On September 21, 2016, the Bank of Japan announced a new framework for strengthening monetary easing: “Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control (YCC)”, replacing the previously introduced policy, “QQE with a Negative Interest Rate”. It is the sixth unconventional monetary policy the BOJ introduced after Japan’s nominal interest rate reached its Zero Lower Bound (ZLB) in the late 1990s. Although the Bank strongly declared that “Japan's economy is no longer in deflation” in their Comprehensive Assessment, published in September 2016, it has not yet succeeded in attaining its inflation target of 2%. The latest figure shows that the consumer price index (CPI) for all items less fresh food was negative 0.4 for October 2016, declining for eight consecutive months. Japan is now under the imperative risk of slipping back into deflation.

To tackle the long persisting deflation, the BOJ has been purchasing unprecedentedly massive amounts of government bonds that in effect increased its balance sheet, exceeding 90% of Japan’s nominal gross domestic product (GDP). The fabled monetary “bazooka” fired by Governor Haruhiko Kuroda in April 2013 appeared successful at first, raising inflation expectations. However, the BOJ had been running out of willing sellers of Japanese Government Bonds (JGBs) and was forced to shift its numerical target from quantity to the policy rate. What is the real matter behind this?

In this report, we begin by looking through the BOJ’s various unconventional monetary policies. The Bank has been likened to a “whale in the pond”, by becoming the biggest player in not only the JGB market but also in Exchange-Traded Fund (ETF) market; its influence over their price formation is criticized as being government-controlled. Is the bank carrying out fiscal policy? The soundness of the BOJ’s balance sheet is becoming vulnerable, addressing the issue of central bank’s independence. With regard to corporate governance, the fact that the Bank has become the largest stakeholder for a number of private institutions via its large-scale ETF purchases can be seen as helping so-called “zombie companies” to survive. This may drag Japan’s economy into secular stagnation.
1. BOJ’s Shift from Quantity to the Policy Rate

In September 2016, the BOJ introduced a new policy framework “QQE with Yield Curve Control (YCC)”. It is Japan’s sixth unconventional monetary policy under which the BOJ started to control the long-term interest rate, by fixing 10-year government bond yield at zero percent. Although the policy seems to have been successful in controlling the yield curve, Japan is currently facing the risk of slipping back into deflation.

1-1. Sixth Stage of BOJ’s Unconventional Monetary Policies

The BOJ has been taking a number of unconventional monetary policies since the late 1990s (Fig.1-1). The Bank introduced negative interest rate policy at the end of January 2016, and in September, it began controlling the long-term interest rate. The current monetary framework is named “QQE with yield curve control”.

Back in April 2013, BOJ entered a new phase of monetary easing in terms of both quantity and quality, the so-called QQE. They announced that it will “achieve the price stability target of 2% at the earliest possible time, with a time horizon of about two years”. However, the headline inflation rate has not yet reached the target level. In fact, the CPI core inflation rate -- the YoY rate of change in the consumer price index (CPI) for all items less fresh food -- has turned to be negative again.

What are the risks and effects of Japan’s QQE, including Negative Interest Rate Policy (NIRP) and YCC? Will the monetary base target be sustainable? What happens if the Bank continues to purchase massive amount of JGBs?

Fig.1-1 BOJ’s Unconventional Monetary Policies

<table>
<thead>
<tr>
<th>Unconventional Monetary Policies</th>
<th>BOJ Governor &amp; Term served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Interest Rate Policy</td>
<td>Masaru Hayami Mar 98~Mar 03</td>
</tr>
<tr>
<td>⇒Lowering Policy Rate</td>
<td></td>
</tr>
<tr>
<td>Quantitative Easing Policy</td>
<td>Toshihiko Fukui Mar 03~Mar 08</td>
</tr>
<tr>
<td>⇒Quantitative Expansion</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Easing Policy</td>
<td>Masaaki Shirakawa Apr 08~Mar 13</td>
</tr>
<tr>
<td>⇒Purchasing Various Assets</td>
<td></td>
</tr>
<tr>
<td>Quantitative and Qualitative Easing Policy</td>
<td>Haruhiko Kuroda Apr 13~Present</td>
</tr>
<tr>
<td>⇒Changing Expectations</td>
<td></td>
</tr>
<tr>
<td>Quantitative and Qualitative Monetary Easing with a Negative interest Rate</td>
<td></td>
</tr>
<tr>
<td>⇒Introduction of NIRP</td>
<td></td>
</tr>
<tr>
<td>Quantitative and Qualitative Monetary Easing with Yield Curve Control</td>
<td></td>
</tr>
<tr>
<td>⇒Introduction of Yield Curve Control</td>
<td></td>
</tr>
</tbody>
</table>

