ETF = exchange-traded funds, JGB = Japanese Government Bond, QQE = Quantitative and Qualitative Monetary Easing.
Source: Author.

A. How Does the Three-Tier System Work?

Let me now explain the mechanism of the three-tier system. Since adoption of the negative interest rate policy, the outstanding current account balance has been decomposed into three types to which a positive 0.1%, zero percent, and −0.1% is applied, respectively. These balances are called Basic Balance, Macro Add-on Balance, and Policy-Rate Balance, respectively (Figure 4-2). On an aggregate basis (combining all the relevant financial institutions), each balance is calculated as follows.
The Basic Balance or the Positive Interest Account

The Basic Balance or the Positive Interest Account refers to the current account balance to which an existing positive 0.1% interest rate is applied. It constitutes the largest size among the three types of current account balances. It refers to the difference between the average outstanding balance during the benchmark reserve maintenance periods and the amount of required reserves for the reserve maintenance period concerned. The benchmark reserve maintenance periods include periods from the January 2015 maintenance period to the December 2015 maintenance period (around 220 trillion yen in total). Given that required reserves for each period rise only modestly and thus remain more or less at around 9 trillion yen, this difference will remain almost constant going forward.

The Macro Add-On Balance or the Zero Interest Account

The Macro Add-on Balance or the Zero Interest Account refers to the balance to which a zero interest rate is applied. It grows steadily as long as the BOJ continues to purchase assets to increase its holdings. It is comprised of the sum of the following three items:

(i) The required reserves held by financial institutions subject to the Reserve Requirement System (to which a zero interest rate has been applied since introduction of the Complementary Deposit Facility in 2008).

(ii) The amount outstanding of the BOJ’s existing lending schemes to financial institutions—through (a) the Loan Support Program (i.e., the Fund-Provisioning Measure to Stimulate Bank Lending and the Fund-Provisioning Measure to Support Strengthening the Foundations for Economic Growth), (b) the Funds-Supplying Operations to Support Financial Institutions in Disaster Areas affected by the Great East Japan Earthquake and Tsunami in 2011 and the Kumamoto Earthquake in 2016, as well as (c) the Funds-
Supposing Operations against Pooled Collateral. The Loan Support Program is a 4-year liquidity supply facility (see Chapter 6), while the Funds-Supplying Operations in Disaster Areas are a less-than-1-year facility. All the schemes are subject to a zero percent lending rate.

The BOJ exempted the amount outstanding of these facilities from a negative interest rate so as not to discourage financial institutions from utilizing those facilities. In March 2016, moreover, the BOJ provided further preferential treatment for the Loan Support Program and the Funds-Supplying Operation to Support Financial Institutions in Disaster Areas by allocating a zero interest rate to twice as much as their increased amount outstanding to the add-on balance.

(iii) The amount transferred regularly from the Policy-Rate Balance—to maintain the amount outstanding of around 10–30 trillion yen on a monthly basis in the Policy-Rate Balance. This amount transferred from the Policy-Rate Balance to the Macro Add-on Balance is calculated using a specific ratio of the average outstanding balance during benchmark reserve maintenance periods from January 2015 to December 2015 (around 220 trillion yen). This specific ratio is called the Benchmark Ratio.

The Benchmark Ratio is expected to rise steadily as long as the BOJ continues to purchase assets and thus raise the outstanding balances of the aggregate current accounts at the BOJ. The transfer from the Policy-Rate Balance to the Add-on Balance using the Benchmark Ratio began from the April reserve maintenance period. In the case of April and May reserve maintenance periods, the Benchmark Ratio was set at 2.5% (times 220 trillion yen) or around 5.5 trillion yen.

From the June reserve maintenance period, the Benchmark Ratio has been updated on a quarterly basis and is announced around the 9th of the first month of the quarter concerned—about a week before the reserve maintenance periods of June, September, December, and March begin. These are the months when large-scale redemptions of JGBs take place and thus the current account balance temporarily increases more than in other months. Once the ratio is set, the same ratio is applicable for the remaining quarter. On 9 June 2016, a new ratio of 7.5% or 16.5 trillion yen was announced and uniformly applied to the June–August reserve maintenance periods. For the September–November maintenance period, a Benchmark Ratio of 10% or around 22 trillion yen was announced on 9 September 2016. For the maintenance period from December 2016 to February 2017, a Benchmark Ratio of 13% or around 28.6 trillion yen was announced on 9 December 2016.

The Policy-Rate Balance or Negative Interest Account

The Policy-Rate Balance or the Negative Interest Account refers to the current account balance to which a negative interest rate (currently, –0.1%) is applied. It has the smallest size of the three types of current account balances. As already indicated, the outstanding amount of around 10–30 trillion yen is maintained on a monthly basis in this balance using the Benchmark Ratio.

B. Adjustment to Prevent Financial Institutions’ Cash Holdings

To mitigate the burden of paying interest to the BOJ, financial institutions may attempt to hold greater cash reserves rather than holding reserve balances. To prevent such behavior and thereby avoid eroding the effectiveness of the negative interest rate, the BOJ decided at the January 2016 Monetary Policy Meeting
that financial institutions’ increased amount of cash holdings would be deducted from the Macro Add-On Balance if their cash holdings increase significantly from those during the aforementioned benchmark reserve maintenance periods. In cases where the increased amount is larger than the Macro Add-On Balance, the amount in excess of the Macro Add-On Balance would be further deducted from the Basic Balance. In other words, financial institutions’ actions to avoid the payment of interest to the BOJ by holding more cash would be penalized by allowing them smaller amounts in reserve accounts subject to either zero or 0.1% positive interest rates. This adjustment is similar to the mechanism that the Swiss National Bank (SNB) adopted in 2015, as discussed further below.

C. Upper Bounds Creating Arbitrage Opportunities

It is important to note that the aforementioned amounts for the Positive Rate Account (Basic Balance) and Zero Rate Account (Macro Add-on Balance) constitute the upper bounds for each balance. In addition to the upper bounds, there is a realized value in correspondence to each balance. The realized value is smaller than the upper bound if arbitrage transactions do not take place fully among financial institutions to fully exploit profit opportunities. Meanwhile, the aforementioned amount for the Negative Rate Account (Policy-Rate Balance) should be regarded as the balance when arbitrage transactions take place fully among financial institutions in the uncollateralized overnight call market. Thus, in practice, there is a realized value in correspondence to the Negative Rate Account, which is larger than the amount for the Negative Rate Account after full arbitrage transactions (Figure 4-3).

**Figure 4-3: Negative Rate Account Balance: Realized Value and Unutilized Opportunities for Arbitrage Transactions in 2016 (100 Million Yen)**

![Figure 4-3](chart.png)

Source: Bank of Japan.
Unused Portions within the Upper Bounds and Unutilized Opportunities for Arbitrage Transactions

Consequently, there are two gaps: between a realized value and the upper bound for the Positive Rate Account, and between a realized value and the upper bound for the Zero Rate Account. These combined gaps constitute unused portions within the upper bounds and record negative figures. Meanwhile, there is a gap between a realized value and a balance after full arbitrage transactions for the Negative Rate Account, which records positive figures. The positive gap points to unutilized opportunities for arbitrage transactions with the purpose of reducing interest payment to the BOJ. These three types of gaps are aggregate values arrived at by summing up each gap for each financial institution. On an individual financial institution level, some financial institutions hold unused portions within the upper bounds of Positive and Zero Rate Accounts, while other financial institutions do not hold any unused portions by having already filled up those unused portions. Moreover, some financial institutions are reluctant to utilize arbitrage transactions and thus face large unused opportunities under the Negative Rate Account while other financial institutions actively engaged in arbitrage transactions and exploited such opportunities.

Arbitrage Opportunities in the Uncollateralized Overnight Call Market

The call market refers to an interbank money market where financial institutions lend and borrow short-term funds; it is comprised of the uncollateralized call market and the collateralized call market. The BOJ envisaged that arbitrage transactions would take place mainly in the uncollateralized call market between financial institutions facing unused portions within the upper bounds and financial institutions facing unutilized opportunities for arbitrage transactions under the Negative Rate Account. The uncollateralized call market was expected to be heavily utilized since no collateral is necessary.

In general, the unused portion within the upper bound for the Zero Rate Account is much greater than that in the Positive Rate Account. Thus, financial institutions facing the unused portion in the Zero Rate Account could enter into mutually beneficial transactions with those facing a large amount of balances in the Negative Rate Account. This is because the former could borrow money from the latter at an interest rate below zero (for example, −0.05%) and make a profit (difference between zero percent and −0.05%) by filling out the unused portion in the Zero Rate Account. Meanwhile, the latter could lend money at an interest rate higher than −0.1% (for example, −0.05%) to the former to reduce the balance in the Negative Rate Account and reduce the amount of payment of 0.1% to the BOJ.

Figure 4-3 exhibits three types of balances at an aggregate level: (1) the realized value of current account balances in the Negative Rate Account, (2) the amount after full arbitrage transactions in the Negative Rate Account, and (3) the difference between (2) and (1). The amount of (1) is calculated by removing upper bounds for the Positive Rate and Zero Rate Accounts from the total current account balance. If the amount of (3) takes a larger negative value, it indicates that there remain larger unutilized opportunities to save on interest payment to the BOJ.

In the case of the February maintenance period, the amount of (2) was only around 3.7 trillion yen while the realized value in the Negative Rate Account was substantially larger at 22.3 trillion yen. This suggests that financial institutions facing large balances in the Negative Rate Account could have reduced interest payment to the BOJ—the amount of (3) or around −18.6 trillion yen—by actively engaging in arbitrage transactions with those financial institutions facing unused portions in the Positive and Zero Rate Accounts.
The amounts of (3) for the following reserve maintenance periods recorded -13.5 trillion yen in March, -9 trillion yen in April, -8.3 trillion yen in May, -12 trillion yen in June, -11 trillion yen in July, -9.5 trillion yen in August, -13 trillion yen in September, and -10 trillion yen both in October and November. The amounts dropped steadily from the February period to the May period, suggesting active arbitrage transactions increased among financial institutions in the uncollateralized interbank market. After that, the (negative) amount increased in the June and September periods partly because the redemption of the JGBs takes place in June and September. However, without those temporary factors, the amounts did not exhibit significant declining trends. This means that there are some financial institutions that do not actively engage in arbitrage transactions. It is interesting to see whether the amount of (3) will remain around the current level going forward.

What Explains Unutilized Opportunities for Arbitrage Transactions?

The lack of a significant declining trend in the amount of unutilized opportunities for arbitrage transactions could be associated with the constraint arising from the lack of IT computer systems that can accommodate transactions at negative interest rates in the uncollateralized call market. According to the BOJ’s Report entitled Trends in the Money Market in Japan (results of Tokyo Money Market Survey conducted against around 300 counterparties in the BOJ’s money market operations) released in November 2016 (the survey for which was conducted in August 2016), the respondents, which are already equipped with IT system infrastructure that can accommodate trade at negative rates, accounted for around 60% (with half of these respondents stating that such an IT system was adopted after the negative interest rate policy). Around 15% of total respondents were in the process of updating their systems or considering their upgrading. The remaining one-fourth of respondents indicated no need to adopt their IT system or found alternative means.

Some financial institutions with unused portions within the upper bounds in the Positive and Zero Rate Accounts obtained funds from the General Collateral (GC) Repo market rather than from other financial institutions in the uncollateralized call market. The GC Repo market refers to the market where transactions in borrowing and lending JGBs take place without specifying particular JGB issues. The GC Repo market is already equipped with such IT infrastructure, and the cost of funding was cheaper in the GC Repo market than in the call market. The interest rates in the GC Repo market have remained at around -0.05% to -1.0% since end-March 2016, while the rates in the uncollateralized call market recorded around 0% to -0.05%. Some financial institutions with a large current account balance in the Negative Rate Account also provided funds to the GC Repo market rather than to the call market since a large amount of transactions are possible in the GC Repo market. Nevertheless, the relatively large amount of (3) suggests the presence of unutilized opportunities for arbitrage transactions regardless of utilizing call or Repo markets.

Arbitrage Transactions by Groups of Financial Institutions

Let me now decompose the aggregate current account balances into the following five groups: (1) city banks (largely mega banks), (2) regional banks, (3) foreign banks, (4) trust banks, (5) other banks subject to the Reserve Requirement (such as Japan Post Bank and credit unions), and (6) financial institutions not subject to the Reserve Requirement (including securities companies and money market brokers).

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Figures 4-4 (1)–(10) exhibit two types of balances for each reserve maintenance period from February to November: (a) a realized value of the Negative Rate Account and (b) the sum of unused portions within upper bounds under the Positive and the Zero Rate Accounts. Thus, the positive value of (a) increases if a group of financial institutions face larger realized balances in the Negative Rate Account. The negative amount of (b) increases if a group of financial institutions has larger unused portions within upper bounds in the Positive and Zero Rate Accounts.

**Figure 4-4: Unused Portion within Upper Limits and Realized Value under the Negative Rate Account: February 2016 to November 2016 (100 Million Yen)**

(1) February Reserve Maintenance Period

(2) March Reserve Maintenance Period

(3) April Reserve Maintenance Period

(4) May Reserve Maintenance Period

(5) June Reserve Maintenance Period

(6) July Reserve Maintenance Period

continued next page
If a group of financial institutions face a larger negative amount of (b) than other groups, it could benefit from obtaining funds in the uncollateralized call interbank market and use those proceeds to fill unused portions. This group plays a role as borrower of funds in the call market. By contrast, a group of financial institutions with a large positive value of (a) has to pay substantial interest to the BOJ at a rate of 0.1%. This group could benefit from providing funds to the former to save on interest payment to the BOJ. This group plays a role of provider of funds in the call market. Thus, a large negative amount of (b) suggests that there is an opportunity for further arbitrage transactions in the interbank market between the former and the latter.

City banks actively engage in arbitrage transactions so that there are little unused portions left within the upper bounds from the April reserve maintenance period. By contrast, other banks subject to the Reserve Requirement (including Japan Post Bank and credit unions) appear not to have actively engaged in arbitrage transactions to save on interest payments to the BOJ, notwithstanding the sheer size of the balance in the Negative Rate Account. This could be due to constraints caused by their IT system infrastructure. It could be also because of a sense of hesitation and fear that large arbitrage transactions might affect the money markets significantly due to the sheer size of excess reserves of a relatively large bank belonging to this group.
So far, the three-tier system has been described based on the aggregate current account balance of all financial institutions as well as the semi-aggregate current account balance classified by groups of financial institutions. In principle, the same mechanism is applicable to individual financial institutions.

D. Providing Exemptions from a Negative Interest Rate on Money Reserve Funds (MRF)

Trust banks faced a substantial increase in the realized value in the Negative Rate Account from the February 2016 reserve maintenance period. This reflects the fact that the Money Reserve Funds (MRFs), Money Market Funds (MMFs), and other surplus funds from pension funds and insurers were no longer able to manage their funds in the money markets—a general term for call markets, treasury bill (T-bill) markets, commercial paper (CP) markets, and certified deposit (CD) markets—because most of the returns in these markets turned from moderately positive to negative. As a result, these funds were largely transferred to the deposit account balances of trust banks, which in turn suddenly have to pay interest to the BOJ. Growing concerns, therefore, emerged among asset management companies (establisher of investment trusts and settlors of trust assets), securities firms (sellers of those financial assets), and trust banks (trustees of investment trusts with instructions from settlors) with regard to the viability of some investment funds and the increased cost incurred by trust banks.

In response to growing criticism, the BOJ finally acknowledged their concerns and decided to provide an exemption from a negative interest rate on MRFs in the March 2016 Monetary Policy Meeting—the amount outstanding of MRFs entrusted to trust banks was added to its Zero Rate Account, up to the size of assets of MRFs (11 trillion yen) in 2015. The adjustment was made solely for the MRFs given their essential roles in fund settlement for securities transactions and the sheer size of their assets (around 10 trillion yen as of early 2016). Had the net asset value of an MRF fallen below one yen, so-called breaking the buck could have deterred smooth settlements of securities transactions for individual investors since not all securities firms provide banking account services that could potentially take over the settlement capacity. There were concerns that this may discourage individual investors from actively investing in securities and promoting a portfolio rebalancing.

The exemption was applied from the April 2016 reserve maintenance period, and this could be confirmed by a decline in the current account balance faced by trust banks under the Negative Rate Account in Figure 4-4. Nonetheless, trust banks still hold a substantial balance in the Negative Rate Account even after the exemption was applied. This may be because funds transferred from other funds to trust banks remain subject to the negative interest rate. The MRF case gave an impression to the public and the markets that the BOJ did not carefully design the three-tier system due to insufficient time allocated for preparation—such as conducting preliminary surveys and dialogue with relevant entities and industries to smoothen implementation of a negative interest rate. This practice is in contrast with that of the European Central Bank (ECB) and the Swiss National Bank (SNB), both of which had made an announcement in advance. In particular, the ECB spent about 1 year signaling its possible implementation to the public and the markets before launching a negative interest rate. The ECB repeated that a negative interest rate was one of the options, and the ECB was technically ready to adopt the policy. This is one of the reasons why no major confusion or anger was expressed by financial institutions at the time of adoption.
E. Forward Guidance about Future Monetary Easing Stance

In its Public Statement dated 29 January 2016, the BOJ announced that monetary easing would be pursued by making full use of possible measures in terms of three dimensions: quantity, quality, and interest rate. Of the three dimensions, the quantity dimension referred to the annual pace of monetary base expansion beyond 80 trillion yen. The BOJ also stressed a willingness to expand the monetary base since it could technically continue to purchase the JGBs from the markets given that their holdings accounted for only 30%–40% of the outstanding amount issued.

The quality dimension referred to the guideline for asset purchases: it was comprised of (a) net JGB purchases at an annual pace of about 80 trillion yen (excluding the amount of reinvestment); (b) the average remaining maturity of JGB purchases (which was extended from around 7–10 years to around 7–12 years in the December 2015 Monetary Policy Meeting, as mentioned further below); (c) ETF and J-REIT purchases at an annual pace of about 3 trillion yen and about 90 billion yen, respectively; and (d) reinvestment of CP and corporate bonds to maintain their amounts outstanding at about 2.2 trillion yen and about 3.2 trillion yen, respectively. It is somewhat confusing that the BOJ included the quantity of JGB purchases under the quality dimension since the JGB purchases play a major role in fulfilling the monetary base target and it would thus be conceptually better to include them in the quantity dimension. Interest-rate dimension refers to a negative interest rate, currently at −0.1%.

As for the forward guidance on its monetary easing stance, the BOJ stated that it would continue with “QQE with a Negative Interest Rate,” aiming to achieve the price stability target of 2%, as long as it is necessary for maintaining that target in a stable manner. It will examine risks to economic activity and prices, and take additional easing measures in terms of three dimensions—quantity, quality, and interest rate—if it is judged necessary for achieving the price stability target. The form of this forward guidance basically remained the same from the introduction of QQE—signaling the BOJ’s willingness to continue until 2% is achieved and long-term inflation expectations become stabilized at around 2%.

4.2 Rationales for Introducing the Complex Three-Tier System

The three-tier system gave an impression of complexity so that few market participants or people seem to fully understand how the mechanism works even today. This will naturally lead to the following question: Why did the BOJ adopt such a complex system to begin with? There are essentially two rationales. One is to mitigate the adverse impact on the banking sector caused by a cut in the BOJ’s interest payment on the current account balances to financial institutions by introducing an exemption. The other is to maintain the function of money markets.
A. Mitigating the Adverse Impact on Banking Sector Profitability

The most important rationale for adopting the three-tier system was to mitigate adverse impacts on the profitability of financial institutions through a decline in interest income paid by the BOJ on the current account balance. Basic Balance (Positive Rate Account) and the Macro Add-On Balance (Zero Rate Account), as well as the Benchmark Ratio are essential elements of mitigating a sharp decline in interest income from the BOJ, as already pointed out. Thanks to the exemption, the weighted average of three interest rates on the current account balance remained positive even after the negative interest rate was introduced (Table 4-1). Prior to the introduction of a negative interest rate, the average rate remained at around 0.096%; and the rate was below 0.1% since required reserves are subject to a zero interest rate. After that, the weighted average rate dropped to 0.07% and gradually declined to 0.06% from the June 2016 reserve maintenance period, as the relative size of the realized value for the Zero Rate Account grew steadily from 8.8% to 24% over the reserve maintenance periods from February to November 2016.

<table>
<thead>
<tr>
<th>Reserve Maintenance Period (2016)</th>
<th>Weighted Average of Deposit Rates (%)</th>
<th>Total Current Account Balance (100 Million Yen)</th>
<th>Share of Realized Positive Rate Account (% of Total)</th>
<th>Share of Realized Zero Rate Account (% of Total)</th>
<th>Share of Realized Negative Rate Account (% of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>0.07</td>
<td>2,540,536</td>
<td>82.4</td>
<td>8.8</td>
<td>8.8</td>
</tr>
<tr>
<td>March</td>
<td>0.07</td>
<td>2,667,030</td>
<td>78.8</td>
<td>10.1</td>
<td>11.1</td>
</tr>
<tr>
<td>April</td>
<td>0.07</td>
<td>2,758,297</td>
<td>75.9</td>
<td>16.4</td>
<td>7.7</td>
</tr>
<tr>
<td>May</td>
<td>0.07</td>
<td>2,762,918</td>
<td>75.6</td>
<td>17.0</td>
<td>7.4</td>
</tr>
<tr>
<td>June</td>
<td>0.06</td>
<td>2,937,697</td>
<td>71.0</td>
<td>20.3</td>
<td>8.7</td>
</tr>
<tr>
<td>July</td>
<td>0.06</td>
<td>2,905,459</td>
<td>71.9</td>
<td>20.9</td>
<td>7.1</td>
</tr>
<tr>
<td>August</td>
<td>0.06</td>
<td>2,943,505</td>
<td>71.0</td>
<td>21.3</td>
<td>7.7</td>
</tr>
<tr>
<td>September</td>
<td>0.06</td>
<td>3,014,826</td>
<td>69.0</td>
<td>23.3</td>
<td>7.7</td>
</tr>
<tr>
<td>October</td>
<td>0.06</td>
<td>3,074,980</td>
<td>67.9</td>
<td>23.6</td>
<td>8.4</td>
</tr>
<tr>
<td>November</td>
<td>0.06</td>
<td>3,046,730</td>
<td>68.6</td>
<td>24.0</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Source: Bank of Japan.

The system is apparently more complicated than the ECB system, where a negative interest rate (currently, –0.4) has been applied to all excess reserves and the deposit facility. On required reserves, the ECB applies an interest rate on the Marginal Refinancing Operation, which was lowered from 0.05% to zero percent in March 2016. Therefore, the ECB provides no exemptions from a negative interest rate on excess reserves, so that direct impact on banking sector profitability is larger than in Japan.
B. Negative Interest Rate Policy of the Swiss National Bank

The three-tier system apparently followed the exemption practices adopted by the Swiss National Bank (SNB) (announced in December 2014 and implemented in January 2015). Danmarks Nationalbank in Denmark (adopted from July 2012 to April 2014 and reintroduced in September 2014), and Sveriges Riksbank in Sweden (introduced in February 2015). All these central banks adopted a negative interest rate to deal with a sharp appreciation of their currencies caused by the Sovereign Debt Crisis in the eurozone and/or an introduction of a negative interest rate by the ECB. In the case of Denmark, a negative interest rate was necessary to maintain a fixed exchange rate against the euro under the Exchange Rate Mechanism II.11

The most relevant example is the case of the SNB. On 18 December 2014, the SNB announced the imposition of an interest rate of –0.25% on sight deposit account balances held at the SNB that exceeded a given exemption threshold—with effect from 22 January 2015. The policy was aimed at taking the 3-month London Interbank Offered Rate (LIBOR) into negative territory. The decision also included a change in the target range for the 3-month LIBOR—expanding it from –0.25% to 0% to –0.75% to 0.25%.

On 15 January 2015, the SNB surprised the markets by suddenly discontinuing the minimum exchange rate of SwF1.20 per euro. The exchange rate policy had been introduced in September 2011 in response to a substantial overvaluation of the Swiss franc caused by global uncertainty and resultant growing demand for safe-haven currencies. It had enforced the minimum rate by buying foreign currency in unlimited quantities. On 15 January 2015, the SNB abandoned the minimum exchange rate policy and at the same time lowered the interest rate on sight deposit account balances that exceeded a given exemption threshold by 0.5 percentage points from –0.25% to –0.75%. Moreover, the target range for the 3-month LIBOR was lowered by 50 basis points from –0.75% to 0.25% to –1.25% to –0.25%. The decision to terminate the minimum exchange rate policy reflected SNB’s assessment that the exceptional overvaluation of the Swiss franc had decreased although the exchange rate was still overvalued.12

Negative interest is charged only on the portion of the sight deposit account balance that exceeds a certain threshold. The exemption threshold applies to each individual account holder and shall be at least SwF10 million based on the aggregate balance. For account holders subject to minimum reserve requirements (domestic banks), the threshold corresponds to 20 times the minimum reserve requirement for the specified reporting period: this amount is called the static component. The threshold is comprised of this main static component and a dynamic component (change in cash holdings of banks from comparison of cash holdings in the current reporting period and the corresponding reporting period in given reference period). If cash holdings increase (decrease), the increased amount will be deducted from (added to) the threshold. This exclusion of the increase in cash holdings aims to prevent banks from substituting cash for sight deposits—the approach also adopted by the BOJ. As for account holders not subject to the minimum reserve requirement (including foreign banks, securities dealers, insurance companies, international organizations, and central banks), the SNB sets a fixed threshold.

The SNB’s exemption scheme on the negative interest rate is much simpler than the BOJ’s three-tier system. This difference is attributable to different monetary easing tools adopted. The BOJ conducts a large-scale JGB purchase program and consequently faces a rapid, steady increase in excess reserves every month. Thus, the SNB’s relatively static approach—setting a relatively fixed threshold such as 20 times the minimum reserve requirement—is not suitable for Japan since it would lead to a steadily rising amount under the Policy-Rate Balance and hence financial institutions having to increase interest payment to the BOJ. For this reason, the BOJ needed to introduce the Benchmark Ratio. It is similar to the SNB’s threshold except that the BOJ’s Benchmark Ratio rises over time and the SNB’s threshold is almost constant over time.

C. Maintaining the Function of the Money Markets

The second rationale for introducing the three-tier system in Japan was to maintain the function of the money markets. It was mainly aimed at preventing an uncollateralized call market from collapsing since many market participants such as MMFs, MRFs, and some other investment trusts were no longer able to actively participate in the money market as a provider of funds in an environment of negative returns. The three-tier system was intended to support the market function by creating new opportunities for arbitrage transactions.

Role of a Deposit Rate in Maintaining the Function of the Interbank Money Markets

Before examining the negative deposit rate, it is important to understand the role that a positive interest rate used to play. A positive interest rate used to help align an uncollateralized overnight call market rate to the target level determined by the Monetary Policy Meeting under the Comprehensive Monetary Easing (CME)—just before the introduction of QQE. The uncollateralized overnight call rate was the main operating target for money market operations under CME. A deposit interest rate formed a floor below the call market rate movements since financial institutions with access to the current account balances with the BOJ were unlikely to lend funds to other financial institutions at an interest rate below the deposit interest rate paid by the BOJ. In the meanwhile, an official discount rate formed a ceiling on the call market rate movements under the Complementary Lending Facility (an extension of overnight loans by the BOJ to financial institutions at their request). With the existence of floor and ceiling operations, the BOJ could provide liquidity to the call rate market more flexibly to achieve the policy rate target. Especially, the floor function was important to smoothen the BOJ’s money market operations to achieve the policy target. The QQE replaced the policy rate with the monetary base as the main operating target, but the deposit rate continued to have a floor function in the markets.

Just before the negative interest rate policy, the market-determined uncollateralized overnight call rate fluctuated at around 0.07%. Commercial banks could borrow funds from other nonbank financial institutions with no access to a current account with the BOJ—such as MMF, MRF, and other nonbank financial institutions—at around 0.07% and then deposit the proceeds in the current account. These commercial banks thus profited roughly from a difference between a 0.1% deposit rate paid by the BOJ and a 0.07% rate paid to nonbank financial institutions. Meanwhile, nonbank financial institutions also benefited from providing funds at a rate of around 0.07% to commercial banks and thus earning moderately positive returns. To be precise, some costs including deposit insurance fees and fees paid to money market brokers should be deducted from those gains. In this way, the deposit rate contributed to maintaining the interbank market functions between commercial banks and nonbank financial institutions through promoting such arbitrage transactions.
The role of the deposit rate became more important in the excessive liquidity and low interest rate environment. This is because ample liquidity injected by monetary easing under QQ operated to reduce the size of the money markets due to a lack of incentives to borrow or lend funds among financial institutions. In these circumstances, a positive interest rate on the current account balance helped sustain market transactions since the market-determined call rate remained positive even after a decline. The floor function of the interest rate on the current account tended to become binding. Therefore, the BOJ always held the view that an interest rate should be kept positive since the volume of transactions and the money markets could decline further.