Note: Monetary policies are sorted in order of announcement.
Source: BOJ
Under the leadership of Governor Haruhiko Kuroda, the BOJ introduced QQE, conducting large-scale monetary easing in order to overcome Japan's 15-year deflation, and to achieve its 2% price stability target (Fig.1-2). As a result, corporate profits, measured by the ratio of current profits to sales, have been at a record-high level, while the unemployment rate has declined to as low as 3%.

However, on the price front, although the BOJ declared in the Comprehensive Assessment published in September 2016 that Japan’s economy was no longer in deflation,--commonly defined as a sustained decline in prices-- the price stability target of 2% has yet to be achieved.

Consequently, the BOJ introduced the new monetary policy framework "QQE with Yield Curve Control (YCC)", which consists of two major components: (1) YCC which aims to influence the long end as well as the short end of the yield curve and (2) Inflation-overshooting Commitment under which the Bank will continue expanding the monetary base until the core CPI inflation rate exceeds 2% and stays above the target in a stable manner.

Since the introduction of QQE in April 2013, the BOJ had been purchasing JGBs of around 7 trillion yen (USD 63.6 billion) every month, and the amount was raised to around 9 trillion yen (USD 81.8 billion) every month after the expansion of QQE in October 2014.
The average remaining maturity of the Bank’s JGB purchases was extended from about 7 years to around 7-12 years at the end of last year (Fig.1-3). However, the guideline for average remaining maturity was abolished with the introduction of QQE with YCC in September 2016.

The Bank’s JGB holdings have been increasing rapidly. The outstanding amount of long-term JGBs held by the BOJ came to almost 350 trillion yen (USD 3.2 trillion) at the end of October 2016. In the past three and half years under QQE, both monetary base and the outstanding amounts of JGBs have more than tripled.

The average remaining maturity period of JGBs that the Bank holds has lengthened rapidly since the introduction of QQE (Fig.1-4). The remaining period was extended to around 7.4 years at the end of October 2016. Under the past QE and Comprehensive Easing policies, although the outstanding amount of long-term JGBs increased, the remaining maturity period shortened because the BOJ bought shorter-term JGBs. This is why the BOJ is said to have entered a new phase of monetary easing in April 2013.

The remaining maturity of JGBs held by the Bank indicates that it will take over seven years for redemption. This will make it hard for the BOJ to reduce its own balance sheet without selling JGBs in the Bank’s “exit” phase.
At the end of September 2016, the total asset of BOJ was 463 trillion yen (USD 4.2 trillion), which accounted for over 90% of nominal GDP, far above the levels of any other major central banks in advanced economies (Fig.1-5); QQE is truly an unprecedented measure of monetary easing in our modern history.

In January 2016, the BOJ announced the introduction of NIRP, and started to operate a so-called “Three-Tier System”, where the BOJ current account balance is divided into (1) Basic Balance: a positive interest rate of 0.1% will be applied, (2) Macro Add-on Balance: zero interest rate will be
applied, and (3) Policy-Rate Balance: a negative interest rate of -0.1% will be applied (Fig.1-6 left). Therefore, a negative interest rate is only applied to a marginal increase in the current account balance but it has its full impact on the market rate.

Under the new system, some financial institutions hold current account balances in the tier to which the negative interest rate is applied, while other institutions have unused allowances in tiers to which the zero or positive interest rate is applied. Financial institutions that have unused allowances in tiers to which the zero or positive interest rate is applied can raise funds in the interbank money market from other institutions at a rate between negative 0.1% and 0%, so this is profitable for both sides. Other financial institutions that hold balances to which the negative interest rate is applied can offer short-term funds at a rate higher than negative 0.1%, in the market. Fig.1-6 (right) shows that after these arbitrage transactions took place, the net amount of negative-rate balances for September-October 2016 totaled 15 trillion yen (USD136.4 billion) for those financial institutions subject to the reserve requirement, such as Japan Post Bank.

Fig.1-6 Three-Tier System and the Current Account Balance to which Negative Interest Rate applies

Note: 1. Others A: Other institutions subject to the reserve requirement (e.g. Japan Post Bank).
2. Others B: Other institutions holding current accounts with the BOJ.
Source: BOJ
After the introduction of NIRP in January 2016, activities in the call market stagnated (Fig. 1-7-1). Particularly, in the collateralized call market, the amount outstanding fell sharply (Fig.1-7-2).

Fig.1-7-1 Amount Outstanding in the Call Money Market

![Graph showing amount outstanding in the call money market with notes and source attribution]

Note: Daily data up to and including Nov 25, 2016.
Source: NEEDS-FinancialQUEST

1-2. Increasing Risk of falling back into Deflation

QQE started in April 2013, with the target of achieving 2% YoY change in CPI. From late 2013 to mid-14, it seemed things were on track to achieving the BOJ's target (Fig.1-8). However, prices started slipping from mid-14 onward, due to the decline in oil prices, as well as the slowdown of commodity exporting and emerging economies especially China. Prices have been continuing to fall in 2016. The core CPI inflation rate for September 2016 was negative 0.5%, which was the lowest since March 2011, when the Great East Japan Earthquake occurred. The latest figure for October was negative 0.4%, recording a negative YoY rate for eight months straight.
The Nikkei CPI Now index is a price indicator based on daily scanner data collected from over 800 supermarkets. Prices soared from 2015 onward, reaching 1.9% YoY in February 2016, just short of 2% (Fig.1-9 left). However, the YoY rate of change quickly slowed, and slipped into negative territory from August onward.

The SRI-Hitotsubashi University Consumer Purchase Index, a weekly price index based on Point-of-Sale (POS) data of 4,000 stores, shows similar trends (Fig.1-9 right).

With the introduction of QQE with YCC in September this year, the BOJ abandoned its 2 year timeframe for achieving 2% inflation target. It has become a medium-term target with no specific time frame. According to its latest October Outlook Report, the BOJ pushed back the timing of achieving its 2% price target from “during FY2017 (ending March 2018) to “around FY2018” (Fig.1-10).
The Fig.1-11 shows different measures of inflation expectations at four different points in time - A: 2013Q1 before the introduction of QQE, B: 2014Q3 before the expansion of QQE, C: 2015Q4 before the introduction of NIRP, and D: 2016Q2 after the introduction of NIRP.

Comparing the change in inflation expectations from pre-QQE to Post-NIRP, we find that expectations rose in about half of the indicators. However, comparing the changes before and after the introduction of NIRP, it is clear that the policy hurt inflation expectations, causing them to weaken.
1-3. QQE with Yield Curve Control

Yield Curve Control

The “Yield Curve Control (YCC)” aims to influence the long end as well as the short end of the yield curve. The BOJ will seek to maintain the long-term interest rate at the present 0% level or thereabouts. When the long-term interest rate rises over 0%, the Bank will purchase JGBs so that 10-year JGB yields will remain more or less at the current level (around 0%). This means the BOJ has strengthened its commitment to maintain the 0% long-term rate. BOJ Policy Board Member Yutaka Harada stated that the Bank would tolerate a declining long-term interest rate but not an increasing one.

The measure looks similar to the long-term interest rate pegging system taken by the US Federal Reserve Board until 1951, although capital movements were severely restricted during wartime and under the Bretton Woods regime. There is another issue of whether the central bank can control long-term interest rates, which consist of expected short-term interest rate and risk premiums including term premium. In addition, JGBs with a wide range of maturities will continue to be eligible for purchase, while the guideline for average remaining maturity of the Bank's JGB purchases has been abolished.

After the beginning of NIRP in February this year, JGB yields fell sharply (Fig.1-12). They further declined in July after Britain voted out of the EU; even 20-year JGB yields turned negative for the first time, falling as low as negative 0.005%.