Case of the Federal Reserve in the US

A similar operation was established in the US in October 2008. The Federal Reserve was authorized to pay interest on balances held by or on behalf of depository institutions at the 12 Reserve Banks under the Financial Services Regulation Relief Act of 2006. Initially, the interest rate was scheduled to be applied from October 2011, but the effective date was brought forward to October 2008 under the Emergency Economic Stabilization Act of 2008. In the case of the US, the Federal Reserve was authorized to pay not only to excess reserve and clearing balances, but also to required reserves. But different interest rates are applied to excess and required reserves in normal times. An interest rate on required reserves (IORR rate) is determined by the Board of Governors of the Federal Reserve System (comprising of seven members including the Chair, Vice Chair, and other board members) to eliminate effectively the implicit tax that the Reserve Requirement System imposes on financial institutions. Meanwhile, an interest rate on excess reserves (IOER rate) is also determined by the same Board to give the Federal Reserve an additional tool for the conduct of monetary policy. In normal times, the IOER rate is set lower than the IORR.

When the Federal Reserve lowered the federal funds target rate and introduced the target range of 0%–0.25% in December 2008, both IORR and IOER rates were set equal to the top of the range (i.e., 0.25%). Prior to this decision, the IORR was set equal to the average federal fund rate targeted by the Federal Open Market Committee (FOMC) while the IOER was set equal to the lowest target rate. In December 2015, the Federal Reserve began to normalize monetary policy and raised the target federal funds rate from 0%–0.25% to 0.25%–0.5%. At the same time, both the IORR and IOER rates were raised from 0.25% to 0.5%. Similarly, in December 2016, the Federal Reserve raised the target federal funds rate to 0.5%–0.75% and both the IORR and IOER to 0.75%.

This means that the Federal Reserve intends to set the IORR and IOER equal to the top of the range during the period of normalizing monetary policy. Eventually, the Federal Reserve envisages that the IOER will be reestablished as a floor below the federal funds rate movements, and the IORR is likely to be set closer to the federal funds rate target. Owing to the floor function, the federal funds rate remained positive so that market transactions were performed between financial institutions having access to reserve balances at the Federal Reserve and financial institutions without such access. The former are mainly commercial banks, while the latter are MMFs, Government Sponsored Enterprises, and other entities. Arbitrage transactions take place among the former and the latter since the former could borrow funds from the latter at a rate lower than the IOER and profit from placing those proceeds to earn the IOER.
Three-Tier System and the Uncollateralized Call Market

Thus, the negative interest rate was expected to eliminate such transactions in the call market. The complex three-tier system was needed to generate new market transactions using unused portions within the upper bounds in the Zero Rate and Positive Rate Accounts—to offset an expected decline in transactions among existing market participants. The size of the call markets dropped sharply from the February 2016 reserve maintenance period starting on 16 February when the negative interest rate was applied (Figure 4-5). With regard to the uncollateralized market, the size dropped from around 6 trillion yen to around 2.7 trillion yen on 16 February. The shrinkage of the market reflects a withdrawal of some trust banks, MMFs, MRFs, and other entities that used to play a role as provider of funds, while city banks reduced the amount they borrow from the call market to prevent an increase in the balance in the Negative Rate Account.

Thereafter, however, the uncollateralized call market gradually recovered to around 6 trillion yen by October 2016 and to around 7–8 trillion yen by December 2016. The recovery of the market size suggests that arbitrage transactions took place using unutilized portions within the upper bounds in the Positive and Zero Rate Accounts. Especially, some regional banks, which had never been active members in the call market prior to the adoption of the negative interest rate policy, began to participate in arbitrage transactions using unused portions within the upper bounds. Meanwhile, some trust banks provided funds in the call market, charging a negative interest rate to reduce the amount of the current account balances in the Negative Rate Account.

Figure 4-5: Size of Uncollateralized and Collateralized Call Markets: 2013–2016 (100 Million Yen)

Source: Tanshin Kyokai.
With regard to the market interest rates, the uncollateralized overnight call rate remained around 0.07% before a negative interest rate became effective on 16 February 2016. After that, the rate soon dropped to −0.002% on 17 February, and thereafter the negative rate was deepened. From October to December 2016, the rate fluctuated between −0.02% and −0.05% (Figure 4-6). The call rate did not decline as much as the BOJ had probably anticipated. If a greater number of financial institutions facing the large current account balance under the Negative Rate Account were willing to reduce the balance, the interest rate could have approached −0.1%. The interest rate partly reflects the relative strength between funds providers’ incentives to reduce the negative current account balance and funds borrowers’ incentives to fulfill unused portions. If the former is stronger, the interest rate is likely to move toward −0.1%. If the latter is stronger, the interest rate is likely to approach zero percent.

**Figure 4-6: Uncollateralized and Collateralized Call Interest Rates: 2013–2016 (%)**

![Graph showing interest rates]

*Source: Tanshin Kyokai.*

**Decline in the Size of the Collateralized Call Market**

On the other hand, the collateralized call market had shrunk substantially and has so far recovered only partially (Figure 4-5). The amount outstanding dropped significantly from around 14 trillion yen on 27 January to around 1.7 trillion yen on 16 February and to around 2 trillion from October to December 2016. The sluggish recovery was due to a substantial decline in the transactions between major providers of funds (such as trust banks and investment trusts) and major borrowers of funds (such as money market brokers). Money market brokers used to obtain securities (such as the JGBs) from the General Collateral (GC) Repo market and borrowed funds in the collateralized call market using those securities as collateral. In this way, these brokers played a role of
a market maker by borrowing funds from trust banks and investment trusts. However, the negative interest rate moved the GC Repo rate into negative territory and raised the prices of those securities. Therefore, these brokers found it unprofitable to engage in the market making transactions. Moreover, city banks also withdrew from the market borrowers of funds using the JGBs to avoid an increase in the balance in the Negative Rate Account.

**Expanding General Collateral (GC) Repo Market**

By contrast, the size of Repo markets, especially that of the GC Repo market, grew over the same period (Figure 4-7). The BOJ gave four reasons for the rapid expansion of the GC Repo market. First, financial institutions with insufficient IT system infrastructure (that could accommodate trading at negative rates in call markets) shifted transactions from call markets to the GC Repo market since the latter market does not require financial institutions to upgrade their IT systems.

Second, some financial institutions with large unused portions within the upper bounds in the Positive and Negative Rate Accounts obtained funds from GC Repo market to fill the portions within the upper bounds, rather than obtaining funds in the uncollateralized call market from financial institutions with a large current account balance under the Negative Rate Account. This reflects that obtaining funds from the GC Repo market was cheaper and the rate more negative than the rate in the call market. This is attributable to growing scarcity of the JGBs so that JGB holders can take advantage of these conditions to obtain cheaper funds.

Third, meanwhile, some financial institutions facing large current account balances for the Negative Rate Account (such as trust banks) preferred to provide funds to the GC Repo market rather than to the uncollateralized call market, owing to the greater capacity to accommodate large trading volumes in the GC Repo market.

Fourth, foreign financial institutions and securities firms obtained Japanese yen cheaply by making use of higher US dollar funding premiums (explained in detail further in subsection 4-5) and actively engaged in the GC Repo market as intermediaries between nonresidents and GC Repo market participants. Foreign financial institutions also preferred the GC Repo market to the call market due to the former’s greater capacity to accommodate large trading volumes.

To summarize, the total money market size dropped after adoption of the negative interest rate policy. The market includes call markets, repo markets, commercial paper (CP) and certified deposit (CD) markets, and treasury bills (T-Bills) markets. The decline reflected reduced transactions in the collateralized call market. The sizes of the CP and CD markets and T-Bills markets also decreased due to lower investment incentives in the face of negative returns, and due to a decline in the funding needs of financial institutions to avoid the negative rate applied to an increase in the current account balance. However, the decline was somewhat mitigated by an increase in GC Repo transactions as well as new transactions undertaken in the uncollateralized market making use of arbitrage opportunities under the three-tier system.

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4.3 My Opposition to the Timing of Introducing the Negative Interest Rate

Why did the BOJ announce the negative interest rate policy in January 2016? In the Public Statement dated 29 January 2016, the BOJ judged that Japan’s economy continued to recover moderately, with a virtuous cycle from income to spending operating in both the household and corporate sectors, and the underlying trend in inflation rose steadily. Nevertheless, the BOJ’s concern was that an improvement in business confidence and conversion of the deflationary mindset might be delayed and that the underlying trend in inflation might be negatively affected by volatile global financial markets.

A. Was a Negative Rate Necessary When the BOJ Was Confident about Domestic Demand Performance?

As a Policy Board member and with about 2 months left before completion of my term, I voted against the negative interest rate policy in the January 2016 Monetary Policy Meeting. It was mainly because in my mind the timing of introducing the policy was not appropriate. It was not because I was against the negative interest rate policy per se, which could be utilized at a more suitable time in the foreseeable future. The BOJ’s stated purpose of introducing a negative interest rate was to cope with rising concerns about unstable global financial
markets that might undermine the underlying price developments. However, the root causes of instable global markets were related to the slowdown of the economy of the People’s Republic of China, which had started in 2012 and resulted in a growth rate below 7% from 2015. The resulting instable exchange rate and stock markets were already present during the summer of 2015 as a result of the change in the People’s Republic of China’s exchange rate policy. These were not very recent developments for the BOJ to consider.

It may be true that a substantial oil price drop and a sharp appreciation of the US dollar against major currencies contributed to destabilizing the global economy. Meanwhile, the yen vis-à-vis the US dollar began to show a modest appreciation from an average rate of 122.6 yen in November 2015 to 120.4 yen by end-December 2015. It is possible that the BOJ was concerned about such developments. However, what was crucial at that time was whether the yen was in fact overvalued and whether unfavorable global developments had contributed to weakening domestic demand and worsening the output gap in Japan. If domestic demand was declining and/or such downside risk was increasing, as was the case in October 2014, the BOJ’s concerns were understandable. But the BOJ clearly rejected such concerns and the Public Statement stressed that it had no concerns about the domestic economic recovery process and domestic demand conditions.

In my view, the BOJ should have waited until the downward pressure on prices from the crude oil price drop started to ease before making any judgment as to whether additional easing was necessary. The degree of monetary easing was already very accommodative as interest rates were already low, so I felt that additional monetary easing was not justifiable.

B. Inconsistency with the Asset Purchase Program

Second, it is important to recognize that applying a positive rate on the current account balance contributed to sustaining smooth operations of the Asset Purchase Program. The BOJ chose the monetary base as the operating target for money market operations under QQE and increased the annual pace of JGB purchase to 80 trillion yen from October 2014. Thus, one of the major tasks at the BOJ’s operational department (Financial Markets Department) was to meet the operating target as closely as possible. This means that fulfilling the monetary base target is prioritized over other guidelines in the conduct of monetary policy. The operating target differs from that of the Federal Reserve where the objective for open market operations continued to be specified as the federal funds rate. The Federal Reserve maintained this target even when it greatly expanded its holdings of longer-term securities through open market purchases with the goal of putting downward pressure on longer-term interest rates.

In Japan, the banking sector is dominant in the financial system with ample deposits from retail customers so that the market sizes of securities markets (such as corporate bonds and asset-backed securities [ABS]) are small. Thus, the JGBs are the main financial assets that can be purchased by the BOJ to steadily expand the monetary base. Given that domestic financial institutions—such as banks, pension funds, and insurance firms—hold a substantial amount of the JGBs, the BOJ mainly purchases the JGBs from these financial institutions. Commercial banks hold the JGBs mainly to fill the gap between retail deposits and loans extended to the private sector. Commercial banks face a steady increase in retail deposits, but an increase in credit demand is limited as compared with the deposit increase.
While large commercial banks could earn revenue from actively trading the JGBs and actively investing abroad, the majority of regional banks and credit unions have only limited alternative investment opportunities due to limited skills. These small banks have to examine whether their holdings of JGBs should be sold to the BOJ and earn an interest rate of 0.1%, or, alternatively, should be held until maturity to earn a coupon rate. The positive rate provided the incentive for these banks to sell the JGBs to the BOJ. This is why the expansion of the monetary base and an associated increase in asset purchases are consistent with the positive deposit interest rate.

Moreover, the BOJ adopted a supplementary measure in December 2014 by lengthening the average remaining maturity of the JGBs from around 7–10 years (extended from around 7 years in October 2014) to around 7–12 years. This measure was to ensure the sustainability of the JGB purchase program since the BOJ judged that it might become increasingly difficult to achieve the targeted amount of 80 trillion yen unless longer-term bonds could be purchased. Without this measure, the average maturity of the JGB purchase was likely to gradually lengthen toward 10 years by mid-2016. By that time, the markets would have begun to speculate that the JGB purchase program would reach its limit. Thus, in my view this measure was essentially a preemptive action to enhance the sustainability of the program and eliminate potential market participants’ speculations.

Therefore, right after the decision to adopt the supplementary measure, the adoption of a negative interest rate appeared inappropriate. Especially, a negative interest rate policy reduced the sustainability of the JGB purchase, since some financial institutions became reluctant to sell the JGBs. It is my view, therefore, that a negative interest rate was not only conceptually and logically inconsistent with the existing practices and rationales, but also inconsistent from an operational point of view (smoother JGB purchase operations).

C. Comparison with the ECB and Expected Repeated Requests for a Rate Cut

Third, the negative interest rate policy was likely to invite repeated requests from the markets for a further deepening of the negative interest rate since a comparison could be easily made with the ECB. The ECB had already introduced the negative deposit facility rate in June 2014 and lowered it from −0.1% in June 2014 to −0.2% in September 2014. It was lowered further to −0.3% in December 2015. As of January 2016, it was widely expected that the ECB would reduce the rate further to −0.4% at the next March 2016 General Council. If the BOJ introduces a negative interest rate in these circumstances, repeated demands for a further deepening of the negative interest rate were likely to be generated by the markets in Japan.

Moreover, the ECB experience with a negative interest rate and the Asset Purchase Program needed to be carefully examined. It appeared that the asset purchases had been more effective in raising inflation expectations than a negative interest rate. Given declining long-term inflation expectations (such as 5-year/5-year inflation swap rates) and the appreciation of the euro, the ECB initially decided in June 2014 to introduce a negative deposit facility rate of −0.1% together with an announcement of the Targeted Long-Term Repurchase Operations and a preparation of the ABS purchase. However, inflation expectations continued to drop even after the negative interest rate policy was introduced although the euro depreciated against other currencies. The ECB’s concerns about declining inflation expectations ultimately led to an announcement in January 2015 of a large-scale Asset Purchase Program including eurozone sovereign bonds with effect from March 2015.
D. Suitable Timing to Adopt a Negative Interest Rate

The next question then is this: When should the BOJ have considered the negative interest rate policy? In my view, better timing would have been after finding it increasingly difficult to maintain an annual pace of 80 trillion yen so that the BOJ needs to consider a reduced but more sustainable pace of monetary easing. This would be a case of tapering—an initiation of a cut in the annual pace of the JGB purchase. Tapering is not a tightening of monetary policy since it means that the amount of the BOJ’s outstanding holdings of JGBs would continue to rise and thus there would be greater monetary accommodation. However, the US experience in 2013 suggests that the markets may regard it as a change in the stance of monetary easing toward reducing monetary accommodation and normalizing monetary policy, which could lead to a sudden long-term interest rate hike. Therefore, a combination of tapering with a negative interest rate policy might have been helpful in mitigating the risk of overshooting in terms of the negative interest rate policy, at least on the short- to medium-term yield curve.

My thought just before the January 2016 Monetary Policy Meeting, therefore, was that the BOJ could consider tapering sometime in the second half of fiscal year 2016 (at the latest in the first half of 2017) after the downward pressure on prices from an oil price drop would have waned so that inflation starts to pick up and underlying inflation begins to strengthen.

4.4 Unique Market Reactions to the Policy Announcement

The idea of a negative interest rate was nothing new in Japan—foreign investors, academics, and the media had regularly brought it up from as long ago as the Governor Masaaki Shirakawa period (2008–2013). The call for a negative interest rate had strengthened further after the ECB, one of the major central banks in the advanced economies, had adopted it in June 2014 as one of the unconventional monetary easing instruments. The announcement of a negative interest rate generated unique market reactions in Japan, compared with the adoption of QQE in April 2013 and the subsequent QQE expansion in October 2014.

A. Positive Surprise Turning to Negative Shocks in Just Two Days

The QQE and QQE expansion decisions positively surprised the markets, as evidenced by an increase in stock prices and a depreciation of the yen against the US dollar and other major currencies.

In sharp contrast, the January 2016 announcement was received by the markets with positive surprise only initially; the positive reactions lasted only for 2 days—29 January 2016 (Friday) when the policy was announced and the following working day of 1 February (Monday). The yen depreciated against the US dollar from around 118.7 yen on 27 January prior to the 2-day Monetary Policy Meeting to around 121 yen on 29 January and 1 February 2016. Thereafter, the exchange rate of the yen against the US dollar rapidly changed direction and appreciated from around 119.9 yen on 2 February to below 110 yen by 6 April and further to below 105 yen by mid-June. It appreciated to 99.08 yen temporarily on 24 June in response to the surprise Brexit referendum result in the United Kingdom. Thereafter, the yen vis-à-vis the US dollar fluctuated in the range of 100–106 yen. Similarly, the Nikkei 225 Stock Average rose from around 17,164 yen on 27 January 2016 to around 17,518 yen on 29 January and further to around 17,865 yen on 2 February. Thereafter, the stock price dropped below 17,000 yen from 5 February, and since then the stock prices have moved mostly in the range of 16,000 yen to 17,000 yen.
B. Why Were the Market Reactions Reversed?

The positive market mood evaporated rapidly for several reasons. First, the BOJ and Governor Kuroda repeatedly stressed that there would be substantial JGBs available for the BOJ to purchase since the BOJ had purchased only one-third of the outstanding JGBs issued so far. They also repeatedly denied a negative interest rate as a possible option. Thus, it was natural that the markets had expected the BOJ would pursue an expansion of the JGB purchases beyond 80 trillion yen rather than adopt a negative interest rate.

The market participants—especially short-term oriented financial institutions such as hedge funds—generally preferred an expansion of asset purchases to a negative interest rate policy. This is because QQE and QQE expansion were perceived as having generated a favorable performance. CPI-based inflation turned positive from June 2013 to the maximum 1.6% (excluding the direct impact of the consumption tax hike) in 2014. CPI-based inflation excluding food and energy (core core CPI) continued to rise in 2015 and reached the maximum 0.9% in the second half of 2015. Long-term inflation expectations—especially market-based indicators—continued to rise until early 2014 and thereafter remained at that level until mid-2015. Therefore, some participants initially took the negative interest rate policy favorably but soon began to perceive that the BOJ adopted a new tool since the existing Asset Purchase Program had been approaching the limit contrary to BOJ’s communication. This change in perception led to a reversal of market reactions with a lag.

Second, some market participants began to anticipate that the negative interest rate would lower the profitability of the banking sector through a cut in interest rate margins. Growing concern over the profitability of Deutsche Bank, the largest bank in Germany, added to their concerns. Just about one week before the January Monetary Policy Meeting, on 22 January 2016, Deutsche Bank had announced that an overall loss would be expected for the fourth quarter of 2015 and for the full year 2015, mainly due to a number of litigation charges. These concerns led to a large sell-off of banking sector stocks in Japan.

Third, some foreign investors or proponents of a negative interest rate took the view that a negative interest rate policy was timid since only a small portion of the current account balance (i.e., 10–30 trillion yen) was subject to a negative interest rate. Thus, the effectiveness of a negative interest rate could be weaker than in the case of the ECB where a negative rate was applied to all excess reserves and deposit facility.

C. Biggest Drop in JGB Yields since Introduction of QQE

An unusual market reaction was also evident in the JGB market. Conceptually speaking, one should expect that the scale of downward pressure on long-term interest rates would be greater in the case of an increase in asset purchases than in the case of a negative interest rate. However, the scale of downward pressure on long-term interest rates was biggest in the case of the negative interest rate policy decision of January 2016, when there was no additional increase in JGB purchases as compared with the decision to increase asset purchases in April 2013 and October 2014 (Figure 3-5, Figure 4-8). The negative interest rate policy is supposed to lower mainly the very short end of the yield curve and thus steepen the yield curve. If so, what factors contributed to lowering longer-term JGB yields?
It is important to know that the tighter demand–supply conditions in the JGB market had already been expected to exert stronger downward pressure on JGB yields from early 2016 for several reasons, even before the negative interest rate policy. First, the BOJ had been expected to increase the amount of JGB purchase on a gross basis (including reinvestment) in 2016 because of an increase in the amount of redemptions from around 30 trillion yen in 2015 to around 40 trillion yen in 2016. Moreover, the BOJ had been planning to purchase longer-term JGBs in 2016 owing to the supplementary measure to extend the average remaining maturity target of JGB purchases from about 7–10 years to about 7–12 years. Meanwhile, short- to medium-term yields had increasingly been under strong downward pressure since foreign investors obtained Japanese yen at a low cost by taking advantage of the negative foreign exchange swap-implied yen rate and used those proceeds to invest in T-Bills and shorter-term JGBs, as we will see further below.

In addition to these factors, a negative interest rate further amplified the downward pressure on the JGB yields for the following four reasons:

- Many financial institutions refrained from selling JGBs to the market and the BOJ to prevent their current accounts at the BOJ from increasing.
- Reluctance to sell JGBs was amplified by the increased difficulty for financial institutions to reinvest in other yen-denominated bonds due to their overvalued prices.
- Some financial institutions rushed to purchase longer-term JGBs in pursuit of positive yields. Yields of all JGBs up to 10 years fell into negative territory after adoption of the negative interest rate, which further accelerated the search for positive yields in the JGB market.
- Some securities firms increased JGB purchases in anticipation of capital gains.

These actions resulted in increased demand for longer-term JGBs in the market and thus tightened the demand–supply balance in the JGB market, raising the prices further.
4.5 Benefits under the Negative Interest Rate Policy

Mainly three favorable developments were driven by the negative interest rate: (1) an expansion of the residential investment and Japan real estate investment trust (J-REIT) market, (2) greater issuance of longer-term corporate bonds, and (3) greater foreign portfolio investment. These developments could be viewed by the BOJ as signs of deeper portfolio rebalancing by households, financial institutions, and investors toward riskier assets. These benefits will be discussed below and some emerging concerns related to these developments will also be pointed out.

A. Growing Residential Investment and J-REIT Market

First, the average new lending rates of domestic banks dropped further from January to March 2016 following adoption of the negative interest rate policy (Figure 4-9). Refinancing of existing mortgages to new mortgages at lower lending rates increased as well. According to the BOJ’s Senior Loan Officer Opinion Survey on Bank Lending Practices at Large Japanese Banks (Loan Survey), the diffusion index (DI) of demand for housing loan showed a remarkable increase from the June 2016 Survey to the September 2016 Survey (Figure 4-10). An increase in demand for housing loans was also consistent with an actual increase in housing loans, suggesting that a lower mortgage rate stimulated demand for residential investment.

Growing Mortgage Demand but Limited Credit Demand by the Corporate Sector

In the meanwhile, such an improvement in the DI for demand for credit was not evident with regard to the corporate sector. While the DI for credit demand by large firms had dropped already from end-2014 and did not recover after adoption of a negative interest rate, the DI for credit demand by small and medium firms remained unchanged over the period (Figure 4-10). As a whole, total credit activities by domestic banks did not show a pickup after adoption of a negative interest rate, as evidenced by sluggish credit growth until August 2016 (Figure 4-11). A moderate increase in loans from September 2016 reflects loans related to housing investment for rent as well as merger and acquisition. Meanwhile, rapid growth in retail deposits was evident partly due to the transfer of funds from the MMF, MRF, and other investment funds. As a result, the loan–deposit ratio dropped from 68% in January 2016 to 66% in December 2016.

Figure 4-9: Average New Lending Rate and Deposit Rate of Domestic Banks: 2013–2016 (%)
**Figure 4-10:** Financial Institutions’ Lending Attitude Diffusion Index: 2013–2016 (%)

Note: Positive diffusion index refers to stronger demand for loans.

**Figure 4-11:** Growth Rates of Loans and Deposits of Domestic Banks: 2013–2016 (%)

CDs = certificates of deposit.
Note: Data mainly includes city banks and regional banks.
Source: Bank of Japan.
Growing Housing Investment for Rent and Tax Saving Purposes

An increase in housing loans was motivated not only by a decline in housing loan interest rates, but also by tax saving purposes. This is consistent with the fact that residential investment for owned houses and condominiums has been lower than housing investment for rent. An increase in housing investment for rent mainly reflects the purpose of saving on inheritance tax (especially because a tax revision with effect from January 2015 increased inheritance tax rates and widened the coverage of eligible tax payers) and property tax—rather than a response to growing demand for rental housing caused by a greater number of tenants. A growing number of individuals who own land invested in housing for rent since inheritance and property taxes could be reduced on the portion of land utilized for apartments or housing for rent. The amounts of savings in tax payments are substantial as compared with merely keeping land. Natural demand for housing is not very high in Japan, mainly due to a declining population and a declining number of young households.

Given that there are already plenty of empty houses and apartments in Japan and the declining population is projected to accelerate this trend, an increase in the number of apartments for rent may amplify excess supply conditions and result in an increase in nonperforming loans in the future. The BOJ’s Financial System Report released in October 2016 reported that financial institutions increasingly extended real estate loans at a much faster pace than loans to firms in all industries and that the aggregate amount of real estate loans had already surpassed the previous peak. By type of financial institution, the growth rate of city banks’ lending has recently slowed while that of regional banks has accelerated. City banks’ sluggish lending activities can be attributed to their limited numbers of branches outside the metropolitan areas, greater emphasis on other income and fee businesses, and cautious risk management by domestic lending businesses due to intensified competition. Regional banks’ credit growth may reflect their greater sales efforts as well as intensified competition for survival in the presence of ample retail deposits. While the BOJ concluded that there was no serious risk related to such lending at this stage, greater attention needs to be paid to the lending activities of financial institutions.14

Rapidly Growing J-REIT Market

J-REITs continued to enjoy inflows of funds from domestic and foreign investors in search of higher returns. Given that the rates of return for listed REITs were on average 2%–3% and much higher than the yields on long-term JGBs, some financial institutions undertook a rebalancing of their portfolios from JGBs to JREITs. The negative interest rate in particular encouraged financial institutions to take greater risks in terms of investing in J-REITs. Together with a low funding cost from commercial banks, an increase in capital inflows in the J-REIT market enabled REIT managers to expand their activities by acquiring more properties not only in the Tokyo metropolitan area but also in other large cities.

The size of market capitalization has continued to rise. For example, the size of market capitalization of the Tokyo Stock Exchange REIT Index reached 12 trillion yen at end-December 2016 with an average dividend yield of 3.5%. Some J-REITs, especially those specialized in commercial real estate, provided higher returns. One growing concern is that the higher prices of new real estate properties may give rise to overheating conditions in some large cities, thus lowering expected returns. Another concern is that an increase in rent for such properties and thus income has been limited so far. This may give rise to greater uncertainty about the continuous increase in dividends.

B. Growing Issuance of Longer-Term Corporate Bonds

Second, some large firms increased issues of longer-term corporate bonds. For example, West Japan Railway (JR West) issued 10 billion yen (about 90 million US dollars) of 40-year straight bonds in February 2016 to take advantage of cheaper funding costs. This was the first time for a private sector firm to issue such longer-term bonds in Japan. Ajinomoto Co., Inc., a large seasoning manufacturer, followed JR West and issued 25 billion yen (about 220 million US dollars) of 20-year bonds. Such an increase in super-long-term corporate bonds reflects high demand from institutional investors in search of higher yields given extremely low JGB yields.

Despite growing issuance of corporate bonds, the size of the corporate bond market in Japan remained too small to become a comparable substitute for the JGB market that could meet investors’ demand. Corporate bonds outstanding recorded 77 trillion and financial bonds outstanding recorded 11 trillion yen at end-September 2016. The combined size is significantly small in relation to nominal GDP (about 16%) and the size of the JGB market (about 971 trillion yen) and T-Bills (120 trillion yen). Another development seen after adoption of the negative interest rate policy was a widening of yield spreads between corporate bonds and JGBs (for example, comparable 5– to 6-year JGBs). This is a new feature that did not emerge under QQE. The wider credit spreads occurred since JGB yields dropped faster than the corporate bond yields, not because the creditworthiness of corporate bonds deteriorated. Some firms refrained from issuing bonds because of the wider spreads. From the end of July 2016, the credit yields spread narrowed after JGB yields began to rise, reflecting market anticipation of a possible change in the BOJ’s monetary easing framework as explained further below.