Fig.1-12 JGB Yield turned Negative in early 2016

Note: Daily data up to and including Nov 25, 2016.
Source: Bloomberg

However, after the US Presidential election, Japan’s long-term interest slightly increased. The market strengthened expectations for a December rate rise by the Fed, and the JGB yield curve turned anti-clockwise after the introduction of QQE with YCC (Fig.1-13). On November 17, the BOJ announced for the first time that it would buy as many JGBs as the market wanted to sell with one to five years left to maturity at a fixed price, asserting its new cap on the yield curve. It did not bid for...
10-year bonds, where it has capped the yield at 0%.

Fig.1-13 JGB Yield Curve turned anti-clockwise after the Start of QQE with YCC

![Chart showing JGB Yield Curve](chart.png)

Note: Data for Nov 2016 is the average of data from November 1, 2016 through November 25, 2016. Source: Bloomberg

Inflation-Overshooting Commitment

Under the “inflation-overshooting commitment,” the BOJ will expand liquidity with the aim of achieving a stable, observed inflation rate greater than 2% (Fig.1-14). The inflation rate implied here is core CPI (all items less fresh food). As we see in Fig. 1-8, core CPI has been in negative territory for eight months straight, which implies that it will take time for the BOJ to reach the exit phase of the current unprecedented easing policy.

Fig.1-14 Inflation-Overshooting Commitment

![Chart showing Inflation-Overshooting Commitment](chart2.png)

Source: BOJ “Economic Activity, Prices, and Monetary Policy in Japan (Oct 12, 2016 Speech at a Meeting with Business Leaders in Nagano)” (Yutaka Harada, BOJ Policy Board Member)
2. Government-controlled JGB and ETF Markets

Since the BOJ has been the largest buyer of JGBs, the market is criticized as being “government-controlled”. Those JGBs with relatively higher coupon rates held by the Bank have gradually reached their maturities and the average coupon rate is currently 0.77%, having declined by 0.34 percentage points since the start of QQE. The BOJ is ironically called the “whale in the pond” in the ETF market, not to mention the JGB market. This increases the risk of the BOJ incurring losses if a sharp decline in stock prices occurs.

2-1. BOJ’s “Whale in the Pond” Issue 1 : JGB Market

Three and a half years have already passed since the introduction of Quantitative and Qualitative Monetary Easing (QQE) in April 2013. Since the start of QQE, the BOJ has purchased large quantities of government bonds from the market on a monthly basis. Fig. 2-1 shows the flow of JGB net buyers and sellers. Under QQE, net JGB purchases by the BOJ have more than doubled, totaling 359.6 trillion yen (USD 3.3 trillion for 2014Q2-2016Q3). The JGB market remains stable, but if such purchases by the Bank were regarded as monetizing government debt, the JGB market may start destabilizing, raising long-term interest rates. This could not only offset monetary easing effects, but also have a negative impact on Japan's financial system.

The BOJ has repeatedly stated that JGB purchases under QQE are executed for the purpose of conducting monetary policy and not for financing fiscal deficits. However, to avoid any skepticism regarding this issue, it is vital for the government to clearly show the future course of fiscal consolidation and steadily make progress to reform the fiscal structure.

In addition to the BOJ, overseas investors have been increasing their purchases of JGBs and Treasury Bills (Fig. 2-2). Although both short-term and long-term interest rates have been negative in Japan, the dollar-yen swap rates have also been negative, which helps overseas investors to earn extra...
interest. The amount of T-Bill purchase by overseas investors has rapidly been increasing under negative interest rates.

![Fig. 2-2 Dollar-yen Swap Rate and Overseas Investors](source: JSDA, Bloomberg)