C. More Active Foreign Portfolio Investment

Third, financial institutions became more active in investing abroad in search of higher returns on investment. This action could be regarded as portfolio rebalancing and promoting greater diversification of profit sources as envisaged by the BOJ. Some regional banks revised their external portfolio investment strategy from a cautious approach to a more active one by raising the share of foreign bonds in total assets. Accordingly, they increased the numbers of specialized staff in foreign securities investment. Some institutional investors such as life insurance firms have increasingly diversified their portfolio toward foreign bonds.

Higher US Dollar Funding Premium

Nevertheless, the major challenge for these financial institutions lies in how to secure stable US dollar funding sources in the face of its rising cost. From 2014, US dollar funding premiums in the foreign exchange swap and cross-currency basis swap markets rose substantially against the Japanese yen, followed by the euro (Figure 4-12). Various factors contributed to the higher US dollar funding premium or a negative foreign exchange swap-implied yen rate or euro rate. A key factor is increased demand for the US dollar as a result of greater incentives of Japanese and European financial institutions to invest in the US in response to interest rate differentials—higher interest rates in the US than in Japan and the eurozone as a result of monetary policy divergence.
Another factor is that tighter financial regulations prevented US financial institutions from actively engaging in financial transactions as providers of US dollar to Japanese and European financial institutions. Moreover, the Money Market Fund (MMF) reform made it more expensive for foreign financial institutions to raise US dollars in the US interbank money markets, adding to the higher dollar funding cost. The MMF reform announced in 2014 by the US Securities and Exchange Commission with effect from October 2016 required floating net present value for institutional prime MMFs that invest in commercial paper (CP), certificates of deposits (CD), and other non-treasury bills, thereby allowing the daily share prices of these funds to fluctuate—a big shift from the past practice of maintaining a constant share price of 1 US dollar. Also, the MMF reform permitted institutional prime MMFs to impose a fee of 1% on redemption if the fund’s assets that can be liquidated within 1 week fall below 10%, and impose a fee up to 2% if they fall below 30%. These MMFs were also allowed to prevent redemptions completely for up to 10 days if the 30% threshold is breached. The MMF reform resulted in shifting funds from institutional prime MMFs to government MMFs, which are not subject to the reform. Consequently, Japanese and other foreign banks found it more expensive to raise US dollars through using the CP and CD funding tools in the US.

In response to higher dollar funding cost, some Japanese financial institutions diversified foreign securities investment toward agency mortgage-backed securities (MBS) and corporate bonds in the US whose returns had been higher than the US treasury securities, or alternatively, euro-denominated sovereign bonds whose hedging cost had been lower than the US dollar. Some financial institutions increased foreign investment without hedging exchange rate risk. Nonetheless, financial institutions must counterbalance additional risk borne by investing in riskier assets or without hedging exchange rate risk since financial regulations require additional capital accumulations.
4.6 Cost and Side Effects of the Negative Interest Rate Policy

The negative interest rate policy lowered the entire yield curve and resulted in reducing longer-term yields to a significant degree. While the BOJ views this as a success of monetary policy, this policy raised a number of concerns and has potential side effects. Those could be classified into four issues: (1) a decline in liquidity and weakened functions of the JGB markets, (2) declined profitability of the banking sector and institutional investors as well as recognition of potential financial instability risk, (3) a rise in corporate sector pension liability and a deterioration in households’ sentiments, and (4) the BOJ’s operational challenges and its balance sheet risk.

A. Weakened Liquidity and Function of JGB Markets

Since the introduction of QQE, liquidity and functioning of the JGB markets have deteriorated. The negative interest rate policy exacerbated these conditions further. This is because a greater number of traditional market participants refrained from actively transacting in the market to avoid a negative interest rate. The scarcity of JGBs also led to a shrinkage of related monetary market activities including the Special Collateral (SC) Repo Market.

Growing Speculative Nichigin Trade

Some securities firms profited increasingly from the so-called Nichigin (BOJ) Trade, which became prevalent after the adoption of the negative interest rate policy. This trade refers to the practices that these firms deployed, namely, purchasing JGBs at the auctions organized by the Ministry of Finance and reselling them within a few days to the BOJ through the BOJ’s outright purchase operations at higher prices without incurring significant costs of holding stock of JGBs.

This type of speculative trade became prominent since the BOJ had been committed to purchasing JGBs almost at any price to meet the annual JGB purchase target of 80 trillion yen in January 2016. The BOJ’s commitment was clear from the supplementary report entitled Key Points of Today’s Policy Decisions released immediately after the Public Statement on 29 January. The report stressed that the BOJ could continue purchasing JGBs because the costs of negative interest would be passed on to its purchasing prices of JGBs (or yields on JGBs purchased by the BOJ) so that the prices will be higher (or the yields will be lower). The BOJ also provides a monthly JGB outright purchase operation plan entitled Outline of Outright Purchases of Japanese Government Bonds and normally announces it at the end of the previous month. The outline roughly specifies the planned number of auctions and the amounts of purchases per auction, classified by several ranges of remaining maturity. Market participants make use of these plans and speculate in Nichigin Trade. If Nichigin Trade dominates the JGB markets, their soundness and functioning could eventually be undermined through reduced liquidity and lower diversity of market participants. It raises potential interest rate risks.

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**Growing Presence of Foreign Investors**

In addition to Nichigin Trade, foreign investors actively invested in T-Bills and short- to medium-term JGBs by obtaining Japanese yen cheaply through the negative foreign exchange swap-implied yen rate. Foreign investors with ample US dollar holdings could gain from this investment, as the cost of obtaining Japanese yen was much lower than the negative returns from T-Bills and short- to medium-term JGBs. Their strong appetite for T-Bills and JGBs contributed to lowering these yields sharply into negative territory. As of September 2016, foreign investors owned 47% of the outstanding T-Bills issued (57 trillion yen) and 5.6% of outstanding JGBs issued (55 trillion yen).

**Deterioration of the JGB Market Functioning: BOJ’s Bond Market Survey**

The BOJ has conducted a quarterly Bond Market Survey against about 40 eligible institutions (companies) on the BOJ’s outright purchases and sales of JGBs since February 2015. The survey reports the diffusion index (DI) for the degree of bond market functioning with regard to current conditions and the change from 3 months ago—both from the viewpoint of the company with which the respondent is affiliated. Table 4-2 indicates that the degree of bond market functioning DI deteriorated significantly for both the current situation and the change from 3 months ago, i.e., from the February 2016 survey to the August 2016 survey. From the November 2015 survey to the August 2016 survey, the DI for the current situation dropped from –13 (percentage points) to –46 and the DI for change from three months ago from –15 to –31. These developments suggest that the negative interest rate policy announced on 29 January 2016 and the subsequent drop in JGB yields reduced liquidity in the JGB market. Both DIs improved in May 2016, but then deteriorated again in August 2016. The deterioration in the bond market functioning in August 2016 was attributable to a decline in JGB prices and the resulting increased volatility in longer-term JGB yields. This was caused by market anticipation over a possible adjustment of the monetary easing framework by the BOJ in the next September 2016 Meeting, as pointed out further below.

The Bond Market Survey provided detailed results in the form of DI with regard to bond market functioning—it contained the following seven measures, some of which are prepared for both the current situation and the change from 3 months ago: (a) the bid-ask spread, (b) the order quantity, (c) the dealing frequency, (d) the number of dealing counterparties, (e) the lot size, (f) the ability to make dealings with expected prices, and (g) the ability to make dealings with expected dealing lots. Table 4-2 indicates that the functioning of the JGB market deteriorated in terms of most of these seven measures from November 2015 to February 2016 and further to August 2016. In particular, the bid-ask spread DI for the current situation, the order quantity DI, and the DI on the ability to make dealings with expected prices showed sharp deteriorations.

**Deteriorating Liquidity Conditions: BOJ’s Liquidity Indicators**

The BOJ supplements the Bond Market Survey by regularly reviewing various liquidity indicators both in the JGB future and JGB cash markets. According to the latest report released in December 2016, liquidity in the long-term JGB futures market generally declined after the negative interest rate policy was adopted but the scale of the decline was more or less comparable to past stressful periods (such as April–June 2013 and the first half of 2015) since the QQE introduction.16

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Table 4.2: Bond Market Functioning Diffusion Index (DI): February 2015–November 2016 (%)

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<tbody>
<tr>
<td>Degree of Bond Market Functioning DI from Your Company's Viewpoint</td>
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<tr>
<td>Current Situation</td>
<td>−38</td>
<td>−46</td>
<td>−33</td>
<td>−36</td>
<td>−13</td>
<td>−5</td>
<td>−5</td>
<td>−25</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>−25</td>
<td>−31</td>
<td>−18</td>
<td>−69</td>
<td>−15</td>
<td>−8</td>
<td>11</td>
<td>72</td>
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<tr>
<td>a. Bid–Ask Spread DI from Your Company’s Viewpoint</td>
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<tr>
<td>Current Situation</td>
<td>−5</td>
<td>−28</td>
<td>−13</td>
<td>−33</td>
<td>11</td>
<td>18</td>
<td>5</td>
<td>−12</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>8</td>
<td>−28</td>
<td>−5</td>
<td>−69</td>
<td>0</td>
<td>10</td>
<td>8</td>
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<td>b. Order Quantity by Market Participants from Your Company’s Viewpoint</td>
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<tr>
<td>Current Situation</td>
<td>−38</td>
<td>−56</td>
<td>−44</td>
<td>−49</td>
<td>−13</td>
<td>−16</td>
<td>−30</td>
<td>−45</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>−30</td>
<td>−28</td>
<td>−31</td>
<td>−69</td>
<td>−18</td>
<td>−10</td>
<td>−5</td>
<td>−75</td>
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<td>c. Dealing Frequency of Your Company</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>−35</td>
<td>−28</td>
<td>−51</td>
<td>−28</td>
<td>−30</td>
<td>−33</td>
<td>−18</td>
<td>−16</td>
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<td>d. Number of Your Dealing Counterparties</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>−25</td>
<td>−18</td>
<td>−41</td>
<td>−21</td>
<td>−21</td>
<td>−21</td>
<td>−7</td>
<td>−18</td>
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<tr>
<td>e. Lot Size of Your Company</td>
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<tr>
<td>Change from Three Months Ago</td>
<td>−15</td>
<td>−26</td>
<td>−31</td>
<td>−23</td>
<td>−20</td>
<td>−15</td>
<td>−13</td>
<td>−30</td>
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<tr>
<td>f. Your Company is Able to Make Dealings with Expected Prices</td>
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<tr>
<td>Current Situation</td>
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<td>−3</td>
<td>2</td>
<td>5</td>
<td>36</td>
<td>51</td>
<td>40</td>
<td>15</td>
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<tr>
<td>g. Your Company is Able to Make Dealings with Expected Dealing Lots</td>
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<tr>
<td>Current Situation</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>26</td>
<td>36</td>
<td>21</td>
<td>5</td>
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Note: Positive DI refers to high liquidity or higher liquidity.
The liquidity indicators for the future market include transaction volume and trade size, bid–ask spread, volume of limit orders at the best ask price (a proxy for market depth), and price impact (a measure of how much impact a unit volume of transaction has on the price). Most indicators showed an improvement after 2–3 months despite continued fluctuations. One concern could be a continued high level of price impact, suggesting a low level of liquidity. Some market participants view that the price impact indicator captures actual liquidity conditions fairly well. The higher price impact may suggest a decline in the ability of the JGB market to correct the interest rate level spontaneously.

Regarding the JGB cash market excluding T-Bills, a clear decline in liquidity was observed after January 2016 with regard to dealer–client transaction volumes and best–worst quote spread. In particular, the declined dealer–client transaction volumes reflect a sharp decline in transactions by city banks (major banks). While dealer–client transaction volumes by investors (including institutional investors, trusts banks, investment trusts, etc.) began to drop in April 2013; their volumes declined moderately in 2016. Negative yields made it unattractive for large banks and institutional investors to invest and engage in JGB transactions. As for the bid–ask spread, the indicators rose sharply especially for 10-year and 20-year JGBs after January 2016, but the level near the lowest range since 2013 was restored within 2–3 months.

While not all liquidity indicators reveal a continued decline in liquidity, market participants often claim that their perceived functioning in the JGB markets deteriorated more than the results reported in these indicators and BOJ studies. Thus, the BOJ has also been meeting with JGB market participants—commercial banks groups, securities firms groups, and buy-side groups—separately twice a year (June and December) since 2015 to exchange views and simultaneously deepen understanding of the markets.

**Scarcity of JGBs in the Repo Markets and BOJ’s Securities Lending Facility**

Closely related to the JGB markets, repo markets are also important to look at since repo market functioning crucially depends on the liquidity of JGB markets. In the repo markets, interest rates in the Special Collateral (SC) Repo market in particular dropped significantly, especially after the adoption of the negative interest rate policy due to the shortage of specific JGBs. The rates dropped from about 0.5% before the January 2016 Monetary Policy Meeting to nearly –0.2% by end-March 2016 and since then have fluctuated between –0.1% and –0.2%. The interest rates on GC Repo market fluctuated at around –0.05% to –1.0% and thus were higher than those on the SC Repo market. These developments suggest a rising scarcity of JGBs as a whole.

In this environment, the BOJ tried to offset part of the JGB scarcity problems by expanding its Securities Lending Facility to provide JGBs and T-Bills temporarily to eligible financial institutions through selling with repurchase agreements. If financial institutions engaged in short-selling activities of specific JGB issues and could not find them in the SC Repo market, they could borrow them from the BOJ. Over the past years, the BOJ relaxed conditions for the Securities Lending Program several times as scarcity problems became serious. Currently, the BOJ must repurchase the securities sold on the next business day of the date of sales, but borrowers can roll them over up to 21 times per issue. The BOJ sets an upper limit on the total amount of sales per day as well as the amount of sales per issue/counterparty, taking into account the conditions of financial markets and the amount outstanding of the BOJ’s holdings of each issue. The upper limit on the selling yields is also set by taking into account the conditions of financial markets. The selling price for each issue is determined by dividing the market price prevailing in financial markets on the date of sale by specified margin ratios.
The repurchasing price is determined by adding the amount obtained by multiplying the selling price by selling yields to the selling price.

B. Growing Concerns over the Financial Instability Risk

Maintaining a stable and well-functioning financial system is essential to ensure the effectiveness of monetary easing. Since the Japanese financial system is bank-dominated, commercial banks play an essential role in providing financial support for the economy. The BOJ regularly assesses the business operations, risk management, profitability, and capital bases of individual financial institutions through on-site examinations and off-site monitoring. Moreover, the viability of institutional investors is important for maintaining a stable financial system and to provide the household sector with a sense of security.

Adverse Impact on Commercial Banks’ Profitability

In the long-standing low interest rate environment, commercial banks faced declining spreads between lending and deposit interest rates for a long time (Figure 4-9). The negative interest rate policy squeezed the spread further, thereby contributing to a further decline in banking sector profitability. Commercial banks found it difficult to charge a negative deposit interest rate to both retail and large depositors for fear of rapid deposit withdrawals and conversion into cash holdings in home safety boxes or transfer to deposits of competing commercial banks. This adverse impact is particularly severe in Japan as the loan-to-deposit ratio remained below 70% because deposit growth consistently exceeded credit growth. Figure 4-11 shows that the gap between the deposit growth rate and the loan growth rate expanded again after adoption of a negative interest rate.

In addition, commercial banks also suffered from limited profitability from maturity transformation—raising short-term funds and investing in long-term assets such as loans and bonds since the yield curve flattened substantially. These banks also received a smaller amount of a coupon rate from JGB holdings. For the time being, they could continue to enjoy unrealized valuation gains from JGB holdings or capital gains from selling them. Nevertheless, they found it difficult to reinvest JGB redemptions in an extremely low interest rate environment.

Moreover, some commercial banks had no choice but to increase holdings of super-long-term JGBs (over 10 years) to earn positive yields and higher interest income. This encouraged them to increase interest rate risk exposure by raising the possibility that large losses might result from a change in valuation of longer-term JGBs. The interest rate volatility amplified after adoption of the negative interest rate policy, so the holding of super-long-term JGBs may generate a sudden surge in risk volume based on the Value at Risk approach. Since the interest rate risk is likely to materialize simultaneously among financial institutions, this may lead to instability in the banking sector. The negative interest rate policy increased anxiety among commercial banks that the current policy, if it persists, would drive down profits and increase interest rate risk further in the future. It may be true that the some commercial banks have not made sufficient efforts to provide innovative financial services and find new business models. However, the wide gap between loans and deposits indicates that lack of credit demand is structural and thus cannot be easily eliminated even if greater efforts are made further.
**A Negative Rate on Variable Interest Rate Loans**

Another concern for commercial banks was variable interest rate loans. The negative interest rate moved the LIBOR into negative territory, while the Tokyo Interbank Offered Rate (TIBOR) remained in moderately positive territory. TIBOR is more frequently used as a benchmark interest rate in variable interest rate loan markets in Japan. TIBOR is a weighted average of reported interest rates from commercial banks.

Variable interest rate loans refer to loans where an interest rate applicable to a borrowing firm would be a benchmark rate plus a spread specific to the creditworthiness of the borrowing firm. If the benchmark interest rate turns negative, commercial banks may have to charge a negative lending rate to a borrower if the spread is small. As large firms generally face a smaller spread than other firms, it is possible that a variable lending rate they are charged would fall into negative territory. This possibility became controversial since it was not clear under the existing loan contract whether commercial banks should pay interest to a borrowing firm rather than receiving interest from it. Since the existing contracts did not assume such situations with a negative interest rate, there is great uncertainty regarding commercial banks' obligations and their potential losses if the BOJ further deepens its negative deposit rate.

**FSA's Concerns about Financial System Risk**

This gave rise to concerns about the risk of undermining commercial banks' role of financial intermediation. It is why the Financial Services Agency (FSA) raised concern about risks for the Japanese financial system. For example, in its report entitled *Progress and Assessment of the Strategic Directions and Priorities 2015–2016* published in September 2016, the FSA stated that while the financial system at present remained sound and stable, the following risks should be closely monitored: (1) sustainability of business models which lend/invest long with short-term financing, in the face of the continued interest rate decline; (2) interest rate risk as low liquidity and extraordinarily low term premiums are observed in the JGB market; (3) credit concentration risk for specific sectors, including lending to the real estate sector (e.g., apartment and house loans).\(^{17}\)

Moreover, the report stated that it was becoming more difficult for large commercial banks to make profits by scaling up lending as lending–deposit interest rate margins were declining. Securing revenue flows from JGB trading was also becoming difficult. The report also pointed out that smaller regional banks were finding it increasingly difficult to offset compressed loan margins by increasing lending volume. Going forward, the profitability of the simple lending business model that largely relies on collaterals and guarantees might be diminished further as a continued decline of credit demand was still anticipated due to the decline of Japan's population.

**Adverse Impact on Institutional Investors**

With regard to institutional investors, an excessive decline in yields on long-term and super-long-term JGBs made it difficult for insurance companies and pension funds to maintain sufficient returns from these assets. Lower yields also increased future pension benefit obligations through a lower discount rate applied. Although the negative interest rate policy had not yet had a substantial adverse impact as a whole on these industries, institutional investors had begun to express concerns over the future viability of their business models.

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In fact, some insurance companies stopped providing savings-type insurance plans due to limited returns, while others announced their schedules to do so in 2017. In the case of life insurance, investors and holders of these savings-type products generally pay their entire premium at the time of contract and get whole life insurance plans. These products became popular in the 1980s in the midst of asset and stock price bubbles, but thereafter popularity dropped due to lower returns partly as a result of the monetary easing policy since the 1990s. The situations deteriorated further under the negative interest rate policy since operating costs related to managing and producing insurance products exceeded income related to providing/selling the products. Other personal pension insurance and educational endowment plans had similar problems and stopped offering financial assets. Some insurers dealt with the problems by raising premiums for new clients.

C. Adverse Impacts on Corporate Sector Pension Funds and Household Sentiment

Moreover, corporate sector pension funds faced an increase in the present value of their pension liabilities as a result of a lower discount rate, which is more or less equivalent to longer-term JGB yields. This contributed to lowering corporate profits because pension liabilities or expected future streams of pension payments are evaluated using present discount value while many items recorded on the asset side are not necessarily evaluated using present discount value. As a result, a lower discount rate would likely raise the liability side, but would be unlikely to generate a proportional rise on the asset side.

Provided that corporate value is defined as the difference between asset and liability (namely, equity), the increased pension liability would likely reduce equity. In the worst case, equity might become negative even though firms’ main business activities remain profitable and viable. Such negative equity would not necessarily lead to bankruptcy as long as profit and loss statements and cash flow statements as part of the financial account data remain strong and positive. This is because positive profits and cash flows would help to increase firms’ assets and thus equity. If it takes time for such firms to raise assets and equity, however, it is possible that their financing costs might rise.

As for households, their behavior and sentiment appears to have been adversely affected by the negative interest rate policy. First, there was an increase in notes in circulation once commercial banks began to lower retail deposit interest rates further (Figure 4-13). The ratio of notes in circulation accounted for about 20% of nominal GDP in 2016, which is quite high by global standards. Japan remains a relatively cash-based society compared with other advanced economies, so that a negative interest rate is likely to have a greater impact on the substitution of deposits for cash. An increase in cash holdings reflects not only households’ renewed recognition of a very low retail deposit rate, but also a misunderstanding that a negative interest would be applied to their deposit accounts. Commercial banks received many calls and complaints from retail depositors. According to the BOJ’s Opinion Survey on the General Public’s Views and Behavior, the diffusion index (DI) for the interest rate level—the difference between the ratio of respondents with “too high” and those with “too low” dropped significantly from around −40 (percentage points) in December 2015 to −58 in March 2016 and thereafter remained from −53 to −55 in June, September, and December 2016.
D. BOJ’s Operational Challenge and Balance Sheet Risk

The negative interest rate policy raised concerns about the sustainability of the JGB purchase. As mentioned above, the BOJ needed to purchase an additional 40 trillion yen in 2016 for reinvestment purposes in addition to the scheduled annual increase of 80 trillion yen. The total amount of around 120 trillion yen to be purchased by the BOJ in 2016 was roughly equivalent to the amount of gross issuance of JGBs issued in the market (around 120 trillion yen issued in the market through ordinary auctions after excluding T-Bills) by the Ministry of Finance in the same year—including both newly issued and refinancing bonds. This means that some existing investors must give up reinvesting redemptions of JGBs if the BOJ is to successfully sustain its purchase program. Given that many financial institutions became unwilling to sell JGBs and some demand more JGBs, the resultant tighter demand–supply balance pushed up the prices of JGBs in the market. The BOJ had to purchase JGBs at much higher prices than in the past.

Overvalued Prices of JGBs

If the BOJ continues to purchase JGBs at an annual target pace of 80 trillion yen, Nichigin Trade could push the prices of JGBs to be purchased by the BOJ substantially above market prices. Eventually, the BOJ might end up imposing a ceiling on the purchase prices (or a floor on the yield) if they become too high. Indeed, this concern motivated the adoption of a yield curve control in September 2016, as explained later. There were some institutional investors that attempted to purchase JGBs at auctions organized by the Ministry of Finance by competing with other investors and securities firms, which made it harder for the BOJ to sustain the Asset Purchase Program for long. Thus, uncertainty about the sustainability of the JGB purchase program increased.
**BOJ’s Accounting Rules on the Capital Adequacy Ratio**

The BOJ’s stated capital is 100 million yen. The government contributes 55% of the stated capital and the private sector the remaining 45%. Stated capital is included in capital in the balance sheet although the figure in Table 4-3 shows 0.0 due to small numbers. This structure differs from the Federal Reserve, which is indirectly owned by the private sector through 12 regional reserve banks. The Bank of England is fully owned by the government. This indicates that major central banks have diverse ownership structures so that a central bank’s ownership is not necessarily associated with its operational independence. Operational independence refers to the freedom of choosing monetary policy instruments that a central bank thinks most appropriate for achieving its price stability mandate.

Generally, a central bank is allowed to do so with a range of available instruments generally specified by a central bank law or other relevant guidelines. In case of the BOJ, the central bank’s tasks as well as the tools available to it are specified under the Bank of Japan Act. Regarding the tasks and the tools not specified in the Act, the BOJ could obtain authorization from the Minister of Finance and Prime Minister if that is necessary to achieve the BOJ’s purpose specified by the Act according to Article 43(1): Prohibition of Other Businesses. Accordingly, the BOJ obtained authorization from the Minister of Finance and Commissioner of Financial Services Agency when ETF and REIT purchases were decided and their changes were made.

An increasing number of major central banks hold the view that it is important to maintain the soundness of their balance sheet to maintain operational independence. In case a deficit of a central bank’s net income continues and draws down reserves and capital, this may necessitate recapitalization by the government and thus it may lose operational independence. In line with this view, the BOJ established its own accounting rules to maintain financial soundness. Under the rules, the BOJ is required to maintain the capital adequacy ratio at around 10%, within the range of about 2 percentage points above or below that level at the end of the first half of the fiscal year (at end-September) and of the full fiscal year (at end-March in the following year). The capital adequacy ratio is calculated as the sum of capital account (capital, legal reserve, special reserve) and provisions (for possible losses on bonds transaction and on foreign exchange transactions), divided by the average amount outstanding of banknotes issued (Table 4-3 and Table 4-4). The actual performance will be reviewed later.

Regarding legal reserves, the BOJ is required to reserve an amount equivalent to 5% of net income (defined as operating profits plus special profits minus special losses minus provision for corporate income tax, inhabitants tax, and enterprise tax) for each business year. In case the BOJ finds it necessary to raise the legal reserve ratio above 5%, it could do so with authorization from the Minister of Finance. For example, the ratio was raised from 5% to 15% in fiscal year 2008 and fiscal year 2010, to 20% in fiscal year 2013, and further to 25% for year fiscal 2014. Legal reserves could be drawn down when net income became negative (Table 4-3 and Table 4-4).

**Revising the Rule for the Provision to Mitigate Future Income Losses**

With regard to the provision for possible losses on foreign exchange transactions, a transfer to the provision has been carried out from about 50% of gains from foreign assets recorded in operating income (Table 4-3 and Table 4-4). In case of transferring more than 50% to the provision, permission from the Minister of Finance is required. When the Japanese yen depreciates against major currencies, the net foreign exchange-related profit and thus a transfer to the provision increase.
Table 4.3: BOJ’s Balance Sheet: Fiscal Year 2012–Half Fiscal Year 2016 (Trillion Yen)

<table>
<thead>
<tr>
<th></th>
<th>FY2016 Half Year April–September</th>
<th>FY2015 Full Year April–March</th>
<th>FY2014 Full Year April–March</th>
<th>FY2013 Full Year April–March</th>
<th>FY2012 Full Year April–March</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>456.8</td>
<td>405.6</td>
<td>323.6</td>
<td>241.6</td>
<td>164.8</td>
</tr>
<tr>
<td>Japanese Government Securities</td>
<td>397.6</td>
<td>349.2</td>
<td>269.8</td>
<td>198.3</td>
<td>125.4</td>
</tr>
<tr>
<td>Japanese Government Bonds</td>
<td>340.9</td>
<td>301.9</td>
<td>220.1</td>
<td>154.2</td>
<td>63.2</td>
</tr>
<tr>
<td>Treasury Discount Bills</td>
<td>56.7</td>
<td>47.3</td>
<td>49.7</td>
<td>44.2</td>
<td>17.6</td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>1.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Corporate Bonds</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
<td>2.9</td>
</tr>
<tr>
<td>Stocks and Index-Linked ETFs</td>
<td>11.0</td>
<td>8.9</td>
<td>5.9</td>
<td>4.2</td>
<td>2.9</td>
</tr>
<tr>
<td>J-REITs</td>
<td>0.3</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Loans and Bills Discounted</td>
<td>35.2</td>
<td>34.0</td>
<td>34.1</td>
<td>26.3</td>
<td>25.5</td>
</tr>
<tr>
<td>Foreign Currency Assets</td>
<td>6.1</td>
<td>6.7</td>
<td>7.1</td>
<td>6.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Others</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES</strong></td>
<td>453.8</td>
<td>402.1</td>
<td>319.7</td>
<td>238.1</td>
<td>161.5</td>
</tr>
<tr>
<td>Banknotes</td>
<td>96.3</td>
<td>95.6</td>
<td>89.7</td>
<td>86.6</td>
<td>83.4</td>
</tr>
<tr>
<td>Deposits</td>
<td>322.6</td>
<td>282.9</td>
<td>206.1</td>
<td>132.3</td>
<td>58.3</td>
</tr>
<tr>
<td>Deposits of the Government</td>
<td>29.7</td>
<td>18.8</td>
<td>1.8</td>
<td>1.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Provision for Possible Losses on Bonds Transactions</td>
<td>2.9</td>
<td>2.7</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Provision for Possible Losses on Foreign Exchange Transactions</td>
<td>1.6</td>
<td>1.6</td>
<td>1.8</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Provision for Retirement Benefits</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Others</td>
<td>0.5</td>
<td>0.4</td>
<td>17.9</td>
<td>13.6</td>
<td>14.8</td>
</tr>
<tr>
<td><strong>TOTAL NET ASSETS</strong></td>
<td>3.0</td>
<td>3.5</td>
<td>3.9</td>
<td>3.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Capital</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Legal Reserve</td>
<td>3.2</td>
<td>3.1</td>
<td>2.9</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Special Reserve</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Net Income or Loss</td>
<td>−0.2</td>
<td>0.4</td>
<td>1.0</td>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES AND NET ASSETS</strong></td>
<td>456.8</td>
<td>405.6</td>
<td>323.6</td>
<td>241.6</td>
<td>164.8</td>
</tr>
</tbody>
</table>

BOJ = Bank of Japan, ETFs = exchange-traded funds, J-REITs = Japan real estate investment trusts.
Source: Bank of Japan.
Table 4.4: BOJ’s Capital Adequacy Ratio: Fiscal Year 2012–Half Fiscal Year 2016 (%, Billion Yen)

<table>
<thead>
<tr>
<th></th>
<th>FY2016 Half Year April–September</th>
<th>FY2015 Full Year April–March</th>
<th>FY2014 Full Year April–March</th>
<th>FY2013 Full Year April–March</th>
<th>FY2012 Full Year April–March</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Accounts (A)</td>
<td>3,159.1</td>
<td>3,159.1</td>
<td>3,138.6</td>
<td>2,886.3</td>
<td>2,741.5</td>
</tr>
<tr>
<td>Capital</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Legal and Special Reserve</td>
<td>3,159.0</td>
<td>3,159.0</td>
<td>3,138.5</td>
<td>2,886.2</td>
<td>2,741.4</td>
</tr>
<tr>
<td>Provisions (B)</td>
<td>4,517.2</td>
<td>4,275.4</td>
<td>4,029.4</td>
<td>3,649.3</td>
<td>3,339.6</td>
</tr>
<tr>
<td>Provision for Possible Loan Losses on Bond Transactions</td>
<td>2,935.3</td>
<td>2,693.4</td>
<td>2,243.3</td>
<td>2,243.3</td>
<td>2,243.3</td>
</tr>
<tr>
<td>Provision for Possible Loan Losses on Foreign Exchange Transactions</td>
<td>1,581.9</td>
<td>1,581.9</td>
<td>1,786.1</td>
<td>1,406.0</td>
<td>1,096.3</td>
</tr>
<tr>
<td>Capital Base (C): (A)+(B)</td>
<td>7,676.4</td>
<td>7,424.6</td>
<td>7,168.0</td>
<td>6,535.7</td>
<td>6,081.1</td>
</tr>
<tr>
<td>Bank Notes (D)</td>
<td>95,841.1</td>
<td>92,295.7</td>
<td>87,394.1</td>
<td>84,411.6</td>
<td>81,569.5</td>
</tr>
<tr>
<td>Capital Adequacy Ratio: (C)/(D)*100</td>
<td>8.00%</td>
<td>8.05%</td>
<td>8.20%</td>
<td>7.74%</td>
<td>7.45%</td>
</tr>
</tbody>
</table>

BOJ = Bank of Japan.
Source: Bank of Japan.

As for the provisions for possible losses on bond transactions, it had been unused for a long time since no losses related to actual sales and redemptions of JGBs occurred. In November 2015, however, the BOJ decided to modify and activate this provision because it felt it necessary to smoothen net income over time as massive monetary easing could make net income greater net negative income in the future. Namely, the BOJ revised the accounting rules so that part of interest income on JGBs recorded in operating income could be transferred to the provision on possible losses on bond transactions. As a result, the amount of net income and thus transfer to the government (remittance) would decline by this amount within a current fiscal year, but could mitigate a sharp decline in future net income and thus smoothen inter-temporal net income flows. The provision could be transferred back to income recorded as special profits in the income statement in case that net income turns negative (Table 4-5).

As of end-March 2016 (fiscal year 2015), the provision account (sum of provision on possible losses on bonds transactions and that on foreign exchange transactions)—which is used to calculate the capital adequacy ratio—rose from 4 trillion yen at end-March 2015 to 4.3 trillion yen (Table 4-4). The amount of 450 billion yen was transferred over the year from interest income on JGBs to the provision for possible losses on bonds transactions based on the revised accounting rule already mentioned, raising the outstanding provision from 2.2 trillion yen in fiscal year 2014 to 2.7 trillion yen in fiscal year 2015 (Table 4-5). In contrast, the amount of 204 billion yen was transferred back from the provision for possible losses on foreign exchange transactions (this accounting process is called special profits in the income statement) due to foreign exchange evaluation losses caused by the yen’s appreciation.
Table 4.5: BOJ’s Income Statement: Fiscal Year 2012–Half Fiscal Year 2016 (Billion Yen)

<table>
<thead>
<tr>
<th></th>
<th>FY2016 Half Year April–September</th>
<th>FY2015 Half Year April–September</th>
<th>FY2015 Full Year April–March</th>
<th>FY2014 Full Year April–March</th>
<th>FY2013 Full Year April–March</th>
<th>FY2012 Full Year April–March</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATING INCOME</td>
<td>959.9</td>
<td>866.0</td>
<td>1,597.2</td>
<td>2,078.2</td>
<td>1,579.0</td>
<td>1,398.3</td>
</tr>
<tr>
<td>Interest and Discounts on Japanese Government Securities</td>
<td>628.4</td>
<td>639.1</td>
<td>1287.5</td>
<td>1044.0</td>
<td>805.7</td>
<td>622.5</td>
</tr>
<tr>
<td>Interest on Loans</td>
<td>8.2</td>
<td>17.3</td>
<td>34.9</td>
<td>28.6</td>
<td>25.6</td>
<td>33.2</td>
</tr>
<tr>
<td>Interest on Commercial Paper</td>
<td>-0.2</td>
<td>0.8</td>
<td>1.1</td>
<td>2.0</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Interest and Discounts on Corporate Bonds</td>
<td>0.6</td>
<td>1.9</td>
<td>3.3</td>
<td>4.0</td>
<td>5.4</td>
<td>6.5</td>
</tr>
<tr>
<td>Gains on Foreign Currency Assets</td>
<td>23.4</td>
<td>63.9</td>
<td>78.3</td>
<td>857.1</td>
<td>628.3</td>
<td>603.6</td>
</tr>
<tr>
<td>Gains on Stocks and ETFs</td>
<td>279.9</td>
<td>123.9</td>
<td>155.9</td>
<td>109.0</td>
<td>79.6</td>
<td>52.8</td>
</tr>
<tr>
<td>Gains on J-REITs</td>
<td>6.5</td>
<td>5.0</td>
<td>10.8</td>
<td>7.7</td>
<td>6.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Dividends</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
<td>0.6</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Fees and Commissions</td>
<td>5.5</td>
<td>5.8</td>
<td>10.4</td>
<td>10.9</td>
<td>10.8</td>
<td>11.2</td>
</tr>
<tr>
<td>Others</td>
<td>7.1</td>
<td>7.6</td>
<td>14.3</td>
<td>14.5</td>
<td>14.3</td>
<td>60.7</td>
</tr>
<tr>
<td>OPERATING EXPENSES</td>
<td>890.1</td>
<td>206.9</td>
<td>834.6</td>
<td>364.5</td>
<td>298.8</td>
<td>266.6</td>
</tr>
<tr>
<td>Interest on Foreign Currency Assets (including foreign exchange losses)</td>
<td>698.5</td>
<td>2.1</td>
<td>408.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General and Administrative Expenses and Costs</td>
<td>88.3</td>
<td>91.4</td>
<td>193.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest on Payable under Repurchase Agreements</td>
<td>-0.2</td>
<td>0.6</td>
<td>0.6</td>
<td>5.4</td>
<td>14.6</td>
<td>19.9</td>
</tr>
<tr>
<td>Other General and Administrative Expenses</td>
<td>103.6</td>
<td>112.7</td>
<td>232.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest on Excess Reserve Balances</td>
<td>94.3</td>
<td>221.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPERATING PROFITS</td>
<td>69.8</td>
<td>659.1</td>
<td>762.6</td>
<td>1,713.7</td>
<td>1,280.5</td>
<td>1,131.7</td>
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<td>SPECIAL PROFITS</td>
<td>1.0</td>
<td>205.2</td>
<td>18.1</td>
<td>11.1</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>SPECIAL LOSSES</td>
<td>241.9</td>
<td>13.7</td>
<td>450.6</td>
<td>380.4</td>
<td>310.0</td>
<td>302.0</td>
</tr>
<tr>
<td>Transfer to Provision for Possible Losses on Bonds Transactions</td>
<td>241.8</td>
<td>450.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to Provision for Possible Losses on Foreign Exchange Transactions</td>
<td>13.6</td>
<td>380.1</td>
<td>309.7</td>
<td>301.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET INCOME BEFORE TAXES</td>
<td>-172.1</td>
<td>646.3</td>
<td>517.2</td>
<td>1,351.4</td>
<td>981.6</td>
<td>836.7</td>
</tr>
<tr>
<td>NET INCOME</td>
<td>-200.2</td>
<td>628.8</td>
<td>411.1</td>
<td>1,009.0</td>
<td>724.2</td>
<td>576.0</td>
</tr>
</tbody>
</table>

BOJ = Bank of Japan, ETFs = exchange-traded funds, J-REITs = Japan real estate investment trusts.

Note: Consistent data are not available for all items from fiscal year 2012 to half fiscal year 2016. Gains on stock and ETFs for fiscal year 2012 include only gains on ETFs.

Source: Bank of Japan.
According to the income statements for the first half of fiscal year 2016 (April–September), moreover, the amount of 242 billion yen was transferred to the provision for possible losses on bonds transactions, whose outstanding amount thereby rose from 2.7 trillion yen at end-March 2016 to 2.9 trillion at end-September 2016. No transfer was made to the provision on possible losses on foreign exchange due to a net income loss (a gain of 23.4 billion yen was smaller than a loss of 698 billion yen) as a result of foreign exchange valuation losses driven by the yen’s appreciation. Consequently, the combined provision account rose from 4.3 trillion yen at end-March 2016 to 4.5 trillion yen at end-September 2016 (Table 4-4). In the first half of fiscal year 2016, therefore, the income statement recorded a net loss of 200 billion yen (Table 4-5). This is attributable to (1) a transfer to the provision for possible losses on bond transactions (242 billion yen), (2) a net loss on holdings of foreign currency assets (~674 billion), and (3) a decline in operating income from interest and discount on JGBs and T-Bills from 639 billion at end-March 2016 to 628 billion at end-September 2016. Without transfer to the provision for possible losses on bond transactions, the income statement would have shown a surplus.

**Higher JGB Prices and Lower Operating Income**

It is important to note that the operating income from interest and discount on government securities is the sum of interest and the interest rate adjustment amount. The interest rate adjustment amount is defined as the difference between the purchase price and the face value, divided by the remaining maturity for each year. In the very low interest rate environment where the BOJ has to purchase JGBs at higher prices than face value, the interest rate adjustment amounts become negative and thus tend to be a drag on interest income of JGB holdings by this amount. Thus, the higher the JGB prices paid by the BOJ become, the smaller interest income on JGB holdings becomes.

The negative interest rate policy deepened the negative value of the interest rate adjustment amount so that interest income on JGB holdings dropped. This moderated the pace of accumulating provisions on possible losses for bond transactions. In other words, a slowdown in the pace of accumulating the provision means that the BOJ’s net income might fall into negative territory for a longer time at the time of normalizing monetary policy. The Nikkei Newspaper reported on 6 December 2016 that received interest income from government securities amounted to 1.2 trillion yen at end-September 2016 and the interest adjustment amount amounted to ~594 billion yen (the received interest income and the interest adjustment amount are not reported officially in the BOJ’s financial statement), thus resulting in 628 billion yen on an operating income related to interest and discount. As long as the BOJ continues to purchase a large amount of JGBs in an extremely low interest environment, the interest adjustment amount will continue to grow. The resulting declining income from holdings of JGBs is one factor amplifying the balance sheet risk, suggesting that a continuation of massive JGB purchases are likely to become a challenge in the near future.

Given that operating income related to interest on JGB holdings is the main steady source of income for the BOJ, the income statement is expected to record a net loss for years in the event of normalizing the monetary policy through raising the short-term interest rate (and an interest rate on the current account balances). The period that the BOJ’s net income remains negative is likely to be longer if the BOJ purchase longer-term JGBs. This is because it takes time for the BOJ to replace old JGBs with new JGBs with a higher coupon rate through the reinvestment process and thus a period of low-income flows is likely to continue for some time.
Maintaining the BOJ’s Capital Adequacy Ratio Above 8%

The BOJ defines the capital adequacy ratio and regularly examines those ratios to check the soundness of the balance sheet. The ratios are also publicly released (Table 4-4). It is defined as the ratio of the sum of the provision account and the capital account to bank notes times 100. The capital account is comprised of capital, legal reserve, and special reserve. The amount barely changed from 3.1 trillion yen at end-March 2015 (fiscal year 2014) to 3.2 trillion at end-March 2016 (fiscal year 2015) and remained unchanged at end-September 2016 (first half of fiscal year 2016). It should be noted that the capital account for the first half of fiscal year 2016 does not include a net income loss recorded in the income statement; it reduced net assets, but there was no impact on legal reserve (Table 4-3). Bank notes rose from 87.4 trillion yen at end-March 2015 to 92 trillion yen at end-March 2016 and further to 95.8 trillion yen at end-September 2016.

As a result, the capital adequacy ratio could be maintained at around 8%—8.2% in fiscal year 2014, 8.05% in fiscal year 2015, and 8% in the first half of fiscal year 2016. The ratio recorded below the lower target range of 8% from fiscal year 2002 to fiscal year 2013. The ratio reached 8.2% in fiscal year 2014 since a transfer to the provision for possible losses on foreign exchange transactions rose as a result of the yen’s depreciation. The ratio was maintained above 8% for fiscal year 2015 and the first half of fiscal year 2016 due to a transfer to the provision for possible losses on securities transactions. There are few central banks in the world that define the capital adequacy ratio in this way and regularly release the data.

Nonetheless, the total capital base of 7.6 trillion yen may be small in terms of the risks the BOJ is currently taking. Especially when the BOJ begins to normalize its monetary policy by raising its interest rate on the current account balances with the BOJ, such interest payments might exceed interest incomes. Moreover, a sharper appreciation of the yen or a substantial stock price drop may reduce the BOJ’s net income.

4.7 BOJ’s Enhancement of Monetary Easing in July 2016

The BOJ added further monetary easing through expanding ETF purchase at the July 2016 Monetary Policy Meeting. The Public Statement was entitled Enhancement of Monetary Easing. The July 2016 decision was additional monetary easing in terms of enhancing the quality dimension. The BOJ also took two measures to smoothen US dollar funding for Japanese financial institutions. Given that these actions did not change the monetary easing framework adopted in January 2016, the July decision should be categorized in the second phase of super-easy monetary policy (Figure 3-1).

A. Expanding the ETF Purchases

The BOJ decided to increase ETF purchases such that their amount outstanding will increase at an annual pace of about 6 trillion yen (almost double the previous pace of about 3.3 trillion yen). This decision led to a modest increase in stock prices. As explained in Chapter 3, an annual increase of ETF purchases was expanded from around 1 trillion yen to around 3 trillion yen in October 2014 together with the expansion of the monetary base and an increase in the JGB purchases. In December 2015, in addition, the BOJ established a new program

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for purchasing ETFs comprising of stocks issued by firms that are proactively investing in physical and human capital at an annual pace of about 300 billion yen. This program started in April 2016 and tracks the JPX–Nikkei Index 400. This is why the BOJ purchases of the ETF increased slightly from around 3 trillion yen to 3.3 trillion yen from April 2016.

However, it should be noted that the amount of 300 billion yen did not increase the BOJ’s aggregated holdings of stocks and ETFs. This is because the BOJ decided simultaneously to sell existing holdings of stocks purchased from commercial banks for financial stability purposes from November 2002. The BOJ started selling these purchased stocks in the market in October 2007, but then suspended its sales in October 2008 due to unfavorable developments in financial markets at home and abroad, before resuming sales of the purchased stocks again in April 2016. In December 2015, the BOJ decided to begin the selling of the purchased stocks from April 2016 as scheduled, but instead decided to extend the length of time for selling stocks to 10 years from the originally planned five and a half years. The amount to be sold is projected to be about 300 billion yen annually, based on the mark-to-market value at end-November 2015. Since the annual sales amount is roughly the same as the annual ETF purchases of around 300 billion yen, these operations offset each other.

In March 2016, the BOJ provided details on ETFs to Support Firms Proactively Investing in Physical and Human Capital. The new ETFs should have portfolios comprising stocks of firms whose (1) capital expenditure or research and development (R&D) expenditure shows an upward trend (investment in physical capital); (2) expenditure on human capital shows an upward trend as demonstrated by indicators including the number of employees, wages, salary expenses, spending on career development, etc. (investment in human capital); and (3) investment in physical and human capital is reasonably considered to enhance their growth potential through effective corporate governance, from the perspective of the firms’ sales, profitability, productivity, corporate value, or other indicators (growth potential).

By purchasing the ETF at around 6 trillion yen annually, the BOJ’s holdings of ETFs and stocks together are expected to reach around 20 trillion yen by end-March 2018—5 years after QQE was launched. Relative to the BOJ’s capital base (7.7 trillion yen as of end-September 2016 and expected to reach below 9 trillion yen by end-March 2018), the July 2016 decision appears to have raised the BOJ’s balance sheet risk. The BOJ’s accounting rule specifies that provisions for unrealized losses on holdings of ETF and stocks (and J-REIT) should be registered for the difference between the market value and the book value for each, at the end of the first half of the fiscal year and of the full fiscal year, in case the market value is less than the book value. If the prices of stocks and ETFs have fallen considerably, impairment procedures would be applied. Thus, an increase in holdings of these type of risk assets would make the BOJ’s balance sheet and income statement vulnerable to market risk and the BOJ’s capital base may not be sufficient to cover such risk exposure.

**B. Helping to Smoothen US Dollar Funding by Japanese Financial Institutions**

In addition to the expansion of the ETF purchase, the BOJ adopted measures to ensure smooth funding in foreign currencies by Japanese firms and financial institution. The measures are comprised of two elements: (a) expanding the size of the US Dollar Lending Arrangement under the Loan Support Program and (b) establishment of a facility enabling the Securities Lending Program to provide JGBs to financial institutions, which could subsequently be used as collateral for the US Dollar Funds-Supply Operations.
The first measure was to almost double the size of the BOJ’s lending program to support growth in US dollars from 12 billion US dollars to 24 billion US dollars. Under this lending program, the BOJ provides US dollar funds from own reserve assets for up to 4 years to support Japanese firms’ overseas activities through financial institutions. The second measure was to establish a new facility in which it lends JGBs to financial institutions against their current account balances with the BOJ so that these JGBs can be pledged as collateral for the US Dollar Funds-Supplying Operations. The Funds-Supplying Operations are conducted by the BOJ, which obtains US dollars through the US dollar–yen swap agreement with the Federal Reserve. Subsequently, those proceeds are extended in the form of US dollar-denominated loans to financial institutions in exchange for collateral.

As explained above, these two measures were meant to support Japanese financial institutions that are eager to invest abroad but find it difficult to do so due to rising US dollar funding cost. These measures were welcomed by financial institutions and reduced US dollar funding cost immediately after the announcement. However, the cost began to rise again soon, partly in the anticipation of the MMF reform in the US.

C. Announcement of the Comprehensive Assessment of the Ongoing Monetary Easing Measures

Prior to the new measure in July 2016, many market participants expected the BOJ would expand monetary easing in three dimensions. This is partly due to the BOJ’s communication signaling its willingness to provide monetary easing in three dimensions. Contrary to their expectations, the BOJ expanded monetary easing only by increasing ETF purchases and did not expand “quantity” and/or did not deepen the negative interest rate. The markets realized that the BOJ would no longer be willing to expand an annual pace of monetary base and JGB purchases beyond 80 trillion yen.

In general, this limited action by the BOJ could be perceived by the market as a disappointment. But there were no significant market reactions to the July decision except that the stock market improved moderately in response to the increase in ETF purchase. This may be because the BOJ inserted the following sentence in its Public Statement: “…with a view to achieving the price stability target of 2 percent at the earliest possible time, the BOJ will conduct a comprehensive assessment of the developments in economic activity and prices under QQE and QQE with a Negative Interest Rate as well as these policy effects at the next [September] Monetary Policy Meeting. The Chairman instructed the staff to prepare for deliberations at the next meeting.”

This announcement of a comprehensive review about the effectiveness of QQE invited market anticipation over a possible change in the monetary easing framework. In addition, the decisions to increase support for financial institutions to ensure smooth funding in US dollar contributed further to market anticipation that the BOJ would revise its framework by moving away from the quantity target so as to reduce the burden borne by financial institutions. At the press conference immediately after the 29 July Monetary Policy Meeting, Governor Kuroda explained that the assessment would be made by considering what actions would be necessary to achieve the 2% price stability target at the earliest possible time. Although he stressed that the quantity dimension would not be taken lightly, this nuance implied the BOJ would change the framework away from an emphasis on the quantity dimension. After that, moreover, the BOJ sent a signal to the market that it was aware of the adverse impact of the negative interest rate policy on the profitability of financial institutions with a view to possibly changing the monetary easing framework at the next September Monetary Policy Meeting. As a result, many market participants began to take the view that yield curve control could be an option. The JGB yields began to rise from end-July 2016 to reflect this view.
CHAPTER 5

QQE WITH YIELD CURVE CONTROL:
THIRD PHASE OF SUPER-EASY MONETARY POLICY FROM SEPTEMBER 2016
TO THE CURRENT

The Bank of Japan (BOJ) made a major change to its monetary easing framework by adopting yield curve control in September 2016. It is a clear departure from the BOJ’s communication strategy repeatedly stressed since the announcement of a negative interest rate in January 2016—that is, the willingness to expand monetary easing in three dimensions (quantity, quality, and negative interest rate) to achieve the price stability target of 2% at the earliest possible time. The most fundamental change was the abandonment of the monetary base as its main operating target for money market operations. It is a big leap from the past practices centered on the monetary base under Quantitative and Qualitative Monetary Easing (QQe), leading to the third phase of super-easy monetary policy (Figure 3-1). This framework helped to depreciate the exchange rate of the yen substantially and raise stock prices after the presidential election in the US. On the other hand, it has generated uncertainty about the direction of the BOJ’s monetary easing stance due to ambiguity related to the continuation of the existing monetary base and Japanese Government Bond (JGB) purchase targets. This ambiguity appeared to be intentional for the purpose of stressing continuity from the previous QQe frameworks and thereby avoiding potential negative market reactions. Chapter 5 will provide details of this new framework and my interpretations and suggestions.

5.1 The Features of QQe with Yield Curve Control

The Public Statement dated 21 September 2016 was entitled New Framework for Strengthening Monetary Easing: Quantitative and Qualitative Monetary Easing with Yield Curve Control.19 With a view to achieving the price stability target of 2% at the earliest possible time, the BOJ decided to introduce “QQe with Yield Curve Control” by strengthening the two previous policy frameworks: “QQe” and “QQe with a Negative Interest Rate.” It is important to note that the new framework is meant to complement and strengthen the past monetary easing practices, rather than replace the previous practices. This is why the BOJ did not drop the phrase “QQe” from the title of the new framework.

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The new policy framework is comprised of two major components: (1) yield curve control (controlling short-term and long-term interest rates), and (2) an inflation-overshooting commitment in which the BOJ commits itself to expanding the monetary base until the rate of inflation exceeds the price stability target of 2% and stays above the target in a stable manner (Figure 5-1).

(1) **Yield Curve Control**

(a) The guidelines for market operations are now based on a short-term interest rate (a negative deposit rate of currently –0.1%) and a long-term interest rate (10-year JGB yield) targeting around zero percent. The BOJ will cut these two interest rates further if it judges this necessary. To achieve the 10-year yield target, the BOJ conducts JGB purchases more or less in line with a current annual pace of increase in the amount outstanding of its JGB holdings of about 80 trillion yen. The guideline for average remaining maturity of the JGB purchases was abolished.

(b) To facilitate yield curve control, the BOJ decided to introduce the following new tools of market operations:

(i) Fixed-rate purchase operations, namely outright JGB purchases with yields designated by the BOJ. The footnote attached the Public Statement to describe this operation indicated that in case of a spike in interest rates, the BOJ stands ready to conduct these operations—for example, those with regard to 10-year and 20-year JGB yields to prevent the yield curve from deviating substantially from the current levels.

(ii) Fixed-rate Funds-Supplying Operations for up to 10 years (extending the longest maturity of the existing operation from 1 year).

(2) **Guidelines for Asset Purchases, Except for JGB Purchases**, such as ETFs and J-REITs remained unchanged.

(3) **Inflation-Overshooting Commitment**

- The BOJ will continue with “QQE with Yield Curve Control,” aiming to achieve the price stability target of 2%, as long as it is necessary for maintaining that target in a stable manner.
- The BOJ will continue expanding the monetary base until the rate of increase in the observed CPI—all items excluding fresh food (core CPI)—exceeds the price stability target of 2% and stays above the target in a stable manner. Meanwhile, the pace of increase in the monetary base may fluctuate in the short run under market operations that aim at controlling the yield curve. With the BOJ maintaining this stance, the ratio of the monetary base to nominal GDP in Japan is expected to exceed 100% (about 500 trillion yen) in slightly over 1 year (at present it is about 80%).
- The BOJ will make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target of 2%.
5.2 Explanations and My Interpretation of the New Framework

There is no doubt that yield curve control is a clear shift of the basic framework established under QQE and under the negative interest rate policy, both of which had maintained monetary base control as an operating target for money market operations. The operational guideline is the most important pillar of the monetary easing framework. From this perspective, therefore, the BOJ’s use of the word “QQE” in the title of the new framework, “QQE with yield curve control,” is imprecise since it officially dropped the quantity target. It might be more suitable to remove the word “QQE” from the title of the new framework and just call it “New Framework for Strengthening Monetary Easing: Yield Curve Control.”

Perhaps the BOJ wished to stress continuity from QQE and from the negative interest rate policy to avoid an impression of denying the effectiveness of the previous volume-centered practices. Doing so, however, appeared to have created ambiguity and complexity, inviting various interpretations by market participants, other central banks, and academics. Some held the view that the framework is firmer than QQE with a negative interest rate since the BOJ is committed to stabilizing the 10-year yields at around zero percent and adjusting the amount of JGB purchases accordingly—in line with the BOJ’s official explanation. Others held the view that the new framework enhanced sustainability by potentially incorporating a tapering of JGB purchases. I present my interpretations of the new framework based on my understanding of the BOJ’s conduct of monetary policy below.
A. Amount of JGB Purchases or 10-Year Yield: Which Is Endogenous?

To achieve the 10-year yield target, the BOJ technically adjusts the amount of JGB purchases. The amount to be purchased by the BOJ should be endogenously determined in the market based on supply–demand conditions. Nevertheless, the BOJ suggested that the amount of JGBs to be purchased would be more or less in line with the same annual pace of 80 trillion yen over the year toward the end of 2017. It implied that by inserting the expression “the ratio of the monetary base to nominal GDP is expected to exceed 100% (about 500 trillion yen) in slightly over one year (at present, about 80%).”

Given that the BOJ abandoned monetary base control, this expression seems inconsistent since the amount of JGB purchases should no longer be a binding target. Indeed, this amount is now treated as a mere projection rather than an operational target. But not all market participants seem to see the difference between a quantity target and a mere quantity projection. It would have been better if the Public Statement had explained more clearly that the amount of the monetary base and the consequent JGB purchases would be endogenously determined to achieve the 10-year yield target. If pegging the 10-year yield is the BOJ’s true intention, it means that it will reduce JGB purchases when downward pressure on the yields emerges, and increase them when there is upward pressure on the yields. The latter case suggests that the BOJ will not hesitate to purchase JGBs beyond 80 trillion yen almost unlimitedly on an annual basis until upward pressure eases. However, this intention is not very clearly traced in the Public Statement. Rather, it gives the impression that the BOJ tries to achieve both the 10-year yield target and the quantity target of around 80 trillion yen simultaneously, which are technically impossible to implement at the same time.

B. Dropping the Quantity Dimension from the Three Dimensions

As a related issue, the fact that the BOJ abandoned monetary base control and moved away from the quantity dimension is a quite remarkable change since monetary base control used to be a symbol of QQE adopted under Mr. Kuroda’s governorship. The Public Statement now merely gives a projection of the monetary base and JGB purchase, which clearly suggests the BOJ is unwilling to expand the monetary base beyond the existing 80 trillion yen. In this sense, monetary easing in the quantity dimension was essentially dropped from the three dimensions of additional easing measures that had been repeatedly emphasized since the adoption of the negative interest rate policy. This is why the new framework should be viewed as a fundamentally different framework from “QQE” and “QQE with a negative interest rate” and should be categorized as the third phase of a super-easy monetary policy.

Growing Challenges to Pursuing Outright Purchase Operations

The reason why the quantity dimension was abandoned appears to reflect tensions arising from growing criticism by financial institutions, operational difficulties in continuing outright JGB purchase operations, and potential risks to the BOJ’s balance sheet, as already pointed out in Chapter 4. While it may be possible to keep up the amount of JGB purchases for the time being, operations could become more challenging in 2017 and thereafter due to greater scarcity of JGBs.
As of September 2016, the BOJ already owned about 47% of outstanding T-Bills issued (57 trillion yen) and 36% of outstanding JGBs issued (357 trillion yen). According to the initial fiscal year 2017 budget (from April 2017 to March 2018), the amount of JGBs to be issued in fiscal year 2017 is expected to reach 154 trillion yen (newly issued bonds of 48 trillion yen and refinancing bonds of 106 trillion yen)—declining from 170 trillion yen (newly issued bonds of 60.5 trillion yen and refinancing bonds of 109 trillion yen) after the third supplementary budget for fiscal year 2016. Of this amount, calendar-based issuance (issuance through ordinal auctions conducted by the Ministry of Finance) excluding inflation-indexed JGBs and 1-year T-Bills is scheduled to decline from 120 trillion yen in fiscal year 2016 to around 116 trillion yen in fiscal year 2017. It should be noted that JGBs include ordinary bonds and Fiscal Investment and Loan Program (FILP) bonds, which are separately reported but are classified collectively as JGBs. FILP bonds are loan funds that require redemption, while ordinary bonds are grant funds that do not require a repayment obligation since taxes are the main fiscal sources. If the government issues JGBs as initially planned for fiscal year 2017 and the BOJ continues to purchase JGBs worth around 80 trillion yen annually as projected, the demand–supply condition in the JGB markets is likely to tighten further in 2017 as compared with 2016.

BOJ’s Announcement of an Outline on Reduced JGB Purchase

The BOJ continued to indicate its intention to purchase more or less the current 80 trillion yen annually in its Public Statements of 21 September, 1 November, 20 December 2016, and 31 January 2017. According to the Outline of Outright Purchases of Japanese Government Securities, meanwhile, the amount of each JGB purchase operation showed a moderate decline from October 2016—the month a new framework was implemented following the decision in September. The content of the outlines remained unchanged for November and December 2016. These outlines suggest the BOJ’s initial vision was to reduce JGB purchases. Indeed, Governor Kuroda also mentioned a possible cut in the annual amount of JGB purchases from 80 trillion yen on 21 October 2016, when responding to questions in the Diet. Indeed, he mentioned a cut to 60 to 70 trillion yen suggesting his willingness to engage in monetary tapering. Bloomberg also reported on 1 November 2016 that the BOJ was considering tapering, according to information from several persons concerned.20

On the other hand, upward pressure on JGB yields had already been expected to occur in 2017 even before the US Presidential Election result generated upward pressure. This is because Japan’s inflation and inflation expectations were likely to pick up in 2017 mainly due to the base effect (weakened impact of downward pressure from an oil price drop on prices), as well as spillover effects from higher inflation and thus higher interest rates in the US, Europe, and emerging economies. If the BOJ really intends to stabilize the JGB yields at around zero percent, it may need to purchase beyond 80 trillion yen. This may put the BOJ in a contradictory situation.

C. Purchasing Shorter-Term JGBs and a Reverse Operation Twist

While the BOJ continues to purchase JGBs with a wide range of maturities, the guideline for the average remaining maturity of the JGB purchases, which used to be in the target range of around 7 to 12 years, was officially abolished. The guideline for the average remaining maturity was another symbolic element of QQE, which prioritized exerting downward pressure on longer-term bonds since greater monetary accommodation could be anticipated. The target maturity was gradually extended from October 2014 to December 2015.

Operation Twists Conducted by the Federal Reserve

The abolishment of the guideline for the average remaining maturity implies a shortening of the average maturity of JGB purchases. It is opposite to the two Operation Twists conducted by the Federal Reserve: Operation Twist in 1961 under the Bretton Woods System and Maturity Extension Program (so called Operation Twist) in 2011–2012. In 1961, the Federal Reserve launched a new policy of buying Treasury securities with maturities of 5 years or longer while keeping short-term interest rates unchanged at the initiative of the then President John F. Kennedy. Operation Twist was aimed at flattening the yield curve to stimulate the economy. Namely, it intended to lower long-term interest rates, which would indirectly affect business investment and housing investment, while maintaining a short-term interest rate (and thus interest differentials vis-à-vis higher-yielding Europe) that might prevent an outflow of gold from the US to Europe under the Bretton Woods system. A depletion of gold reserves was a growing concern for the US government, as it would undermine sustainability of the gold standard and the value of the US dollar against gold. Under Operation Twist, the Federal Reserve purchased substantial amounts of longer-term treasury securities including 10-year bonds through open market operations. 21 The gold standard-based Bretton Woods System was eventually abolished by then President Richard Nixon in 1971.

As for the second operation, the Federal Reserve implemented a Maturity Extension Program in 2011–2012 under the then Chairman Ben Bernanke, by selling or redeeming a total of 667 billion US dollars of shorter-term Treasury securities (i.e., remaining maturities of about 3 years or less) and using the proceeds to buy longer-term Treasury securities (i.e., remaining maturities of 6–30 years). By extending the average maturity of the securities in the Federal Reserve’s portfolio from about 75 months at end-September 2011 to about 120 months by the end of 2012, the Federal Reserve intended to put downward pressure on longer-term interest rates and thus stimulate the economy.

Removing the Maturity Target and Reverse Operation Twist

In the case of the BOJ, the shortening of the average maturity of JGB purchases implies an increase in longer-term interest rates. For this reason, the new framework is judged to have effectively tightened the monetary easing environment. It could therefore be called a Reverse Operation Twist. The abandonment of the maturity target is a clear sign that the BOJ would purchase shorter JGBs than in the past to steepen the yield curve, especially above the 10-year maturity. The BOJ would purchase a smaller amount of long-term JGBs and super-long-term JGBs (over 10 years) and a greater amount of shorter-term JGBs than it had previously.

This would prevent long- and super-long-term JGB yields from falling excessively. At the same time, exerting downward pressure on the remaining maturity around and below 10 years might generate greater impact on the yen’s exchange rate since the markets appear to focus on interest rate differentials with maturity equal to or below 10 years. If the BOJ expects further depreciation of the yen indirectly through interest rate differentials with the US, the new framework could be effective, as was demonstrated after the US election result.

**D. Unlikely to Expand Risk Asset Purchases and Shift from Three Dimensions to One Dimension**

With regard to the guidelines for asset purchases except for JGB purchases, the BOJ decided to maintain ETF and J-REIT purchases at an annual pace of about 6 trillion yen and about 90 billion yen, respectively. As for commercial paper (CP) and corporate bonds, the BOJ continues to maintain the outstanding amount of about 2.2 trillion yen and about 3.2 trillion yen, respectively. As for the ETFs, the BOJ is unlikely to expand the amount of ETF purchases above 6 trillion yen set in July 2016. This is because the July decision already amplified the BOJ’s balance sheet risk as mentioned in Chapter 4. Moreover, unlike JGBs, T-Bills, corporate bonds, and CP, risk assets such as ETFs (and J-REITs) do not have maturity so they will remain on the BOJ’s balance sheet almost forever unless the BOJ decides to sell them. Reducing the amount of ETF purchase (so-called tapering of ETF purchases) is likely to send a negative signal to the stock markets, which may induce other investors to sell stocks and add to a downward spiral of stock prices, given the substantial presence and intervention in these markets. Therefore, an additional monetary easing option in the quality dimension is in essence dropped from the three dimensions.

In its Public Statement, the BOJ clarified the possible options for additional easing. The negative interest rate and the target level of the long-term interest rate were listed as its top potential tools. Between a cut in the 10-year yield and a cut in the negative interest rate, the BOJ is unlikely to use the former given the greater side effects on financial institutions and the possible financial instability risk. Therefore, the negative interest rate is the tool most likely to be used by the BOJ if necessary.

It could be said, therefore, that the BOJ’s new framework essentially abandoned the quantity and quality dimensions of additional monetary easing, leaving only the negative interest rate of the previous three dimensions. Thus, the new framework is viewed as a transformation from additional monetary easing in three dimensions to additional monetary easing in one dimension.

**E. Inflation-Overshooting Commitment in Relation to the 2% Price Stability Target**

Regarding forward guidance on the future monetary easing stance, the BOJ stated that it would continue with “QQE with Yield Curve Control,” aiming to achieve the price stability target of 2%, as long as it is necessary for maintaining that target in a stable manner. This is very much the same as the phrase repeated by the BOJ from April 2013, except that the expression in quotation marks changed from “QQE” to “QQE with a Negative Interest Rate” and further to “QQE with Yield Curve Control.” In all cases, this forward guidance indicates the BOJ’s intention to continue with the monetary easing framework (currently, yield curve control) until it achieves the 2% price target. It should be noted that the 2% price stability target already incorporates an overshooting commitment.
**Inherent Meaning of the 2% Price Stability Target**

Adopting the 2% price stability target implies that the actual rate of inflation is projected to exceed 2%. Thus, the idea of an inflation-overshooting commitment element has already been embedded since the BOJ adopted the target in January 2013. This was self-evident to experts familiar with the inflation-targeting framework. To achieve the target, an inflation rate needs not only to touch 2% but also exceed 2% in Japan, for two reasons. First, as with the Federal Reserve and other major central banks, achieving 2% price stability is equivalent to maintaining an average rate of inflation of about 2%. It is natural that actual inflation sometimes exceeds and sometimes falls below 2%. Nevertheless, price stability is considered to be successfully achieved as long as the average inflation of around 2% arises due to stable inflation expectations at around 2%.

Second, inflation needs to exceed 2% for a while in Japan to anchor long-term inflation expectations at around 2%. Since inflation expectations in Japan are heavily influenced by past actual inflation, actual inflation must exceed 2% and remain above 2% for a while to pull up inflation expectations toward 2%. Inflation expectations are heavily influenced by past inflation rather than a forward-looking 2% target in Japan, partly because it never experienced 2% sustainably and partly because the target is not widely accepted and understood by the public.

**Inflation-Overshooting Commitment and Federal Reserve’s Experience in 2012**

The question then is this: *Why did the BOJ introduce the inflation-overshooting commitment if it is already embedded in the existing framework?* The inflation-overshooting commitment expression may have been inserted to show the BOJ’s firm determination to achieve the 2% price stability target despite a change in the monetary easing framework. This expression may have been influenced by the Federal Reserve’s *threshold-based forward guidance* introduced in December 2012 aimed at enhancing monetary easing. In the Federal Reserve’s Public Statement, it was pointed out that the Federal Open Market Committee (FOMC) decided to keep the target range for the federal funds rate at 0%–0.25% and anticipated that this exceptionally low range for the federal funds rate would be appropriate at least “as long as the unemployment rate remains above 6.5%, inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee’s 2 percent longer-run goal, and longer-term inflation expectations continued to be well anchored.” While the Federal Reserve used an inflation forecast (between 1 and 2 years ahead) and the BOJ used actual inflation, both central banks held the view that the 2% target is an average inflation concept and symmetric in the sense that it allows actual inflation to overshoot and undershoot the 2% target.

If logical consistency had been pursued, the BOJ’s inflation-overshooting commitment expression would have been redundant. Indeed, it generated complexity since the relationship between the inflation-overshooting commitment already implied in the forward guidance to achieve the price stability target and the newly introduced inflation-overshooting commitment is not clear. Until the actual rate of inflation exceeds 2%, the former suggests that the BOJ will continue yield curve control and the latter suggests that the BOJ will continue to increase the monetary base and JGB purchases (estimated at around about 80 trillion yen toward the end of 2017). As mentioned above, this brings back endogenous issues.
F. Conditionality on the Continuation of the New Framework

The BOJ’s Public Statements normally include a conditional phrase that describes conditions to continue the current monetary easing policy. In the 21 September 2016 Public Statement, the phrase was somewhat modified and expressed as follows: “The BOJ will make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target of 2%.”

The conditionality expression used in January 2016 until the September decision was as follows: *It will examine risks to economic activity and prices, and take additional easing measures in terms of three dimensions—quantity, quality, and interest rate—if it is judged necessary for achieving the price stability target.*

The recent conditionality expression included “financial conditions” as additional risk factors to consider besides developments in economic activity and prices. Financial conditions here seem to refer to the monetary environment. In the *Outlook for Economic Activity and Prices*, financial conditions are specified in terms of short-term and long-term real interest rates. The report states that financial conditions were projected to remain highly accommodative since short- and long-term real interest rates were expected to be in negative territory through the projection period up to fiscal year 2018 under yield curve control. Moreover, the report adds financial institutions’ proactive lending attitudes and favorable conditions for corporate bond and CP issuance were both likely to be maintained and support firms’ and households’ activities on the financial side.

*Why did the BOJ insert the financial conditions as an additional risk factor?* It may be because the BOJ wanted to indicate additional monetary easing was unnecessary as long as real interest rates remain negative. This could reflect that a sharp decline in long-term yields after adoption of the negative interest rate policy was excessive and be an admission that lowering interest rates excessively is also harmful to the economy. It is also possible that risk related to financial conditions includes financial instability risk more explicitly. Previously, financial instability risk was included in the risks to economic activities and prices. If such is the case, the revised conditionality expression more clearly stated that the ongoing monetary easing might be ceased if the financial instability risk rises.

5.3 The Peg or Ceiling and Fixed-Rate Purchase Operations

The idea of the BOJ’s yield control seems to have been based on the experience of the Federal Reserve in 1942–1951 when it attempted to maintain low interest rates both on short-term and long-term yields. Unlike the Federal Reserve that set a ceiling on long-term yields, however, the BOJ chose to peg a 10-year yield rather than impose a ceiling on it.

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A. The US Experience in 1942–1951

Let me first give an overview of the experience of interest rate control conducted in the US. The US entered World War II in December 1941. In April 1942, the Federal Reserve pegged the short-term T-Bills at 0.375% and capped the yields on all other treasury securities at 2.5% upon request from the Treasury Department. The policy aimed at stabilizing the treasury securities market and maintaining low financing cost for the federal government due to concerns over the rising ratio of gross federal government debt to GDP from 42% in 1938 to a record 122% in 1946.

To maintain the peg, the Federal Reserve bought large amounts of government securities. After the end of World War II in 1945, the Federal Reserve and the Treasury agreed on several increases in the T-bill rate from 1947. As a result, the T-Bill rate had reached 1% by the end of 1947 and thereafter showed a rising trend, albeit with fluctuations reflecting economic conditions. Meanwhile, the 2.5% ceiling on long-term treasury bonds was maintained because of the Treasury’s concerns about the rising cost of treasury debt and potential capital losses incurred by financial institutions holding treasury debt. Subsequently, the outbreak of the Korean War in June 1950 raised inflation, which had reached 21% on an annualized month-to-month basis by February 1951. The conflict over monetary policy between the Treasury and the Federal Reserve—the Federal Reserve’s concerns over rapid inflation versus the Treasury’s concerns about rising financing costs for the government—intensified.

In March 1951, such concerns finally led to an agreement between the Treasury and the Federal Reserve known as the Treasury–Federal Reserve Accord—a joint announcement by the Secretary of the Treasury and the Chairman of the Board of Governors and of the FOMC of the Federal Reserve System. In the agreement statement, it simply said that the Treasury and the Federal Reserve “have reached full accord with respect to debt management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government’s requirements and, at the same time, to minimize monetization of the public debt.” This accord contributed to strengthening operational independence of the Federal Reserve and laying the foundation for the modern monetary policy.

B. The Long-Term Yield Target: Pegging or Ceiling?

The BOJ’s yield curve control is very similar to the abovementioned yield target policy by the Federal Reserve. The following question then naturally emerges: Why did the BOJ not cap the 10-year yield rather than peg it at around zero percent?

The choice of pegging was made probably because pegging the yield at around zero percent was adopted to prevent longer-term yields from falling excessively low and thus mitigate adverse impacts on financial institutions, especially institutional investors. The 10-year yield went down to around −0.03% in July 2016, which was considered too low from the perspectives of financial institutions. In other words, yield curve control was the BOJ’s policy response to a sharp fall in the 10-year yield and an acknowledgement that the side effects and adverse impacts were brought about by the negative interest rate, as described in Chapter 4. It is apparent that the BOJ now prefers maintaining a relatively low level of 10-year yield, but not a significantly negative level, as well as ensuring super-long-term yields (with remaining maturity above 10 years) at moderately higher levels in positive territory. At the same time, the BOJ wanted to prevent an overshooting of the longer-term yields that could potentially be triggered by the change in the monetary easing framework. Thus, pegging the 10-year yield was the BOJ’s best option to change the framework without incurring negative market reactions.
C. Steeper Yield Curve Achieved before Yield Curve Control

As already described in Chapter 4, the JGB yields began to rise immediately after the 29 July Monetary Policy Meeting. This already reflected bond market participants’ anticipation of the change in the BOJ’s monetary policy and recognition of the limit related to large-scale JGB purchases. The BOJ also began to send a number of signals in early September hinting at some deviation from the quantity-centered monetary easing. While stressing that the decline in the lending interest rate is a successful result of QQE with a negative interest rate, Governor Kuroda also began to explicitly admit from early September that a lower interest rate margin reduced the profitability of financial institutions and might undermine their financial intermediation roles. Therefore, the announcement of yield curve control on 21 September was not a surprise. It had limited impact on the yield curve except that yields below 10 years dropped moderately and yields above 10 years rose moderately, reflecting the market view that the new framework is a Reverse Operation Twist (Figure 5-2).

![Figure 5-2: Japanese Government Bond Yield Curve: before and after Yield Curve Control in 2016 (%)](image)

Source: Ministry of Finance.

Let us look at the interest rate movements from 3 October 2016 (the Monday the BOJ began to implement a new framework) until just before the US Presidential Election. During this period, the 10-year yield occasionally declined further into negative territory and approached nearly –0.1%. Technically speaking, the BOJ should have reduced the amount of usual JGB purchases to raise the 10-year yield to around zero percent. However, the BOJ did not do so in line with its Outline of Outright Purchase even though the yield remained below –0.5% for a while. The BOJ’s apparent hesitation to reduce its asset purchase amount may have been due to concerns that the markets might view it as a sign of a setback. While the BOJ intended to reduce the monthly planned purchases according to the Outline of Outright Purchase, it appeared to have done so only to a limited extent. This example points to ambiguity over the BOJ’s preference for exercising yield curve control over maintaining volume control.
D. Donald Trump’s Victory Changing Global Interest Rate Environment

Since the surprise victory of Donald Trump in the US presidential election on 8 November 2016, longer-term yields in the US rose rapidly from the next day; the 10-year yield, for example, rose by about 60 basis points from around 1.8% on 7 November to around 2.4% by the end of the same month. This move reflected anticipation of higher economic growth and inflation, mainly driven by massive tax cuts and infrastructure investment promised during the election campaign. An expectation of the imposition of higher tariffs under expected new anti-global trade regimes and stricter immigration controls further added to inflation outlook.

Japan’s Unique Position with regard to Long-Term Interest Rate Movements

This generated powerful spillover effects to the rest of the world through a sharp rise in long-term yields. Since those yields did not rise as much as those in the US, the resultant wider interest differentials between the US and the rest of the world resulted in a rapid sharp appreciation of the US dollar against almost all currencies. Meanwhile, Japan was in a rather unique position since the scale of the rise in the long-term yield was very moderate so that interest rate differentials with the US became widest. For example, 10-year yield remained below 10 basis points owing to the BOJ’s 10-year yield peg and continuous large-scale JGB purchases. The 10-year JGB yield initially dropped from –0.05% on 7 November before the US presidential election to around –0.07% on 9 November, reflecting an initial negative market surprise over Mr. Trump’s victory. It then rose quickly to –0.04% on 10 November and turned into positive territory recording 0.01% on 15 November and rose further to 0.03% on 16 November. After that, it approached 0.1%. The scale of the rise was limited, but market participants questioned whether the BOJ is pegging the 10-year yield and would be willing to increase JGB purchases accordingly.

E. Fixed-Rate Purchase Operations Conducted for the First Time

The BOJ introduced new tools of market operations to control the yield curve smoothly—fixed-rate purchase operations (outright purchases of JGBs with yields designated by the BOJ) and fixed-rate Fund-Supplying Operations for up to 10 years. Between them, fixed-rate purchase operations are major tools. Also, these tools are likely to be used in case of a spike in interest rates. As a result, there are two types of outright JGB purchase operations from October 2016: (a) the existing outright purchase of JGBs and (b) the newly introduced fixed-rate purchase operations. The former is a multiple-price competitive auction under the conventional method conducted for each purchase in which counterparties bid for their desired yield spreads (calculated by subtracting benchmark yields from the yields at which counterparties seek to sell to the BOJ). The benchmark yields would be determined by the BOJ separately. The latter is a purchase of JGBs at the fixed rate calculated for each purchase by adding the yield spread for each issue to the benchmark yield determined by the BOJ.

First Trial of the Fixed-Rate JGB Purchase Operation

In the presence of moderately rising yields after the US presidential election, the BOJ decided to use the fixed-rate purchase operation for the first time since its introduction. On 24 November 2016, an unlimited amount of JGB purchase operations was offered at fixed rates for JGBs with remaining maturity of less than 5 years. Namely, the BOJ offered to purchase JGBs with remaining maturities of 1–3 years (mainly, 2-year maturity) at a fixed yield of 0.02% and within 3–5 years (mainly, 5-year maturity) at 0.019%.
After the announcement, the benchmark 10-year JGB yield fell to 0.01% on the same day. The operations did not receive any bids because the fixed yields (offered prices) offered by the BOJ were higher (or lower) than those prevailing in the markets. Even though there were no bids, the yields with remaining maturity from 1 year to a maximum 40 years dropped, indicating that the BOJ’s announcement was effective in terms of bringing down the yields.

**Why Did the BOJ Choose Shorter-Term Fixed-Rate Purchase Operations?**

One unique feature of the recent fixed-rate operation case was that the BOJ announced targeted JGB purchases only with remaining maturity of the short and medium term (mainly, 2-year and 5-year maturity). This was apparently different from the BOJ’s previously envisaged scenario as described in the footnote of the 21 September Public Statement that specified purchasing of 10-year and 20-year JGBs in the event of an interest rate hike. The decline in the yields continued for the following 3 working days, but began to rise again from the 4th day. Thus, the announcement effect of the fixed-rate purchase operations was effective but short-lived.

Why did the BOJ not utilize longer-term fixed operations? It signaled the BOJ’s lack of willingness to bring down longer-term yields. One answer could be because shorter-term yields rose somewhat fast after the US presidential election. This may be attributable in part to an unwinding of the behavior of some foreign commercial banks and investors—away from obtaining Japanese yen cheaply through swapping the US dollar and investing those proceeds in shorter-term JGBs. Another possibility is the BOJ’s concern about adverse impacts especially on pension funds and insurance firms if longer-term yields drop. Again, this may be an acknowledgement by the BOJ that lowering longer-term yields would generate greater side effects and adverse effects on the profitability of institutional investors and the sustainability of their main business models, which had emerged since the negative interest rate policy decision in January 2016.

Market participants held the view that the BOJ was keen to exert downward pressure on shorter-term JGB yields for the purpose of promoting the yen’s depreciation rather than lowering longer-term yields. And some took the view that the BOJ is less willing to increase the amount of purchases of longer-term JGBs—considering the impact on pensions and insurance industries and the BOJ’s balance sheet risk. Such views appear to be consistent with interest rate developments. Since the fixed-rate purchase operations, an upward shift in yields with a remaining maturity above 10 years has become greater. Figure 5-3 indicates the rise in yields with more than 10 years maturity was greater after the fixed-rate operations as compared with the period from 7 November (just before the US election) to 22 November (just before the fixed-rate operations were announced). During December 2016, the BOJ adjusted the amount of purchase of super-long term JGBs by increasing it in mid-December when long-term interest rates rose and then reduced it toward the end of December.

So far, the BOJ purchase operation looks quite arbitrary and seems to lack consistency. For example, the fixed-rate purchase operation was conducted in November 2016, when the 10-year yield remained at around 0.03%, which is not so far from zero percent. After that, however, the 10-year yield rose again and rose above 0.05% from 9 December 2016. The super-long-term yields such as the 20-year yield increased by nearly 20 basis points to around 0.6%—roughly the same level seen in February 2016. Nonetheless, the BOJ did not attempt to use the fixed-rate purchase operations based on 10-year yield and 20-year yield or longer.
Similarly, on 26 January 2017, the BOJ did not use the fixed-rate purchase operations when longer-term yields rose to the levels not seen since February 2016. The rise happened because on 25 January, the BOJ purchased JGBs with remaining maturity within 10–25 years and over 25 years, but did not purchase those with remaining maturity within 1–5 years (mainly, 2-year and 5-year maturities) contrary to market expectations. The market expected that the BOJ would purchase these medium-term bonds on 25 January since the number of operations with these maturities is generally six times monthly with two operations being left for January. The BOJ’s unexpected move raised concerns that the BOJ would reduce a number of these operations scheduled for January and thus begin tapering. As a result, the 10-year yield rose sharply toward 0.09%, 20-year yield toward 0.66%, 30-year yield toward 0.8%, and 40-year yield toward 0.9% (temporarily above 1%) on 26 January. To correct market concerns over tapering, the BOJ conducted JGB purchase operations on 27 January with remaining maturity within 5–10 years (mainly, 10-year maturity) by increasing the amount from a usual amount of around 410 billion yen to 450 billion yen. Subsequently, those yields dropped to 0.07%, 0.64%, and 0.83%, and around 1%, respectively, but remained relatively high. However, the amount of this operation was reduced again to around 410 billion yen according to the schedule announced for the first operation in February 2017.

**Second Trial of Fixed-Rate JGB Purchase Operation**

On 2 February 2017, the 10-year yield began to rise above 0.1%. It rose to 0.137% about 10 minutes before 10:10 a.m., a time when the BOJ generally announces its purchase operations. The markets expected that the BOJ would announce a fixed-rate purchase operation substantially at 10:10 a.m. Contrary to market expectation, the BOJ reacted to the yield hike by using a regular purchase operation and increasing the amount of JGB purchase with remaining maturity within 5–10 years only from the scheduled 410 billion yen to 450 billion yen. The BOJ’s unexpected, unsatisfactory response led to a further rise in the 10-year yield toward 0.15% by 12:25 p.m. The yen vis-à-vis the US dollar began to appreciate from over 113 yen to below 113 yen.
Since the BOJ generally makes announcements on purchase operations twice a day (10:10 a.m. and around 2:00 p.m.), market participants expected the BOJ’s announcement on a fixed-rate operation around that time. Instead, the BOJ suddenly announced an unlimited fixed-rate purchase operation with remaining maturity of 5–10 years at 12:30 p.m. The fixed yields offered were 0.11% and this time lower than those prevailing in the market. Consequently, the 10-year yield soon dropped to 0.109% and below 0.1% by 2:30 p.m. The BOJ ended up purchasing 723.9 billion yen. Nevertheless, the 10-year yield soon began to exceed 0.1% and remained at that level on 6 February 2017 (following Monday). On 6 February, thus, the BOJ made another unexpected move by conducting a regular JGB purchase operation of 450 billion yen with remaining maturity of 5–10 years. On 10 February, regular operations with maturities within 10–25 years and above 25 years were increased by 10 billion yen each.

These series of events have given the impression to the markets that the BOJ is behind the curve. Market participants remain skeptical about BOJ’s ability to maintain yield control for a long time due to apparent unwillingness to increase the total amount of JGB purchase and use a fixed-rate purchase operation aggressively to peg the 10-year yield at around zero percent. Also, the ambiguity over BOJ’s monetary policy stance—pegging a 10-year yield or continuing JGB purchase of around 80 trillion yen—has confused market participants, thereby generating relatively volatile yields and yield curves. It is clear that the relatively volatile 10-year yields indicate that yield curve control is not as effective as the BOJ initially envisaged. The BOJ’s commitment to yield curve control might be tested throughout 2017 as stronger upward pressure is likely to emerge again.

### 5.4 Positive Aspects and Challenges Related to the New Framework

Since the adoption of the yield curve control, the yield curve steepened especially in the remaining maturity over 10 years. This has mitigated the adverse impact on financial institutions, especially institutional investors. In addition, the new framework has three main positive aspects: (1) more sustainable JGB purchases, (2) greater impact on the yen’s depreciation through interest differential, and (3) enabling smoother transformation of monetary policy in the future. On the other hand, the new framework may generate a number of challenges and potential side effects: (a) communication challenges due to lack of clarity about the BOJ’s policy intention, (b) limited impact on aggregate demand and inflation, (c) negative term premium and delayed corporate restructuring, (d) distortion in the JGB market and operational challenges with regard to maintaining an appropriate yield curve, and (e) risk of undermining fiscal discipline.

#### A. Positive Aspect (1): More Sustainable JGB Purchases

The 21 September Public Statement had already signaled that there would in principle be no more additional increase in the annual pace of JGB purchases beyond 80 trillion yen. In my view, this signal was appropriate owing to the rising scarcity of JGBs and reduced liquidity in and functioning of the JGB market, as well as growing operational challenges related to purchase operations. While it is increasingly understood by now that an expansion of JGB purchases substantially beyond 80 trillion yen is unlikely over a long period of time, the issue remains when the BOJ will make a cut in JGB purchases.
B. Positive Aspect (2): Yen’s Depreciation Driven by Interest Rate Differentials

Since the US presidential election and the anticipated tighter monetary policy by the Federal Reserve, the interest rate differential between the US and Japan has expanded rapidly. For example, the yield differences on 10-year government bonds rose from around 1.9% in 8 November 2016 to around 2.5% by end-November 2016 (Figure 5–4). A somewhat smaller scale of increase was observed in the difference between US treasury securities and German government bonds known as “Bunds”; for example, the 10-year yield difference rose from around 1.7% on 7 November 2016 to over 2% by end-November 2016. However, the 10-year yields in peripheral countries—particularly Italy, Portugal, Spain, and to a lesser extent Ireland—rose much faster than those in Germany, so that their interest rate differentials with the US were not substantial. This is probably why the euro did not depreciate as much as the Japanese yen, both against the US dollar and in terms of its nominal effective exchange rate. It should be noted that noncommercial investors in the International Money Market of the Chicago Mercantile Exchange shifted the yen’s net positions from long positions seen in late 2015 to short positions in December 2016. Since this market has mainly short-term-oriented investors such as hedge funds, it means that their speculation shifted from the yen’s appreciation to its depreciation.

It could be argued that the yen’s greater depreciation than that of the euro is a success for the BOJ’s pegging policy. However, the relationship between interest rate differentials with the US and the yen’s depreciation vis-à-vis the US dollar was not very evident before the US presidential election. Between August 2016 and October 2016, the interest rate differentials widened but the yen vis-à-vis the US dollar remained mostly below 105 yen. The trigger was clearly the US presidential election factor rather than the BOJ’s yield curve control per se. This suggests that the exchange rate movements could be reversed or volatile if the US factors leading to higher US interest rates and the dollar’s appreciation change and given that the US dollar has been overvalued since mid-2014. Thus, the current level of the yen—somewhat undervalued from the perspective of the sustainable current account surplus level, as well as underlying inflation and inflation expectations—may not be sustainable.

**Figure 5-4:** Interest Rate Differentials between the United States and Japan: January 2013–December 2016 (%)
C. Positive Aspect (3): Enabling Smoother Transformation of Monetary Policy

With regard to yield curve control, it is important to note that the BOJ shifted its main operating target for money market operations from the monetary base to the two pinpoint interest rates. The BOJ changed the term used to express its main operating target from “money market operations” used previously to “market operations” this time, perhaps because the 10-year JGB yield is clearly not a money market interest rate.

A shift to interest rate control brought the BOJ’s monetary easing framework one step closer to the standard monetary easing approach. The standard approach refers to short-term interest rate control in the positive territory based on an uncollateralized overnight call rate adopted previously under the Comprehensive Monetary Easing (CME). At the time of normalizing monetary policy, the BOJ will do so by raising the call rate together with an increase in the interest rate applied to the current account balance. In the phase of normalization, the role of the interest rate applied to the current account balance will become more essential since it constitutes a floor in the uncollateralized overnight interbank market (see Chapter 4). This role is evident from the recent normalization practice conducted by the Federal Reserve. In this sense, the BOJ’s transformation from quantity-centered to interest rate-based monetary easing including the interest rate applied to the current account balance would enable it to facilitate the normalization process, although this process is unlikely to happen in the short or medium term.

Moreover, conceptually speaking, the objective of maintaining long-term interest rates at low levels under the new framework is no longer likely to be achieved primarily by exerting downward pressure on the term premium through massive JGB purchases. This objective is now fulfilled mainly by explicitly affecting the expectation about the future path of short-term interest rates and thereby longer-term interest rates—so-called forward guidance based on short-term interest rates. This is why quantity was made secondary and supplementary to this forward guidance. Stabilizing long-term interest rates could be achieved with a negative interest rate and its associated forward guidance related to the duration or conditions of maintaining a negative interest rate on the current account balance.

Nevertheless, the markets may not be well informed about the concept of forward guidance or mistakenly regard it as a temporary measure. In this sense, pegging a 10-year yield helps to stabilize the expected path of short-term interest rates at low levels as well as prevent a sharp sudden hike in long-term yields. The existing reinvestment policy on JGB holdings also plays a role in preventing a rapid long-term interest rate overshoot by exerting the Stock Effect. Once the markets’ understanding the forward guidance has deepened, the amount of JGB purchase could be reduced gradually with greater emphasis on the use of forward guidance. Given this idea is conceptually embedded in the new framework, I considered yield curve control to include an element of “implicit tapering.”

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23 See Goldman Sachs Interview with Sayuri Shirai, Global Macro Research “Top of Mind” 6 October 2016 (interview was conducted at end-September). This view was explored in detail in a speech (in Japanese) delivered at the Japan Press Club on 21 December 2016 (available at https://www.youtube.com/watch?v=9I9gzw5icYU).
D. Challenge (a): Lack of Transparency about the Direction of Monetary Easing

Many market participants are wondering whether the BOJ truly attempts to stabilize the 10-year yield at around zero percent by endogenously adjusting the annual pace of JGB purchases. Whether this is indeed the BOJ’s intention is likely to be tested in the transformed global interest rate environment after Mr. Trump’s victory on 8 November 2016. The ECB’s new move also added to this environment. On 8 December 2016, the ECB decided to continue its Asset Purchase Program beyond March 2017, but by reducing the amount of monthly asset purchases from 80 billion euro to 60 billion euro from April 2017 until the end of 2017. This move caught markets by surprise, although the sustainability of the Asset Purchase Program due to a shortage of German government bonds had been known for some time. Market reactions were not very negative since the duration of the asset purchase was extended longer than had been expected by some market participants. The de facto tapering led to an increase in German and other European bond yields—especially longer-term bond yields with a maturity equal to and beyond 10 years. But the increase was relatively contained.

The events in the US and eurozone as well as an expected rise in global inflation suggest that the upward pressure in the global interest rate environment is likely to prevail in the JGB market. In these circumstances, markets are increasingly watching the BOJ’s next action—purchases of fixed-rate purchase operations especially with regard to super-long-term JGBs (mainly, 20-year yield) that have not been implemented yet. The BOJ might end up purchasing larger amounts of longer-term JGBs and possibly above 80 trillion yen to cope with upward pressure. This potentially places the BOJ in a difficult position since it makes it hard to move away from the quantity-centered framework and it would amplify the BOJ’s own balance sheet risk.

E. Challenge (b): Limited Impact on Aggregate Demand and Inflation

The new framework appears to have limited impact on stimulating aggregate demand and resultant demand-driven inflation—excluding the impact on the yen’s depreciation and resultant imported inflation. Maintaining extremely low interest rates may not be demand enhancing since the public and markets may regard it simply as a reflection of the prevalence of low growth and low inflation—not necessarily as a demand-stimulating policy. Monetary easing as implemented for long has increased anxiety among households because a retail deposit rate and returns on investment are so low and monetary easing tools that generate negative returns are counterintuitive. As of September 2016, households’ deposits recorded 848 trillion yen, accounting for about half of total financial assets (1,751 trillion yen), and the amount of deposits were 2.7 times as large as households’ loans (around 319 trillion yen). Thus, a low nominal interest rate if continued for too long might lead to a perception that asset accumulation remained sluggish. This in turn might encourage more saving and less spending. Growing concerns about the sustainability of the social security system arising from lower returns and higher insurance fees together with uncertainty about their remaining life may discourage them from spending. In response, firms may find it difficult to raise sale prices amid intensified competition mainly driven by a shrinking market.
F. Challenge (c): Negative Term Premium and Pace of Corporate Sector Restructuring

One of the purposes of the Asset Purchase Program was to exert downward pressure on the term premium. The term premium is defined as the excess yield that investors require when holding a long-term bond instead of short-term bonds. Using 10-year JGB yield, the term premium is estimated by subtracting the estimated inflation expectations and natural interest rate from a 10-year yield.

The BOJ released a supplementary report entitled *Comprehensive Assessment: Developments in Economic Activity and Prices as well as Policy Effects since the Introduction of QQE: The Background*—together with its Public Statement of 21 September 2016. In the report, the BOJ provides various estimates on long-term inflation expectations and natural interest rates. According to the Synthesized Inflation Expectations Indicators, the estimates on long-term inflation expectations remained at around 1% currently—declining to the same level in early 2013 from a peak of around 1.4% (Figure 5-5). These indicators were obtained from the principal components of various long-term inflation expectation indicators of households, firms, economists, and inflation swap rates. On natural interest rates, two types of estimates were presented: (1) between zero percent and 1% based on potential economic growth or long-term projected economic growth, and (2) between −1% and zero percent based on the estimates of natural interest rates (Figure 5-6). Assuming that the 10-year yield remains roughly around zero percent, consequently, term premiums are currently estimated to be around −2% to −1% in the case of (a) and −1% and zero percent in the case of (b).

Figure 5-5: Synthesized Inflation Expectations Indicators: 2007–2016 (%)


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Figure 5-6: Estimates on Natural Rates of Interest: 1990–2015 (%)

(1) Based on Potential Economic Growth or Long-Term Projected Economic Growth

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(2) Based on the Estimates of Natural Interest Rates

Normally, the term premium is likely to be positive since long-term bonds are riskier than short-term bonds due to interest rate risk and credit risk. Therefore, a negative term premium, if sustained for a long time with a significantly low long-term interest rate, might be unusual since holding longer-term bonds is penalized more so than short-term bonds. Commercial banks, for example, may attempt to find new firms or projects without track records but may not be able to charge an appropriate lending rate reflecting such risks. Since it may lead to potential nonperforming loans and banking regulations have been tightened, they may hesitate to extend credit. Many of them are attempting to diversify their businesses, but lack of adequate credit demand and alternative financial assets to invest in makes it difficult to make drastic changes to their business models. Sustaining very low long-term interest rates with negative term premiums may only encourage firms to refinance existing debt with a higher coupon interest rate to long-term debt with a lower coupon interest rate or to finance stock buybacks, rather than to make use of cheap loans to increase productive business investment.25

Inflation and inflation expectations are expected to rise in 2017 and may deepen the negative term premium as long as the BOJ sticks with the 10-year peg at zero percent. A somewhat longer-term related issue is that adverse effects could be amplified if a 10-year peg at zero percent is maintained for a long time. Such a low interest rate is likely to exert downward pressure on lending rates to firms and households, corporate bond spreads, and other interest rates to levels that could not be justified from the perspective of credit and market risks. The worst-case scenario is that it may delay necessary corporate restructuring and reorganization of the economic structure since many unviable firms can survive in the low funding cost environment. This may give rise to stagnant labor productivity growth and thus stagnant potential economic growth, which in turn would contribute to sluggish domestic demand.

G. Challenge (d): JGB Market Distortion and US Experience after 1951

What is uncertain regarding the BOJ’s new framework is the duration of yield curve control to be exercised by the BOJ. On the surface, it looks obvious that the BOJ will maintain the two benchmark rates at their current levels (−0.1% and around zero percent)—or lower them further—until inflation exceeds 2% for a while. It means that it is likely to take many years and certainly longer than the around fiscal year 2018 (April 2018 to March 2019) projected by the BOJ in the Outlook for Economic Activity and Prices dated 1 November 2016 and 31 January 2017.26

In my view, one of the serious side effects related to yield curve control is that the price information reflected in the long-term interest rates—such as long-term inflation expectations, a neutral interest rate, and term premium—might be lost almost completely. Loss of the price discovery function is likely to reduce liquidity further and amplify the risk of a sudden reversal of long-term interest rates if yield curve control is sustained for a long time. This may make it even more challenging for the BOJ to launch tapering and then normalize the JGB market in the near future. The JGB market is the single largest liquid bond market in Japan, and the need to issue a large amount of new issuance and refinancing bonds every year requires a well-functioning market that ensures smooth government debt management policy.

The JGB market is already heavily affected by the BOJ’s Asset Purchase Program, as touched upon in Chapter 4. Pegging 10-year yield creates a different source of distortion already materialized for some time in JGB purchases. JGB purchases generated artificial demand for JGBs and hence reduced market liquidity as an overvalued JGB market deterred market transactions. By contrast, a pegging interest rate policy is potentially more harmful to the market than large-scale JGB purchases since market price information is largely eliminated so that market transactions become unprofitable and inefficient. This distortion should not be taken lightly.

**US Experience of Removing Long-Term Interest Rate Ceiling**

On this front, the BOJ could learn from the past experience of the Federal Reserve that removed an aforementioned ceiling on long-term yields at 2.5% in 1951. In April 1953, the Federal Reserve Chairman William Martin, Jr.—who took over the position of Chairman in April 1951 after the Treasury–Federal Reserve Accord was signed in the previous month—delivered a speech in Detroit about the 2-year transition experience after the accord. He explained that dictated money rates in 1942–1951 bred dictated prices all across the board, which is completely different from a free market where interest rates go down and up and thus perform their proper function in the price mechanism. He stressed that the maximum benefits for the economy derive from utilizing private property, free competitive enterprise, and the profit motive in accordance with the dictates of the market place—something that had been forgotten for some time.

According to his description, the Federal Reserve reviewed operations in the government securities market in 1952 and found that once the market was freed a little bit, many of the devices and techniques used previously tended to work in reverse. Market players were keen to find out what the Federal Reserve planned to do and how it was going to operate, instead of making market judgments for themselves. Such behavior was prevalent in the entire financial market and could not be easily or quickly reversed. Only gradually were old practices discarded and the characteristics of a free market developed. The government bond market did not have the depth, breadth, and resiliency needed for the execution of effective and responsive market operations and for flexible debt management purposes. The unsatisfactory aspects of the market seemed to be related in large part to the psychology that pervaded the market. The market appeared to constantly expect action by the Federal Reserve. They seemed to be insufficiently informed to weigh and evaluate Federal Reserve actions in forming their individual market judgments and investment decisions.

The Federal Reserve began open market transactions to maintain a volume of member bank reserves consistent with the needs of a growing and stable economy. For this purpose, operations were confined to short-term securities such as T-Bills given that these securities are the closest substitutes for cash and thus their prices are least affected by Reserve System sales or purchases. Gradually, investors in government bonds began to expect and understand the motivations of the Federal Reserve.

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Can the BOJ Find an Appropriate Yield Curve?

Another distortion in the JGB market is related to the shape of the yield curve. As long as the 10-year yield target is set at around zero percent, the yields with maturity beyond 10 years would likely be in positive territory and those below 10 years would likely be in negative territory. Other factors being equal, yield curve control is aimed at purchasing smaller amounts of long- and super-long JGBs and greater amounts of shorter JGBs for the time being to maintain JGB purchases of around 80 trillion yen. In the meanwhile, the Ministry of Finance has lengthened its JGB issuance over time. The average maturity of JGBs issued in the market (including newly issued and refinancing JGBs, on a flow basis) rose from 5 years in financial year 2000 to 7 years and 7 months in financial year 2010 and further to 7 years and 10 months in financial year 2012. It further rose to 7 years and 11 months in financial year 2013 to 9 years and 3 months in financial year 2016. The maturity is projected to rise further to 9 years and 5 months in financial year 2017. Over this period, the Ministry of Finance increased the share of 10-year, 20-year, 30-year, and 40-year JGBs in total issues and reduced the share of 2-year and 5-year JGBs and T-Bills in total issues.

Other factors being equal, this means that yields on the remaining maturity equal to and over 10 years are likely to have upward pressure due to greater supply by the Ministry of Finance and smaller demand from the BOJ. By contrast, yields with remaining maturity of less than 10 years are likely to have downward pressure due to smaller supply by the Ministry of Finance and greater demand from the BOJ. If the long-term and super-long-term yields become higher, it may be detrimental to Japan’s economy since some loans including mortgages are long-term and thus are affected by the increase, while institutional investors benefit from higher returns. If the shorter-term yields decline excessively in negative territory, it may also be detrimental to commercial banks since much corporate sector lending concentrates on maturity of 3 to 5 years. This suggests that the BOJ may need to perform effective coordination with the Ministry of Finance to develop the desirable yield curve that the BOJ claims to pursue. It suggests the BOJ may face operational difficulties if yield curve control is maintained at current levels for too long. It is also unclear how the BOJ defines a desirable yield curve.

H. Challenge (e): Risk of Undermining Fiscal Discipline

Finally, a long-term yield peg at around zero percent may incur the risk of undermining fiscal discipline. The government is committed to achieving a primary balance in fiscal year 2020 and marks fiscal year 2017 as the 2nd year of the Fiscal Consolidation Plan while continuing to pursue economic revitalization and economic growth strategies. On fiscal consolidation, the fiscal year 2017 budget plans to control general expenditure growth, especially the growth of social security expenditures—examining, for example, a gradual lift over the upper limit for high medical and nursery expenses for 70+ year-olds and reviewing the temporary discount rate for 75+ year-olds on medical insurance premiums. The planned amount of newly issued bonds is on a downward trend.

Nonetheless, there is a substantial gap (about 40 trillion yen in fiscal year 2017) between general account expenditure (97 trillion yen) and general account tax revenue (about 58 trillion yen). The gap faced a declining trend from fiscal year 2010 due to a rise in tax revenue, while the expenditure remained largely unchanged. Tax revenue rose from fiscal year 2010 and rapidly from fiscal 2014 due to increased corporate tax profits and a consumption tax hike in April 2014. Moreover, low levels of long-term interest rates contributed to compressed interest payments and thus expenditure. In fiscal year 2017, interest payments on JGBs are projected to record
a mere 9 trillion yen and will be slightly lower than fiscal year 2016 in spite of rising outstanding JGBs issued. General JGBs (grant funds without a payment obligation since taxes are the main fiscal sources) are projected to reach a record 865 trillion yen in fiscal year 2017, but interest payment of 9 trillion yen accounts for just 1% of the outstanding general JGBs issued. Structural reforms and growth strategies are essential to raise potential economic growth and thus tax revenue growth. The government’s recent efforts to develop fiscal stimulus that could potentially lead to raising sustainable economic growth are welcome.

However, low interest payments are attributable to the BOJ’s super-easy monetary policy. Maintaining substantially low long-term interest rates for long is likely to generate an impression on the side of the government that such an interest rate level will continue for a long time and the government may take it for granted without questioning its sustainability. As a result, the government may fail to make use of the low-interest rate environment by accelerating necessary economic growth strategies and deregulations, thereby preparing for a future normalization of monetary easing. The eventual cost to Japan’s economy of postponing necessary reforms could be very high.

5.5 Changing the Composition of ETF Purchases to Mitigate Distortion in the Stock Markets

This subsection describes the change in the composition of ETF purchases that the BOJ made at the Monetary Policy Meeting held in September 2016. The BOJ decided to modify the composition of ETF purchases with effect from the following October. Out of an annual increase of ETF purchases of 5.7 trillion yen (excluding 300 billion yen allocated for ETFs to Support Firms Proactively Investing in Physical and Human Capital from 6 trillion yen), the BOJ purchased ETFs that trace the Tokyo Stock Price Index (TOPIX), the Nikkei 225 Stock Average, or the JPX–Nikkei Index 400. The amount of the ETF purchases for each index was roughly be proportionate to the total market value of that ETF issued. As a result, the amount of 5.7 trillion yen was nearly split between TOPIX and Nikkei 225 Stock Average since the JPX–Nikkei 400 market is relatively small. A little over a half of the amount had been allocated to Nikkei 225 Stock Average.

Since early 2016, there were growing criticisms from market participants and investors that such a composition distorted the stock market. Specifically, the BOJ’s proportionate purchase tended to favor stocks on the price-weighted Nikkei 225 Stock Average as compared with the market value-weighted TOPIX. The continuation of the BOJ’s purchases may end up dominating in trading over some shares covered in the Nikkei 225. A famous example is Fast Retailing Co., owner of apparel chain Uniqlo, whose weight accounted for around 8% of the Nikkei 225 Stock Average while accounting for only 0.3% of the TOPIX. As a result, Fast Retailing Co. benefits substantially from BOJ’s purchase of the Nikkei 225. The BOJ owned about half of Fast Retailing Co.’s free floating stocks, which could be risen to over 60% by end-December 2016.

In response to the heavy criticism, the BOJ decided to reduce ETF purchases in the Nikkei 225 Stock Average and instead to increase ETF purchases tracking TOPIX. Out of 5.7 trillion yen, the BOJ decided to allocate 2.7 trillion yen annually to TOPIX ETFs while the remaining 3 trillion yen would be spread out between TOPIX, Nikkei 225 Stock Average, and JPX–Nikkei 400 ETFs—roughly in proportion to the total market value of each ETF issued. Consequently, the BOJ now allocates about 70% of 5.7 trillion yen to TOPIX ETF.
5.6 My Suggestions as for the BOJ’s Action in 2017

What will be the BOJ’s next move? At this stage, I support the new framework with yield curve control since it corrected some of the side effects caused by a negative interest rate and could potentially evolve into a framework with more sustainable monetary accommodation. It could also facilitate a move toward my view publicly stated since April 2016 until a yield curve control was introduced, that is, beginning to reduce an amount of the JGB purchases to a more sustainable level—for example, toward the amount of net JGB issuance (around 50 trillion yen in the case of fiscal 2017)—when the rate of change in the CPI will turn positive and deflation risk is judged to be almost eliminated. The further deepening of the negative interest rate is not desirable but a moderate extent (e.g., –0.2 or –0.3%) could be considered as an option if the BOJ finds it really necessary to cope with possible overshooting of the yield curve—mainly short to medium yields. In this case, a negative interest rate is used not to add monetary easing, but to smoothen the tapering process. This action, however, requires a careful, well-designed communication strategy targeting the financial sector and the public separately given strong criticism emerged since its adoption in 2016.

A. More Sustainable Monetary Accommodation with Reduced JGB Purchase

Currently, the rate of change in CPI is expected to turn positive on a sustainable basis in the first half of 2017 mainly due to the base effect (phasing out of the downward pressure on prices from oil price drop) and the fiscal stimulus including the second and third supplementary budgets for fiscal year 2016. Some of those budgetary expenditures are unlikely to be used within fiscal year 2016 and thus will extend to fiscal year 2017. The year-on-year rate of CPI improved from 0.1% in October 2016 to 0.5% in November 2016 mainly due to temporary higher fresh food prices such as vegetables caused by bad weather conditions. It was then dropped to 0.3% in December 2016 as the year-on-year rate of fresh food prices dropped from 22% to 14%. The change in CPI excluding fresh food (core CPI) remained –0.4% for October and November, but improved to –0.2% in December 2016. Meanwhile, change in CPI excluding food and energy (core core CPI) dropped from 0.2% in October to 0.1% in November and further to 0% in December mainly due to the declined price of clothing. Energy prices continued to decline but downward pressure began to wane. Thus, these rates are expected to gradually enter into positive territory in the first half of 2017. Once all these CPI indicators turn positive sustainably, the BOJ could consider a modification of yield curve control, as suggested later.

If the BOJ’s true intention is to move away from the quantity dimension, it is my view that the BOJ should eventually clarify its intention to reduce the annual pace of the monetary base expansion and JGB purchases more explicitly. The BOJ could emphasize that some cut in the annual pace of the monetary base expansion and JGB purchases is necessary and appropriate to maintain monetary easing in a more sustainable manner and for a longer period. This is what the ECB decided to do on 8 December 2016—cutting its monthly asset purchases from April 2017—but instead the ECB stressed that the Asset Purchase Program would continue at least until the end of 2017. The ECB emphasized the program would continue as long as necessary. At the press conference on the same day, Mario Draghi, the President of the ECB, stressed that a cut in the monthly purchase amount is not tapering since tapering is a policy whereby purchases would gradually go down to zero. In this sense, he added that tapering had never been discussed.
The annual amount of JGB purchases could be reduced gradually toward a more sustainable level—initially from around 80 trillion yen to 60–70 trillion yen in or around the first half of 2017, or at the latest within fiscal year 2017. Thereafter, the amount could be gradually reduced at a moderate pace toward the amount of net issuance of JGBs. Reducing the annual purchase toward zero—completion of the tapering—is unlikely to be considered soon. The BOJ needs to carefully plan this process through conducting a deep analysis on the demand–supply conditions in the JGB markets and implement it carefully over a longer period than the Federal Reserve had done. Since some institutional investors have already diversified away from the JGBs, market conditions and investor base might be quite different from those in the past.

B. Raising the 10-Year Yield Target or Introducing the Target Range

Next, once the improvement of the underlying price developments can be confirmed in 2017, the BOJ could investigate whether maintaining long-term interest rates at such substantially low levels for a long time really makes sense. In particular, it is important to examine the policy from the perspective of energizing domestic demand, maintaining a smooth functioning of financial intermediation, promoting the corporate sector and industrial restructuring, and mitigating an adverse impact on the BOJ’s own balance sheet risk.

The BOJ should examine two issues: (a) whether the 10-year yield target at around zero percent is substantially low, and (b) whether the gap between the 10-year yield and the negative interest rate (–0.1%) is too small. One possibility is raising the 10-year yield target level to around 0.5% as a first step. An alternative approach that could be considered is introducing a target range on the 10-year yield such as around 0%–0.5% as a first step.

Finally, a logically consistent combination would be to simultaneously reduce the annual pace of JGB purchase increase and raise the 10-year yield target. The cut could be made simultaneously when the 10-year target is raised or the target range is introduced. Alternatively, the cut in the amount of purchases could be made some time after the change in the 10-year JGB yield target if a gradual approach is more suitable considering market reactions. Raising the 10-year target implies a need for JGB purchases less than previously. Thus, it would be logically consistent to implement both measures at around the same time.

This change should accompany a more realistic, objective projections about the timing to achieve 2% on a sustainable basis or anchor long-term inflation expectations at around 2%. Such proper projections would give better estimates of how long monetary accommodation needs to continue and what the BOJ should do over the period.
Since the global financial crisis, major central banks in advanced economies have implemented ultra-easy monetary policy mainly by using unconventional monetary policy tools. Some central banks like the Bank of Japan (BOJ) and the European Central Bank (ECB) used such tools almost to the limit in terms of the quantity and variety of asset purchases. Yet the prospect of achieving the price stability target of 2% (less than 2% but close to 2% in the case of the ECB) is in the somewhat distant future based on underlying inflation excluding oil prices. The possibility of approaching 2% more quickly is not completely rejected if a sharp oil price hike and a greater depreciation of currencies take place. However, these two developments would be temporary and not sustainable so central banks cannot rely on them too much to achieve 2% in a sustainable manner.

What did we learn from super-easy monetary policy? Why have the effects of such policies not been as strong as central banks had initially envisaged in terms of raising aggregate demand, underlying inflation, and long-term inflation expectations? Chapter 6 will focus on some issues that may be affecting the effectiveness of super-easy monetary policy mainly based on Japan’s experience. Unresolved issues that have become important after adoption of the super-easy monetary policy will be pointed out.

6.1 Declining Potential Economic Growth and Monetary Policy

In recent years, central banks have increasingly focused on structural issues that have presumably led to the decline in potential economic growth and the neutral rate of interest (and real interest rate). The main contributor to this shift in central banks’ thinking is the Secular Stagnation Hypothesis put forward by Prof. Larry Summers in November 2013. The concept of Secular Stagnation was originally introduced in 1938 by Prof. Alvin Hansen, who argued that factors such as a decline in population growth and technological progress reduced firms’ investment demand and thus generated excess saving. In turn, excess saving would contain aggregate demand and reduce economic growth and inflation.28 According to Prof. Summers, higher economic growth, even if achieved, as was the case in the US in 2003–2007, was a result of unsustainable credit booms and resultant housing bubbles. In addition to demographics and a decline in productivity growth and technological progress, factors contributing to excess saving include a decline in relative prices of capital goods, a reduction in firms’ capital intensity due to the growing activities of IT industries relative to manufacturing industries, and excess saving by emerging economies (the Saving Glut Hypothesis put forward by Dr. Ben Bernanke).29 Secular stagnation would lead to a decline in the neutral interest rate to a substantially low level so that conventional monetary policies become ineffective. At that point, desired levels of saving exceed desired levels of investment, leading to shortfalls in demand and stagnant growth. Unconventional monetary policies including large-scale asset purchases, forward guidance, and a negative interest rate have helped to prevent economies from deteriorating further, but have not solved the problems.

A. Japan as the Most Progressed Ageing Society

While Prof. Summers’ arguments were applied mainly to the US, a similar, more relevant argument can be applied to other advanced economies including Japan. In the case of Japan, potential economic growth rates dropped more or less steadily from 1990 to 2016, except for a temporary pick up prior to the global financial crisis mainly driven by rising manufacturing sector activities and real estate mini-bubbles (Figure 1-4). A decline in potential growth was driven by a decline in total factor productivity growth, a decline in capital stock accumulation, and the direct impact of demographics (declining working hours and declining employment growth). It is possible that unfavorable demographics indirectly affected a decline in capital stock accumulation and productivity growth.

Japan is one of the most advanced aging societies, characterized by a declining working-age population and total population, a rising share of the elderly population, and a low fertility rate. The size of population has shown a steadily declining trend since 2011 and fell by around 0.2% or 215,000 people in 2016. The size of the working-age population (15–64 years old) began to decline much earlier with its share of the total population dropping from the peak of 69.8% in 2012 to 61.3% in 2016. Although Japan's fertility rate (1.42) is higher than that of the Republic of Korea (1.21), Japan's elderly population as a share of the total population rose sharply from 17.4% in 2000 to 26% in 2014 and has been much higher than Korea (13%) and other Organisation for Economic Co-operation and Development economies.

Given the rapid pace and depth of aging, therefore, the following question naturally emerges: How have demographic changes affected Japan’s macroeconomic performance? The impact of these changes occurs in various ways, as shown below.

B. Impact of Demographics on Business Investment Demand

A declining working-age population and an aging population may contribute to sluggish demand for residential housing and fixed-asset investment. Dr. Gunnar Myrdal had already thought through the impact of these factors in his 1940 book entitled Population: A Problem for Democracy.30 According to him, a decrease in population is expected to produce a negative impact on aggregate demand, particularly business investment. The growth rates of demand are projected to decline mainly because of (a) an increase in investment-related risk (or the heightened possibility of causing over-supply and associated losses) for firms; as well as (b) a decrease in investment incentives (for example, a decline in new residential investment owing to a reduction in the working-age population and a drop in replacement demand due to falling housing prices).

The impact of demographic changes on housing investment was also pointed out by Bakshi and Chen (1994).31 According to the life-cycle investment hypothesis, investors in their 20s and 30s enter the family-building stage, and so housing becomes a desirable investment. During this period, a higher portion of their wealth is allocated to housing and other durable goods. As investors grow older, the demand for housing will stabilize or decrease and the demand for financial assets will rise. This hypothesis was demonstrated to be applicable to the US, and it implies that an aging population is associated with declining housing prices. Gregory and Weil (1989) also showed that the baby-boom generation contributed to the US housing boom in the 1970s.

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Some of the impacts discussed by Dr. Myrdal and other researchers have been felt in Japan for decades. During the bubble period in the second half of the 1980s, for example, the growing size of the working-age population stimulated residential investment demand, as there was a clear negative correlation between the total dependency ratio and real land price levels. This real demand, fueled by speculative investment activities, contributed to higher real estate prices and a credit boom. The number of housing starts has since constantly fallen, partly because of a decrease in the working-age population—the generation that builds families. The declining trend has been reversed somewhat since 2010, partly reflecting a recovery from the global financial crisis, but the numbers remained at low levels.

Moreover, Japanese firms increasingly focus on outward foreign direct investment, and they especially target Asian emerging economies, where the returns on investment are generally higher than in Japan and other advanced countries. Firms continue to invest domestically but not to a great extent, which results in a drag on capital stock accumulation (Figure 1-4). In line with this, the main investment incentives for companies have been concentrated on upgrading, earthquake-proof strengthening, energy saving or clean energy production, and laborsaving technology—rather than bolstering their production capacity substantially.

One plausible consequence of reduced investment demand is weak demand for credit by firms and households, as already pointed out. The negative interest rate policy deteriorated this situation by raising deposit growth and widening the gap between deposit growth and loan growth (Figure 4-11). This happened even though the funding conditions of firms and households became more accommodative under the Quantitative and Qualitative Monetary Easing (QQE) and subsequent additional monetary easing (Figure 3-6). And yet the banking sector still faces a credit demand shortage, and the issue of how to raise profitability out of ample liquidity became an even more challenging agenda for the banking sector. In the past, the banking sector increasingly allocated funds toward Japanese Government Bonds (JGBs) and overseas lending, which reflects the deteriorating fiscal position of the government and the higher potential economic growth in emerging economies. QQE took away a lot of JGBs from financial institutions to promote portfolio rebalancing. Some positive changes in their risk-taking behavior are present, but on the whole the problems of limited credit demand relative to ample liquidity remain prevalent.

C. Impact of Demographics on Consumption Demand

The aging of societies may induce a demand shift from manufacturing to nonmanufacturing sectors. This is because the elderly population tends to demand more services (such as medical and nursing care, tourism, and social services) but fewer durable goods (such as cars and home electronics) and houses. This shift in preference by aging is gradually affecting the structure of private sector consumption in Japan, and it is predicted that there will be further expansion of the service-related industry in the near future. A number of studies have identified the possible impact of demographic changes on the demand structure in Canada, Germany, and the United Kingdom.32

Naturally, this change in the demand structure also brought about a shift in the employment structure—a growing proportion of workers in the nonmanufacturing sector and a decreasing proportion of workers in the manufacturing sector and other traditional areas. At the same time, a shift in the demand structure results in an increase in structural unemployment unless a smooth relocation of labor resources from manufacturing to nonmanufacturing sectors takes place. A rise in structural unemployment in the 1990s—and the subsequent sustained high level—could be associated with various labor market frictions, triggered by a shift in the population aging-induced demand structure. Since QQE, however, structural unemployment may be falling in the face of labor shortages caused by a decline in the working-age population. To make up for the shortage, increasing numbers of elderly people and housewives have been participating in the labor market as part-time workers. This offset the declining workforce, which may be reducing the structural unemployment rate.

**D. Impact of Demographics on Labor Productivity**

I have already noted that the growing demand for services brings in a greater number of workers engaged in the nonmanufacturing sector. However, this may lower the level of labor productivity for the whole economy. This reflects the fact that in Japan the level of labor productivity per employed worker tends to be lower in the nonmanufacturing than in the manufacturing sector. This is mainly due to the nonmanufacturing sector being more labor-intensive and more regulated and having limited opportunities for taking advantage of economies of scale. Of course, it is possible to raise labor productivity in the nonmanufacturing sector by intensifying the use of IT, improving the quality of services, offering innovative services that stimulate potential demand, and promoting competition through deregulation. However, the fact that the nonmanufacturing sector tends to produce lower labor productivity than the manufacturing sector is a global phenomenon. A low level of labor productivity and sluggish growth could be referred to as the *Baumol Effect*, which relates to limited growth in productivity in certain nonmanufacturing sectors (public services, such as public hospitals and public colleges).

Thus, population aging may affect economic growth not only directly through a reduction in the working-age population and employment, but also indirectly through a constant decline in labor productivity caused by a continuous demand shift. As for the future, the ratio of nonmanufacturing to manufacturing workers (and the ratio of value added in the nonmanufacturing sector to GDP) is projected to rise constantly; thus, the downward pressure on labor productivity may further intensify.

**E. Possible Impact of Demographics on the Financial Asset Structure**

According to the previously mentioned life-cycle investment hypothesis, investors are gradually expected to shift from housing investment to financial investment for retirement as they get older. The study by Bakshi and Chen (1994) showed that when people of the baby-boom generation reached the stage where they changed their asset composition from housing investment to financial asset investment, they helped raise stock prices in

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the 1980s and 1990s in the US. The study also demonstrated that population aging tends to raise the market risk premium. This is not only because elderly people are unwilling to take on a lot of financial risk since they have fewer opportunities to obtain income from labor to cover potential losses, but also because uncertainty related to their remaining lifetime discourages them from accepting such risk. This suggests that population aging may raise investors’ preference toward cash, deposits, and bonds when they are close to or already at retirement age. These demographic movements possibly bring about a change in asset demand on capital markets.

Currently, the size of households’ total financial assets in Japan amounts to about 1,752 trillion yen (about 15 trillion US dollars)—the second largest total in the world after the US. Despite the retail deposit interest rate having been nearly zero percent for many years (Figure 4-9), the share of deposits and cash continues to account for about half of total assets. In general, young households start to accumulate financial assets in the form of deposits. As they become older, they may gradually shift their financial asset allocation toward life insurance and securities (setting aside housing investment). As they become much older, households with extra financial resources may increase their share of relatively safe assets, such as deposits and bonds. This makes sense since elderly people are more concerned about the stability of the valuation of their financial assets and thus tend to be more risk-averse than younger people. Regarding stock investment, elderly households hold much larger assets than any other generation, and so they may allocate part of their assets to stock holdings while keeping the ratio of stock holdings at a reasonably contained level. However, if the future elderly generation is more readily adaptable to IT, greater use of online securities trading may promote investment demand for stocks.

F. Impact of Demographics on Fiscal Balance

A natural impact of Japan’s demographic changes is a deterioration of the fiscal balance. It is clear that the rapid pace of population aging in Japan, especially since the 2000s, has been the single driving force behind growing social security-related expenditure (public pension benefits, elderly care, and medical services). According to the fiscal year 2017 budget, social security-related expenditure accounts for 33% of total expenditure. It is also expected that population aging will reduce the amount of insurance premium contributions paid by the working-age population. Population aging tends to reduce not only the income tax base, but also tax income as a result of the downward pressure on potential economic growth. Since fiscal year 2014, tax revenues have increased rapidly thanks to the consumption tax hike from 5% to 8% and higher corporate earnings driven mainly by the yen’s depreciation, oil price declines, and firms’ cost-cutting efforts. Tax revenue as a share of GDP is expected to stay at around 10%—the same level as for fiscal year 2015–2016. While this ratio is the highest since 2009, it is still smaller than the ratio of government expenditure to GDP (around 18%).

Both in terms of the revenue and expenditure aspects, aging will increase the burden on the fiscal balance, which suggests the need for substantial reforms on social security-related expenditure and tax systems in the near future. Households tend to be concerned about the sustainability of the social security system. In addition, due to the uncertainty related to life expectancy, households are increasingly concerned about their post-retirement life, resulting in a tendency to refrain from consuming beyond their means.
**G. BOJ’s Efforts to Raise Potential Economic Growth**

Japan’s demographic changes affected its economic growth performance directly through the declining size of the labor force and also contributed to low expectations for economic growth. This was associated with a decline in expectations on sales market growth by firms and limited income growth by households, as explained below. This appears to have resulted in a persistently negative output gap in the past (Figure 1-3). Since fiscal 2013, the output gap has almost disappeared thanks to QQE, large-scale fiscal stimulus, and front-loaded increases in households’ consumption and residential investment prior to the consumption tax hike in April 2014. However, the output gap deteriorated somewhat in fiscal year 2014, mainly driven by the adverse impact of the tax hike on consumption. Since then, the output gap has remained stagnant and the BOJ’s initial projection that the output gap would enter steadily into positive territory and exert upward pressure on prices has not materialized.

While the BOJ has no capacity to influence demographic trends, it has attempted to promote potential growth from the perspective of monetary policy—indirectly through inducing financial institutions to take more initiatives to extend credit or invest in growth-oriented firms and projects. In June 2010, the BOJ introduced a new facility called the Growth-Supporting Funding Facility, which aims to provide financial institutions with longer-term funds (with a maturity up to 4 years). The interest rate is low—0.1% initially, and it was lowered to zero percent after adoption of the negative interest rate. The funds are provided to financial institutions based on their applications for loans and investment extended to them in 19 growth-oriented sectors (including R&D, energy, and social infrastructure). Under this facility, the BOJ also provides separate funds for financial institutions if they perform (1) asset-based lending (loans without real estate collateral or guarantees that are deemed appropriate by the BOJ) and equity investments (investments and loans with equity-like features), and (2) small-lot investments and loans targeting small banks and credit unions. Moreover, US dollar lending is provided by using the US dollar reserves held by the BOJ.

In December 2012, the BOJ established a framework for a Stimulating Bank Lending Facility to actively support lending activities of financial institutions, thereby stimulating credit demand by firms and households. This facility provides long-term yen-denominated funds (with a maturity of up to 4 years) at a low cost (0.1% initially, and lowered to zero percent after adoption of the negative interest rate) to financial institutions up to an amount twice as high as the net increase in their lending to firms and households. With this new facility, the coverage of eligible loans extended to financial institutions is wider than with the Growth-Supporting Funding Facility. Financial institutions eligible for loans under this facility include foreign branches of domestic financial institutions, and both their yen-denominated and foreign currency-denominated lending can be covered. This reflects the view that the growth potential of financial institutions and firms is closely linked to their overseas activities in this globalization era and that their enhanced competitiveness would indirectly boost the growth of Japan’s economy. The BOJ designated this facility, together with the Growth-Supporting Funding Facility, the Loan Support Program.

While these innovative monetary easing tools helped promote some risk-taking behavior on the side of commercial banks, raising credit demand for new businesses and newly established firms is very challenging given substantial cash reserves held by large firms, a limited number of newly emerged firms, as well as tighter financial regulations. Firms have maintained limited credit demand because of uncertainty about the future economy, not because of lack of access to cheap, longer-term finance.
6.2 Underlying Inflation and Households’ Price Perception

Price developments improved from mid-2013 with the rate of change in CPI turning positive and remaining positive until early 2016. This happened mainly due to the yen’s depreciation from late 2012 to 2015, but also due to high oil and other commodity prices sustained until mid-2014. In addition, a front-loaded increase in expenditure contributed to a price increase in fiscal year 2013. Wealth effects caused by higher stock prices and increased valuation of foreign assets helped to raise the prices of luxury products purchased by high-income households. A boom in inbound tourism also contributed to an increase in hotel and restaurant prices. Despite these forces, the rate of change in CPI began to drop after having peaked in mid-2014—mainly caused by a drop in oil prices but also by a slowdown in non-oil price growth. Why is it so difficult for the BOJ to raise inflation sustainably without recourse to the yen’s depreciation? To consider this question, it is important to examine underlying inflation movements, as well as households’ price perceptions and inflation expectations.

A. Volatile Underlying Inflation Indicators

In examining trends in price developments, frequently used indicators are the rate of change in CPI excluding fresh food (core CPI) and the rate of change in CPI excluding food and energy (core core CPI). These two indices are released by the Statistics Bureau of the Ministry of Internal Affairs and Communications. In particular, core CPI is important for the BOJ since it is used to make medium-term projections for prices. The changes in these two indices are regarded as underlying inflation indicators since transitory disturbances (such as fresh food, non-fresh food, and energy) are removed from the actual movements observed in CPI prices (Figure 1-2).

In addition, the BOJ introduced five new indicators to supplement the two existing ones: (1) CPI excluding fresh food and energy, (2) 10% trimmed mean (removing the highest rises and highest declines in prices by 10%), (3) the diffusion index (DI) of increasing/decreasing items, (4) mode (an inflation rate that appears most often in the CPI items), and (5) weighted median. CPI excluding fresh food and energy is sometimes called BOJ core core index by media and forecasters since the BOJ traditionally focused on core CPI but decided to release new data by excluding energy items from core CPI when oil prices began to decline sharply from mid-2014. These five new indicators compiled by the BOJ exclude the direct impact of the consumption tax hike.

Figure 6-1 and Figure 6-2 show that underlying inflation rose sharply on two occasions since 2000: (a) in 2008 as a result of a sharp increase in oil prices and other commodity prices, and (b) from mid-2013 to early 2016. Among the five indicators, three indicators—the change in CPI excluding fresh food and energy, the DI of increasing/decreasing items, and mode—reached their highest values so far on occasion (b). The highest value of change in CPI excluding fresh food and energy was 1.3% in December 2015, that of the DI of increasing/decreasing items was 45 percentage points in March 2016, and that of the mode was 0.5% in the September–December quarter of 2015. The highest recorded value for trimmed mean was 0.9% in mid-2014, but this highest figure remained below the highs recorded before QQE (1.1% during July–October in 2008). Regarding weighted mean, the highest figures were mere 0.2% both in late 2005 and in April and September 2014. Overall, underlying inflation rose in 2014–2015, but the indicators were still far removed from the 2% inflation target.
**Figure 6-1:** Indicators of Underlying Inflation: 2001–2016 (%)

CPI excluding fresh food and energy

10% Trimmed Mean

DI of Increasing/Decreasing Items (Right)

CPI = consumer price index, DI = diffusion index.

Note: Data for 2016 is up to November and excludes direct impact of the consumption tax hike.

Source: Bank of Japan.

**Figure 6-2:** Indicators of Underlying Inflation: 2011–2016 (%)

Mode

Weighted Median

Note: Data for 2016 Q3 refers to September and October. Data excludes direct impact of the consumption tax hike.

Source: Bank of Japan.
After having achieved the highest figures largely in 2014–2015, a decline in oil prices led to a decline in all five indicators. Three indicators—CPI excluding fresh food and energy, the DI of increasing/decreasing items, and mode—continued to exhibit high levels until 2015 mainly because the lagged impact of the yen's depreciation continued to raise import prices. To some extent, higher hotel and restaurant prices driven by a rising number of foreign tourists contributed to the rise. In 2016, all five indicators dropped significantly due to a further cut in oil prices and the yen's appreciation. The latest December 2016 data indicates that BOJ core core index, 10% trimmed mean, mode, and weighted median recorded around 0-0.3% only. The DI of increasing/decreasing items dropped from 23% in November to around 19.7% in December. These price developments suggest that the yen's depreciation and commodity price movements were major contributors to higher inflation, and underlying inflation remained fragile and volatile depending on the movements of these driving forces.

B. Households’ Awareness of the 2% Target and QQE

Households are important economic entities that undertake consumption and residential investment. Thus, understanding their current and future behavior is essential to examining the transmission mechanism of monetary easing. In relation to the public’s knowledge of the price stability target and QQE (and QQE with a negative interest rate), the quarterly Opinion Survey on the General Public’s Views and Behavior conducted by the BOJ began to include a new set of questions from September 2013: (1) whether respondents knew about the 2% price stability target, and (2) whether respondents knew that the BOJ had embarked on QQE (or QQE with a negative interest rate). The results of the September 2013 survey indicated that only 37% said that they “know about it” while 41% said that they “have read or heard of it, but do not know much about it” and 22% said “they never heard of it.” After that, those who “know about it” remained at around or below 30% of the total, those who “have read or heard of it” accounted for around 35%-40%, and those who “have never heard of it” made up 30%-40% (Table 6-1).

Regarding the responses to the second question, more or less similar patterns were observed. The September 2013 survey showed that only about 30% said that they “know about it” while 43% said that they “have read or heard of it, but do not know much about it.” From the December 2013 survey, the ratio of respondents choosing “know about it” fluctuated most of the time at around 20%-30%, while 40% or slightly below 40% chose “have read or heard of it, but do not know much about it.”

There are no signs that the degrees of recognition of the 2% price stability target and unconventional monetary policies have improved over time. It could be said that the public in general has only vague ideas about the BOJ’s conduct of monetary policy despite relatively widespread media attention given to the BOJ Governor’s press conference and various speeches and interviews. This is quite normal in other economies as well given the complexity and abstract concepts involved. Nonetheless, limited awareness and understanding of the 2% price stability target could potentially work against the effectiveness of the BOJ’s super-easy monetary policy.
Table 6.1: Awareness of 2% Price Stability Target and Massive Monetary Easing by the Public: 2013–2016 (\%)

<table>
<thead>
<tr>
<th>Knowledge of 2% Price Stability Target</th>
<th>Have read or heard of it, but do not know much about it</th>
<th>Have never heard of it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Knowledge of 2% Price Stability Target</td>
<td>Know about it</td>
</tr>
<tr>
<td>2013 September</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>December</td>
<td>29</td>
<td>31</td>
</tr>
<tr>
<td>2014 March</td>
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<td>41</td>
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<tr>
<td>June</td>
<td>26</td>
<td>32</td>
</tr>
<tr>
<td>September</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>December</td>
<td>27</td>
<td>33</td>
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<tr>
<td>2015 March</td>
<td>27</td>
<td>39</td>
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<td>June</td>
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<td>September</td>
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<td>37</td>
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<tr>
<td>December</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>2016 March</td>
<td>32</td>
<td>41</td>
</tr>
<tr>
<td>June</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>September</td>
<td>30</td>
<td>39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge of QQE or QQE with a Negative Interest Rate</th>
<th>Have read or heard of it, but do not know much about it</th>
<th>Have never heard of it</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 September</td>
<td>29</td>
<td>43</td>
</tr>
<tr>
<td>December</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>2014 March</td>
<td>23</td>
<td>40</td>
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<td>June</td>
<td>28</td>
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<tr>
<td>September</td>
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<td>40</td>
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<tr>
<td>December</td>
<td>35</td>
<td>36</td>
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<tr>
<td>2015 March</td>
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<td>June</td>
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<td>September</td>
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<tr>
<td>December</td>
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<tr>
<td>2016 March</td>
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<td>June</td>
<td>42</td>
<td>36</td>
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<tr>
<td>September</td>
<td>34</td>
<td>40</td>
</tr>
</tbody>
</table>

QQE = Quantitative and Qualitative Monetary Easing.

Note: Data available from September 2013.

C. Households’ Upward Bias in Price Perception and Acceptance of the 2% Price Stability Target: Cases of Japan and the United Kingdom

It is also important to pay attention to households’ perceived inflation as compared with actual price developments. Figure 6-3 shows that the perceived rate of inflation almost always exceeded the rate of change in CPI throughout the period from June 2006 to September 2016. Many households perceived that present price levels rose sharply as compared with 1 year ago, especially when oil prices rose substantially in 2008 and in fiscal year 2014 when the consumption tax hike was implemented. Even though the survey asked respondents to exclude the direct impact of the tax hike, perceived inflation appeared to have reflected the tax hike. This is because households may not be able to precisely distinguish between prices with and without a tax hike. Moreover, perceived inflation dropped gradually with a lag when the rate of change in CPI dropped. These survey results suggest that there was no clear relationship between the 2% price stability target and households’ price perception. Overall, households appear to be very sensitive to upward price changes rather than downward price changes. This is called upward bias in price perception. The gap between the median of the perceived rate of inflation and the average rate of CPI roughly reflects this upward bias—the magnitude of the bias from June 2006 to September 2016 averaged around 2.3%, as the former recorded 2.6% and the latter 0.3%.

Similar data is available for the United Kingdom. The Bank of England (BOE) conducts a quarterly Inflation Attitude Survey and asks the public about their perceived rate of change in prices over the past year and releases the median of the results as well. Over the past decade, the gap between the medians of perceived inflation and actual inflation was only 1.3%, with a median of perceived inflation of 3.6% and an average rate of actual inflation of 2.3% (Figure 6-4). Thus, the upward bias in the United Kingdom is smaller than in Japan.

Figure 6-3 and Figure 6-4 show very different patterns of price perceptions between these two countries. Perceived inflation always exceeded actual inflation in the United Kingdom but the gap was very small during 2007–2011. Since 2012, actual inflation had begun to drop sharply and perceived inflation also dropped instantly, but the magnitude of the drop was not as large as actual inflation. This may reflect the fact that the degree of recognition and acceptance of the 2% inflation target by British households is high and that long-term inflation expectations are well anchored, as shown below. Meanwhile, what was observed in Japan—that is, the tendency for perceived inflation to overreact to actual price hikes—was not prevalent in the United Kingdom. This may reflect that inflation in the United Kingdom is more commonplace and often exceeded the 2% inflation target so that households are less sensitive to actual price hikes as compared with Japanese households. Indeed, households in the United Kingdom are less reactive to both price hikes and price declines.

Different Degree of Acceptance over the 2% Price Stability Target

It should be noted that the majority of respondents in Japan consistently held the view that price rises are unfavorable. About 60% of the respondents chose “prices have gone up significantly” or “prices have gone up slightly” compared with one year ago, on average, from June 2006 to the latest September 2016 survey. Over the period since QQE (from the June 2013 survey to the latest September 2016 survey), the average ratio rose to 73%. What is important is that around 80% of the respondents who felt a price rise over the past year
**Figure 6-3:** Rate of Change in CPI and Perceived Rate of Change in Price in Japan: 2006–2016 (%)

CPI = consumer price index.

Note: Data refers to the median of present price levels compared with one year ago. The question asks for a figure excluding the effects of the consumption tax hike from the June 2013 survey. CPI includes the tax effect. Data is from June 2006 to September 2016.


**Figure 6-4:** Rate of Change in CPI and Perceived Rate of Change in Price in the United Kingdom: 2007–2016 (%)

CPI = consumer price index.

Note: Data refers to the median of the responses on changes in prices over the last 12 months. Data is from February 2007 to November 2016.

commented that such prices were “rather unfavorable.” This ratio was no different before or after the adoption of QQE. This implies that the importance of achieving the 2% target has not been widely understood and shared by households. Thus, it is vitally important for the BOJ to clearly explain to the public and respond to questions as to why the BOJ aims to achieve the 2% price stability target and how this will improve people’s daily lives in the medium to long term. Without households’ acceptance of a price hike, achieving 2% sustainably is a challenging task.

The situation is quite different in the United Kingdom. The BOE’s Inflation Attitude Survey reveals that respondents consistently found inflation of around 2% to be acceptable and largely accepted the 2% inflation target. Since the survey was launched in November 1999, around 40%–50% consistently chose “2% target is about right.” Combining the “2% target is about right” and “2% target is too low” responses, the ratio rose and varied around 60% over the same period. These results suggest that households in the United Kingdom are generally aware of the 2% inflation target and at the same time regard the 2% target as reasonable. This explains why price perception did not overreact to either a hike in actual prices or a drop in actual prices (Figure 6-4).

**Increased Current Spending but Projected Spending Cut in Japan**

The BOJ’s same survey also provides detailed information about households’ spending patterns, both regarding the current situation and the outlook. The survey results indicate that many households consistently felt that current spending increased compared with one year ago, while they expect to reduce spending one year from the time of the survey. The current spending diffusion index (DI)—the difference between the ratio of respondents saying “spending has increased” and those saying “spending had declined,” compared with one year ago—always remained positive except for a small negative value in September 2009. The current spending DI dropped steadily from 26 (percentage points) in December 2015 to 15 in September 2016, after having moved a little over 20 between June 2014 and December 2015. The current spending DI in September 2016 is higher than during the global financial crisis and European Sovereign Debt Crisis in 2009–2012, but below the level of 2006–2008. As for the spending outlook, on the contrary, households consistently project a cut in spending one year ahead. The spending outlook DI—the difference between the ratio of respondents saying “spending will increase” and those saying “spending will decrease”—remained negative throughout the survey period. The DI in the latest September 2016 survey recorded –43 and had more or less remained constant from June 2013 although it was moderately higher than in 2009–2012.

The BOJ and the government should take this low spending appetite for the future seriously. The same survey also asks about the types of goods and services that households have “increased” and “decreased” their spending on as compared with one year ago. As for the items households increased their spending on (multiple choices permitted), foodstuffs received the highest number of responses (22%), followed by electrical appliances (18%), health and medical care services (17%), education (15%), and automobiles (14%) in the latest September 2016 survey. By contrast, major goods and services on which spending was reduced were eating out (31%), travel (24%), and clothing and footwear (24%). These results suggest that households found it necessary to increase spending on foodstuffs due to rising food prices from late 2006 to mid-2009 and from the fall of 2013 to the time of the latest survey. The resultant increased spending on foodstuffs and other items in the past year had to be offset by a cut in spending on nonessential goods and services such as eating out, travel, and clothing and footwear.
**Low Current Income, Income Outlook, and Higher Prices as Deterrents to Spending**

These patterns of spending behavior as well as the items on which spending was increased or reduced remained roughly unchanged throughout the survey periods. This subdued spending outlook is clearly associated with current income development and income outlook. According to the same survey, nearly 70% of households pointed to an “increase or decrease in my household’s income” as a factor to be considered when making spending decisions for the next 12 months, followed by future price developments (nearly 40%). These two factors always stood out from the first survey conducted in March 2013 and thereafter. The survey also asks about present income compared with one year ago, as well as income prospects one year ahead. The present income DI—the difference between the ratio of respondents who reported their “income has increased” and those who said their “income has decreased”—remained a little below or around –30 (percentage points) from March 2013 to the latest survey. The present income DI improved moderately compared with the DI in 2009–2012 and the DI in 2006–2007, but remained in deeply negative territory. The income outlook DI followed a similar pattern and remained more or less around –30 from 2013 to the most recent survey, or at the same levels as in 2006–2007.

These results suggest that households are unlikely to increase spending sustainably unless their current income and income outlook improve (Figure 3-11). Otherwise, higher spending caused by a price hike of foodstuffs and other essential products and services is likely to be offset by containing spending on nonessential goods and services—thereby not contributing to raising total consumption.

**Households’ Upward Bias in Long-Term Inflation Expectations**

Households’ long-term inflation expectations—over the next 5 years—exceeded the rate of change in CPI most of the time over the past decade (Figure 6–5). Long-term inflation expectations recorded around 2%–2.5%. The gap between the median of inflation expectations and the actual rate of inflation over the past decade also remained large and was around 2% on average. This suggests the presence of upward bias in inflation expectations in addition to perceived inflation. It is quite surprising that households always felt that prices would go up in the future to the 2% level even in the midst of mild deflation or an absence of price rises. This happened even when the media and the government frequently focused on deflation and the weak economy. Thus, the high level of relatively stable inflation expectations is unlikely to indicate that inflation expectations are anchored like in other advanced economies. It merely reflects households’ tendency to intuitively feel prices will go up.

Like inflation perceptions, high inflation expectations could be attributable to rising food prices, stagnant present incomes, and income prospects. If these three factors are deterring households from increasing their spending in the future, it is uncertain whether the yen’s sharp and excessive depreciation and resultant imported inflation could really contribute to raising households’ consumption without giving rise to anxiety about the cost of living. It could result in cost-driven increases in spending on essential goods and services rather than demand-driven increases in spending on nonessential goods and services.
In the case of the United Kingdom, on the other hand, inflation expectations (the expected rate of change over a year in 5 years’ time) averaged about 2.7% (Figure 6-6). Since the average rate of inflation was about 2.3%, the gap was about 0.4% and smaller than perceived inflation. It is likely that long-term inflation expectations in the United Kingdom are more anchored than in Japan given a wider degree of acceptance by the public of the 2% inflation target. Moreover, stable inflation expectations indicate that a deviation of actual inflation above and beyond 2% is less problematic than in Japan, since a convergence of prices toward 2% is likely to occur.

**Figure 6-5: Rate of Change in CPI and Inflation Expectations over the Next 5 Years in Japan: 2006–2016 (%)**

![Graph showing rate of change in CPI and inflation expectations over the next 5 years in Japan](/images/graph1.png)

*CPI = consumer price index.*

*Note: Data refers to the median of responses. The responses exclude the effects of the consumption tax hikes from the June 2013 survey. Data is from June 2006 to September 2016.*


**Figure 6-6: Rate of Change in CPI and Inflation Expectations in 5 Years Time in the United Kingdom: 2007–2016 (%)**

![Graph showing rate of change in CPI and inflation expectations in 5 years time in the United Kingdom](/images/graph2.png)

*CPI = consumer price index.*

*Note: Data refers to the median of the responses to the question “How Much Would You Expect Prices in the Shops Generally to change over a Year Then?” Data is from February 2007 to November 2016.*

D. Understanding Households’ and Firms’ Inflation Expectations

Based on these observations, Japan’s mild deflationary experience can be characterized by two features. First and foremost, the expression the prevalence of deflation-oriented mindsets—often used by the BOJ and the government to describe Japan—seems to have been very applicable to the mindset of the corporate sector. It refers to firms’ deflationary expectations and associated cautious price-setting behavior. The household sector, by contrast, tended to form high inflation expectations reflecting long-standing stagnant income growth and anticipated tighter budgets. As a result, whenever households’ present perceived inflation rose, their tolerance for price rises dropped, fostering a negative correlation between them. Based on this perception, firms appear to have found it difficult to raise sale prices, contributing to a widespread use of discount-based marketing strategies.

Since the introduction of QQE, firms’ price-setting behavior has gradually changed. Some firms raised their sale prices by providing innovative goods and services that stimulate potential demand, and maintaining sales volumes. Nevertheless, many households have continued to perceive that current prices are much higher than the official CPI statistics and expect a rise in prices. This could be one reason why many firms still generally maintain cautious price-setting behavior. Indeed, the BOJ’s Tankan survey (Short-Term Economic Survey of Enterprises in Japan) added questions about (a) output prices (rate of changes relative to the current level) and (b) general prices as measured by CPI (annual percentage rate change) from the March 2014 survey—with forecast horizons of 1 year, 3 years, and 5 years. The output price outlook (a) could be more reliable and useful surveys than the general price outlook (b) because firms normally find it difficult to project general prices since respondents are not always economists. Output prices are based on their business activities and price negotiations with other firms, and thus are more likely to result in actual prices.

In the most recent December 2016 survey about 70% of respondents thought output prices would rise by “around zero percent” in the year ahead. Together with “don’t know” responses, the ratio was over 80%. Thus, it is very unlikely that firms would raise prices over the next year relative to the current level. Regarding the 3-year and 5-year horizons, it is interesting that “around zero percent” responses were replaced by “don’t know” responses. The ratio of “around zero percent” and “don’t know” for 3 years ahead was 42% and 24%, respectively. Those for 5 years ahead were 28% and 37%, respectively. Combining these ratios amounted to over 60% for both 3 years ahead and 5 years ahead. There is a high degree of uncertainty with respect to the price-setting environment for firms as the length of the projection period increases.

The BOJ also reports the averages of enterprises’ output price outlooks by calculating the weighted average by response percentages, but this way of calculating averages results in excluding “around zero percent” and “don’t know” responses. Thus, caution is necessary since the averages may exaggerate the actual price setting conditions. This happens since the next highest response is “around plus 5%” for the three horizons and the ratio remains about 10% for 1 year ahead, and around 20% for 3 years and 5 years ahead. Just multiplying the 20% with 5% gives a share of around 1%. In the December 2016 survey, for example, the averages recorded 0.3% for 1 year ahead, 0.9% for 3 years ahead, and 1.1% for 5 years ahead.

Looking ahead, favorable corporate profits, if sustained, may improve households’ income and income outlook, and thus their tolerance of price rises, thereby helping to correct households’ upward bias. Once that happens, a virtuous cycle between corporate profits, income, and prices will emerge, which is conducive to achieving 2%
sustainably. Given this background, the government’s efforts to talk with business leaders and labor unions on raising regular pay for employees is understandable. The government succeeded in persuading firms to raise regular pay, which is generally set during the Spring Wage Negotiation for 3 consecutive years (fiscal years 2014–2016). The government requested a fourth regular pay rise for fiscal year 2017.

Nevertheless, actual wage performance has not been impressive. According to the Monthly Labor Survey compiled by the Ministry of Labor, Health and Welfare, the year-on-year change in total cash earnings per employee (including full-time and part-time regular workers) was only 0.5% in 2016—although the figure was better than 0.1% in 2015, 0.4% in 2014, and –0.4% in 2013. Of the total cash earnings, growth of regular pay (regarded as permanent income) was just 0.2% in 2016 (lower than 0.3% in 2015, but higher than –0.4% in 2014 and –1% in 2013). The average rate of real wage growth finally turned positive (0.7%) in 2016, after negative growth in 2013–2015. The rate of 0.7% was comprised of a 0.5% increase in nominal wage and deflation (–0.2%). These stagnant wage developments suggest that it may take some time for households to adopt the view that income has gone up and will rise in the near future, which may change their cautious expenditure patterns in an upward direction, as envisaged by the BOJ.

Regarding the second feature of Japan’s deflationary experience, limited risk-taking practices should be mentioned. In the mild deflationary environment, the assets accumulated by households were largely in the form of deposits. Assessed in real terms, they benefitted from relatively high interest rates and an increase in value of outstanding deposits, owing to the zero lower bound on nominal retail deposit rates and mild deflation. Irrespective of whether households actually perceived this to be true, their risk-averse behavior turned out to be rational. In the corporate sector, on the other hand, the expected returns on investment were so low that actions to improve profitability and to efficiently utilize their assets were limited. Meanwhile, financial institutions concentrated their assets on government bonds, and their supply of risk money necessary to support start-up firms and business was limited.

Since the introduction of QQE, this situation has moderately changed together with the government’s economic policies to strengthen corporate governance and to promote financial and business investment incentives. Households and financial institutions increasingly express interest in risky assets and diversification of risks. Commercial banks are more eager to extend credit through innovative financial services. The number of initial public offerings has increased and firms are more active in business investment, mergers and acquisitions, and organizational rationalization both domestically and globally. Nonetheless, households’ overall preference for deposits has not changed and they remain highly risk-averse. Volatile daily stock prices after the QQE seem to deter individuals from becoming first-time investors in the stock market.

### 6.3 Super-Easy Monetary Policy and Unresolved Issues

Many years have passed since major central banks like the Federal Reserve, the BOE, the BOJ, and the ECB adopted unconventional monetary policies, and so experiences have accumulated. Certain things have become clear about their effectiveness. For example, unconventional monetary easing tools—such as Asset Purchase Programs, forward guidance, and negative interest rates—are quite effective in terms of lowering short-term interest rates and long-term interest rates and yields, thereby generating substantially accommodative
monetary conditions. Many of these interest rates dropped into unprecedented negative territory. Since monetary easing is aimed at lowering interest rates in nominal and real terms, central banks are regarded as having been successful in this regard.

A. What Did We Learn from Super-Easy Monetary Policy?

At the same time, there is a general feeling that monetary policy has been overstretched and a central bank is the only game in town. Reliance on monetary policy reduced the sense of urgency for the government to implement effective fiscal policy and structural reforms. Moreover, there is no clear consensus on the effectiveness of unconventional monetary easing tools beyond lowering interest rates. On the impact on financial markets, a decline in interest rates may contribute to depreciating the exchange rate and raising stock prices in particular—two market reactions that major central banks generally appear to favor—in the initial stage of implementation, as has generally been the case in the US, the United Kingdom, Japan, and the eurozone. After that, the impacts appeared to vary, largely depending on global investors’ risk appetite, global economic conditions, and how the markets perceive changes in monetary easing tools and other economic policies. In Japan, for example, the markets perceived the QQE and QQE expansion positively, but the negative interest rate policy was not positively perceived.

The yield curve control announced in September 2016 did not have much impact on the exchange rate and stock prices. However, after the unexpected result of the US presidential election, global investors suddenly increased their risk appetite in anticipation of higher economic growth and inflation in the US. This lead to a rapid rise in long-term yields, stock prices, and an appreciation of the US dollar against almost all major currencies. Driven by global investors’ enthusiasm, the BOJ’s yield curve control suddenly looked effective due to a widening of interest rate differentials with the US. But how long this situation will continue is unknown and depends on the new policies to be implemented by the new Trump-led US government. Generally, it is true that a depreciation of the exchange rate and higher stock prices help improve financial conditions in the economy, raise exports and corporate profits in manufacturing, promote wealth effects, and increase tax revenue. But it is not clear whether such positive impacts really help raise aggregate demand, the output gap, inflation, and inflation expectations in a sustainable manner.

As for the impact on credit growth, lower interest rates certainly contributed to raising credit growth, but this positive impact appeared to be stronger in the initial stage of implementation. After that, the impact on credit growth seems to wane with no strong upward trends, as could be seen in Japan (Figure 4-11). In the eurozone, households’ credit growth turned positive in late 2014 and firms’ credit growth turned positive in early 2015 after adoption of the ECB’s negative interest rate policy, a Targeted Long-Term Refinancing Operation, and implementation of asset-backed securities (ABS) purchases in 2014. Adoption of the Public Sector Purchase Program in March 2015 also stimulated credit demand. Nonetheless, total credit growth has since remained at around 2% with no rising trend. Regarding underlying inflation, the eurozone and especially Japan were faced with sluggish underlying inflation (excluding energy) with currently recording around 1 percent and zero percent, respectively. This suggests that upward pressure on prices from aggregate demand and output gap improvement was limited. Thus, the transmission mechanism from substantially lowering interest rates to raising aggregate demand and inflation may be present but apparently is not powerful.
B. Unresolved Issues Left with the Super–Easy Monetary Policy

In addition to uncertainty about the effectiveness of unconventional monetary easing tools, a number of issues came under the spotlight. I will finally briefly touch upon some of these issues on which consensus has not yet been formed and that are quite contentious in the communities of central banks, academics, and foreign investors.

Is Lowering Interest Rates Always Stimulative?

- The first unresolved issue is whether lowering a long-term interest rate always provides economic stimulus. There may be some thresholds below which a further cut in government bonds yields and lending rates no longer generates much impact on credit demand and aggregate demand. Traditional textbooks normally prescribe a cut in the short-term money market rate for a recession or a weak economy, which in turn should indirectly lower lending rates—and such a standard policy is supposed to be effective. Unconventional monetary policies went far beyond standard policy by directly lowering long yields and super-long yields (above 10 years) through asset purchases and a negative interest rate, thereby cutting lending rates substantially. While strong credit growth and aggregate demand are not present, adverse impacts and potential side effects have started to become noticeable. Those include potential financial instability risk, distortions in government bond markets and other financial markets, adverse impacts of low deposit rates on household sentiments, and central bank balance sheet risk.

- One related issue is a trade-off between a price stability target and financial instability risk. Since unconventional monetary easing tools had been adopted in Japan and the eurozone, growing criticism emerged especially from the banking sector and insurance/pension industries. While strong impacts on credit demand and aggregate demand are not obvious, lower interest rate margins and low returns on investment became a growing cause of concern for commercial banks. Substantially flattened yield curves put them into a difficult financial position since little profits can be gained from maturity transformation. If such policies continue for a long time, the risk of undermining the intermediation role of commercial banks may rise. Insurance and pension industries have also raised concerns about substantially low returns as well as potential sustainability issues faced by their businesses if such an environment continues.

- Generally, central banks stress that monetary policy should prioritize price stability over financial instability risk. They also emphasize that macroprudential policy should deal with financial instability risk, and monetary policy should be used as a second line of defense. Central banks tend to stress that there is at present no financial instability risk, though they will continue to monitor developments. But if central banks continue their unconventional monetary policies for a long time, it becomes unclear whether such a clear division of labor is possible. Moreover, it is not clear whether central banks can really monitor potential risks since such risks may not be traceable due to the strong impact of monetary easing on the markets—risks may suddenly materialize unexpectedly. Yield curve control adopted by the BOJ could be viewed as a response to such potential financial instability concerns—such as that arising from a substantial drop in long-term and super-long-term yields in July 2016.

- What should central banks do in such circumstances? One corollary is that central banks may end up opting for one of the following choices: (a) maintaining existing large-scale monetary accommodation but its duration is likely to be shortened, or (b) reducing the degree of monetary accommodation somewhat today and instead focusing on maintaining the new level of monetary accommodation for a longer time.
Choice (b) is what the ECB opted for in December 2016 and what the BOJ appears to have been trying to do since its decision to introduce yield curve control. The ECB has so far managed to do this successfully since long-term interest rates picked up after the announcement but did not overshoot. As for the BOJ, many hold the view that its stance is unclear—whether the BOJ is trying to reduce the amount of asset purchases to make the monetary easing framework more sustainably (adopting choice b), or alternatively, whether it is willing to peg the 10-year yield at around zero percent by massively purchasing JGBs beyond 80 trillion yen for an indefinite period during the phase of upward pressures (adopting choice a), as explained in Chapter 5. While choice (b) is certainly more desirable than (a), central banks may face the risk of undermining credibility unless they use very carefully prepared communication strategies. There are no prescriptions for how to do so effectively, as market reactions are unpredictable and depend on the specific circumstances.

Is Raising Inflation and Inflation Targeting Acceptable to the Public?

- The second issue is whether there is asymmetry in the implementation of a flexible inflation targeting framework between raising inflation and lowering inflation. Following New Zealand’s introduction of inflation targeting in 1990, many central banks in advanced economies followed and adopted flexible inflation targeting—roughly stabilizing inflation around the inflation target and at the same time stabilizing the output gap or reducing labor market slack. A clear inflation target (typically around 2%) under flexible inflation targeting became a global norm among major central banks. Generally, flexible inflation targeting was adopted in the context of a high-inflation environment, and thus containing inflation was the key objective.

- Based on the experience in Japan, raising inflation sustainably is more difficult than lowering or controlling inflation. Raising inflation in an economy with stable or mild inflation like Japan is a challenging task since households are accustomed to a situation of no significant overall price changes yet feel that prices have increased and will rise further. Moreover, raising prices is counterintuitive for households. The April 2014 consumption tax hike in Japan was necessary to help stabilize the social security system. But in conjunction with a sharp depreciation of the yen and other impacts from QQE, the consumption tax hike resulted in an inflation rate of over 3%. Since nominal wage growth did not catch up with inflation, real wages dropped substantially and the scale of the decline exceeded that before the introduction of QQE. Moreover, aging may be contributing to the resistance to price rises as pensioners are sensitive to price hikes due to their limited opportunities to generate income from labor.

- In this context, we could consider the US experience of an anti-inflationary policy through bold monetary tightening adopted by then Federal Reserve Chairman Paul Volcker from the late 1970s to the early 1980s. At that time, the economic recession deepened until around 1983. This was confirmed by a continuous decline in the households’ expected income diffusion index (DI) over the next year—i.e., most respondents anticipated a decline in income over the next year—according to the University of Michigan’s Survey of Consumers. At the same time, however, both actual inflation and inflation expectations dropped sharply, and thus current real income and the real income outlook improved and contributed to an increase in consumption. For example, survey responses at that time showed that there was an increase in the share of households that considered low prices to be a good reason for purchasing durable goods and automobiles. In other words, while a tight monetary policy to reduce inflation in a sustainable manner could be accompanied by an increase in unemployment and recession, it may obtain more support from the public compared with an inflationary policy, as it could bring about an improvement in real income as long as the decline in inflation stays ahead of the decline in income growth.
• Thus, the public is more likely to accept a deceleration of inflation rather than an acceleration of inflation. Moreover, central banks appear to have more powerful monetary policy tools in the case of the former than in case of the latter. This is because, technically speaking, central banks can tighten monetary policy to a significant degree by raising the short-term interest rate almost unlimitedly. By contrast, monetary easing tools can be less effective due to the effective lower bound, the limit on the availability of assets, and a broader range of side effects. In these circumstances, a contentious issue is whether central banks should (a) maintain the 2% inflation target and try to achieve it over a very long time horizon, or (b) give up the target and lower it. The latter is more acceptable to the public, but its long-term implications for deflation risk, debt sustainability, and exchange rate appreciation trends (based on purchasing power parity) can be large.

• One related issue could be whether central banks should switch the target from inflation to nominal GDP, price-level, or wage growth. Nominal GDP could be easier for the public to understand, but it may not be suitable for the conduct of monetary policy since GDP data are subject to large revisions and only quarterly data are available with some lag in many economies. Price-level targeting is conceptually more powerful than inflation targeting, but the public and the markets may find it difficult to understand the concepts of adjusting inflation to meet the price level target (i.e., a 2% trend path for prices). Central banks sometimes have to achieve a very high inflation rate and sometimes a very low inflation rate to restore the inflation trend path, generating volatile output. It is also not clear in practice whether inflation expectations can be stabilized under such circumstances. A wage growth target is intuitive and can be acceptable to the public. However, the relation between wage growth and inflation depends on stable productivity growth, which could vary. Moreover, firms may feel uncomfortable and simply ignore the target due to the practical difficulty of implementing it at the corporate sector level. The types of wages (regular pay, bonuses, part-time workers wage, etc.) to be targeted need to be carefully examined. Some people, such as pensioners, may not immediately see the benefits.

Is Raising Inflation through Currency Depreciation Sustainable?

• The third issue is whether currency depreciation beyond the equilibrium is an effective way to achieve the price stability target. An exchange rate depreciation is likely to raise inflationary pressure through higher imported prices. Some central banks in advanced economies appear to look upon a depreciation of the exchange rate favorably since it helps raise inflation and thus reduces the time it takes to achieve 2%. However, it is quite obvious that the impacts of the exchange rate on inflation are unsustainable and temporary since the exchange rate cannot continue to depreciate indefinitely. If the exchange rate trend changes from depreciation to appreciation, an opposite price development occurs, as was the case in Japan in 2016.

• One contentious issue is whether promoting an undervaluation of the exchange rate is always beneficial for the economy—especially for a large economy with relatively small openness like Japan (the share of exports and imports of goods and services accounting for less than 40% of GDP). It may be true that exporting countries can improve price competitiveness, multinational corporate profits rise, and external asset valuation increases. But if those exporting firms view such a depreciation as unsustainable or a resultant volatile exchange rate as a sign of greater uncertainty, increased profits might be kept in the form of retained earnings rather than allocated to business investment or raising regular wages. Moreover, Japan’s exports are increasingly shifting toward higher value-added exports rather than depending on
export volume. Between 2013 and 2016, export value rose by about 7%, but export volume remained nearly constant. This may imply that improving price competitiveness through currency depreciation is no longer as important as in the past.

- It is also important to pay attention to the impacts of depreciation on households. Higher imported prices may reduce households’ real income and thus their consumption of nonessential goods and services. It may also strengthen households’ resistance to the price hike. In addition, an undervaluation of the exchange rate of one currency is a mirror image of an overvaluation of other currencies, thereby giving rise to international tensions among economies concerned. An obvious best solution is to achieve inflation through realizing higher expected economic and wage growth, but it may take time to achieve it.

**Can Central Banks’ Balance Sheet Risk Be Dismissed?**

- The fourth issue is whether central banks’ balance sheet risk should be taken seriously. Many central banks believe that retaining some earnings and accumulating capital is essential for preserving operational independence. Since unconventional monetary policies have been adopted, however, some central banks have taken a lot of risk especially by purchasing government bonds at expensive prices and investing in risk assets at significant levels. In such circumstances, a central bank risks falling into chronic losses and eventually negative net assets when it begins to normalize monetary easing by raising an interest rate. A central bank is able to continue daily operations even if net assets turn negative. However, if such situations continue for long, an eventual recapitalization by the government may become necessary and undermine the central bank’s cherished operational independence. This is why many central banks check their balance sheets regularly, examine the impact of monetary policy, and try to find ways to maintain the soundness of their balance sheets.

- By contrast, there are growing numbers of those who consider central banks to be part of the government and who consolidate the balance sheets of the government and central bank, as is often the case with proponents of helicopter money. This is because government bonds owned by a central bank are recorded on the central bank’s asset side, which is canceled out by an equal amount on the liability side of the government. An increase in a central bank’s interest income from government bonds is roughly canceled out by interest payments by the government over time. Transfer of part of net income after tax to a central bank’s income statement in turn becomes part of fiscal revenue. Thus, the government’s debt might look more sustainable once a central bank’s balance sheet is consolidated with that of the government. For this reason, some hold the view that a central bank’s balance sheet risk is of negligible importance compared with its mandate of achieving the price stability target, and monetary policy should not be constrained by balance sheet risk. Moreover, a central bank’s objectives and activities are different from those of private sector companies, and thus negative net assets are less problematic.

- While such accounting arguments are understandable, central banks are independent entities that require independent auditing and are subject to disclosure requirements. The BOJ is a juridical person established based on the Bank of Japan Act, and is not a government agency or a private corporation. Many central banks are obliged to report to the public and parliament with transparent financial statements and set up their own rules to check the soundness of their financial statements. The original idea of adopting inflation targeting with an independent monetary policy decision-making committee was to remove the government’s influence over monetary policy and thus reduce discretionary policy.
Thus, one contentious issue is (1) whether a central bank should continue to expand and maintain unconventional monetary policy tools without paying attention to balance sheet risk. Or, alternatively, (2) whether a central bank should conduct monetary policy within certain limits so as not to incur high balance sheet risk. In case of (1), a next question is whether it is really not a problem at all if a central bank faces net losses and has negative net assets for many years although central banks can continue to operate with negative equity. Chronic losses may undermine a central bank’s credibility, particularly since no major central banks have been in such situations in recent times. The impact of such a situation on the exchange rate and government bond yields, as well as on the views of the market and the public on fiscal discipline, trust of the government, and the sustainability of the economy, are hard to predict. In the case of (2), a related issue is whether it is possible to develop a standard approach to measure balance sheet risk as well as the soundness of a central bank’s balance sheet in the central bank community.

What Will Be Appropriate Policy Coordination?

Some hold the view that unconventional monetary tools are quasi-fiscal policy, and that the division between monetary policy and fiscal policy has already become ambiguous. There are also growing views that monetary policy is overstretched, and that its impact on domestic demand and inflation has clearly been limited. Thus, a government should be more active in conducting expansionary fiscal policy to generate demand and hence inflation. A decline in an interest rate caused by monetary easing will be effective only if expansionary fiscal policy is adopted at the same time. Expansionary fiscal policy naturally leads to a fiscal deficit. So, the public may start to worry this will lead to higher taxes and social security expenditure cuts (tighter fiscal policy) in the future, which may hamper the desired increase in aggregate demand. To avoid such a situation, a government needs to stress that current expansionary fiscal policy is aimed at raising inflation and maintaining the inflation target level. This view stresses the need for effective policy coordination between a central bank and the government with an aim to generating inflation.35

The view is theoretically appealing and should not be dismissed. However, it is not clear how a central bank and the government could coordinate policies in practice given that monetary policy is conducted by an independent committee comprising of experts while fiscal policy is set by the government including legislators and administrators in a broad sense. Their membership, the timing for setting policy objectives, and the process of generating detailed policies are quite different. Therefore, while appreciating such theoretical thinking and discussions, major central banks generally do not find it practical to implement them. Instead, those central banks nowadays refer to a case of policy coordination when the direction of monetary policy and fiscal policy point in the same direction—both in an expansionary direction or both in a tightening direction. If this is what policy coordination means, Japan has already been doing this since January 2013, except that the government needed to implement a consumption tax hike to make the social security system more sustainable and thereby reduce the public’s growing anxiety about post-retirement life.

• Also, it is not clear whether the public will increase their spending significantly in an ageing society since people live longer than they used to and nobody knows how long their remaining life will be after retirement. Moreover, the elderly may spend less due to concerns about falling ill, which may require sudden substantial additional medical payments. Since the elderly generally dislikes inflation, it may be difficult for the government to persuade them. The working-age population may oppose to the inflationary policy unless higher wages are guaranteed in advance. Suppose that policy coordination manages to raise aggregate demand and inflation as the theory predicts, the next issue is whether the government and central bank can always control inflation at the inflation target. If a central bank tightens monetary policy by raising the interest rate to control inflation, the fiscal balance may deteriorate leading to a possible conflict between the government and the central bank, and there may be an increased risk of coordination failure.

• A more contentious issue is whether such policy coordination will truly strengthen fiscal discipline and stop accumulating government debt by closing the gap between expenditure and tax revenue. This requires necessary, but politically challenging, social security and tax reforms. In any case, it is important to examine whether such policy coordination will give rise to fiscal policy dominance over monetary policy and undermine the central bank’s credibility. Perhaps, a more important practical issue is how to make fiscal policy more conducive to higher economic growth and productivity growth.
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MISSION INCOMPLETE
Reflating Japan’s Economy

Mission incomplete! This phrase neatly captures the progress made by the Bank of Japan (BOJ) in reflating the economy. In April 2013, under its new governor, the BOJ launched an unprecedented quantitative and qualitative monetary easing policy. Haruhiko Kuroda was certain that the 2% price stability target would be achieved within 2 years. About 4 years later, the BOJ lags behind other major central banks, with actual inflation and inflation expectations still well below 2%.

What went wrong? And what should the BOJ do next? This former policy maker’s account expertly traces and analyzes the policy’s consequences.

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