How have the BOJ holdings of government bonds changed as a result of the BOJ trade? In Fig. 2-3, the vertical axis charts the balance of government bonds held by the BOJ, while the horizontal axis shows the nominal coupon for government bonds. At the end of March 2013 (before the start of QQE), 20-year bonds with coupon rates of 4.0% or higher accounted for approximately 1.1 trillion yen (USD 10 billion), but by January 2016, approximately three years later, the balance was zero as the redemption period edged closer. As recently as the end of October 2016, only 740 billion yen (USD 6.7 billion) worth of 20-year bonds with a yield of 3% or higher remained. The high coupon government bonds issued in the past are gradually coming up for redemption. At the end of March 2013, the weighted average interest [(balance by issue x nominal coupon) / total balance] for government bonds held by the BOJ was 1.11%, but by the end of October 2016 it had declined to 0.77%, down by 0.34 percentage points.
The S&P/JPX Japanese Government Bond VIX Index (Fig. 2-4 top left), which indicates the expected volatility of futures prices for long-term government bonds, rallied in February 2016 as a result of the negative interest rate policy. Later, the trend turned upward again for a time, but the rate dropped below 2.0 points when QQE with YCC was released in late September 2016. The bid-ask spread (Fig. 2-4 top right), which is the difference between the price (bid) proposed by the buyer of government bonds and the seller’s price (ask), is holding steady in the near term. The price/trading volume ratio (Fig. 2-4 bottom left), which is the ratio of price change to trading volume, rose sharply when the BOJ decided against any additional easing at the Monetary Policy Meeting at the end of July 2016, and announced a comprehensive assessment at the next policy meeting.
2-2. BOJ’s “Whale in the Pond” Issue 2: ETF Market

Not only the JGB market, but also the ETF market is now described as being government-controlled. Fig. 2-5 shows the flow of trading by investment sector in the ETF market. The BOJ started to buy ETFs in December 2010, but the bank accounts for the majority of buying since 2011. At the Monetary Policy Meeting in July 2016, the BOJ increased the amount for ETF purchases from 3.3 trillion yen to 6 trillion yen (from USD 300 billion to 545.5 billion). In September 2016, the Bank spent approximately 800 billion yen (USD 7.3 billion) on buying, exceeding the 2012 performance in a single month, providing plain evidence of a government-controlled market.

Fig. 2-5 Trading Value of ETFs by Investor Type (Flow)

Note: 1. Data excludes foreign ETFs.
2. We assume that the BOJ does not make direct ETF purchases through the stock exchanges, and that it does not sell any of the ETFs that it has purchased.
3. Data excludes ETFs that to support firms proactively investing in physical and human capita.
Source: Tokyo Stock Exchange, BOJ
The BOJ mainly buys ETFs linked to three indices (TOPIX, Nikkei 225, and JPX 400). Fig. 2-6 shows the fluctuations in the three indices. The market capitalization of the First Section of the Tokyo Stock Exchange is extremely large at 516 trillion yen (USD 4.7 trillion) as of October 31, 2016, but the influence of the BOJ buying is gradually increasing. At the Monetary Policy Meeting on October 31, 2014, the BOJ decided to increase the annual spending amount from one trillion yen to three trillion yen (from USD 9.1 billion to 27.3 billion). There was a large increase in the stock indices toward the end of 2014, which can be seen in Fig. 2-6. In early 2016, the indices fell in apparent support of lower prices due to cheap oil, turmoil in the foreign markets, and the appreciation of the yen. There were claims that “BOJ buying boosted the Nikkei Average by 1,000~2,000 yen” (USD 9.1~18.2), and we can say that the BOJ increased its presence in the stock market as well as the JGB market.

Fig. 2-6 Trend of Major Stock Indices

The BOJ holdings of ETFs exceeded 10 trillion yen (USD 90.9 billion) at the end of October 2016. The Bank, now the biggest player in ETF market, has been only buying and not selling ETFs. However, if ETF prices should decline sharply, the BOJ would need to set aside adequate reserves to cover for the losses, which would reduce the Bank’s profits.

Fig. 2-7 estimates the BOJ’s ETF holdings. The BOJ has bought ETFs linked to the three indices in proportion to the total market capitalization of each issue, partially revised at the September 2016 monetary policy meeting. For this estimation, we used data for 20 issues as of the end of October 2016 handled by the Japan Exchange Group, and selected from the ETFs linked to the three indices. Since the BOJ spending on ETFs has been constant during the month, the purchasing price is proportionally distributed according to market capitalization per issue at the end of the month prior to the day of purchase. In our estimation, the average acquisition price is currently lower than the current share price, resulting in unrealized profits for the BOJ. ETF market capitalization totaled 15.8 trillion yen

2 The BOJ also purchases ETFs to support firms proactively investing in physical and human capital.
(USD 143.6 billion) at the end of September 2016, with the BOJ accounting for 69% of the total amount.

Fig. 2-7 BOJ’s ETF Holdings

<table>
<thead>
<tr>
<th>(End of the Month)</th>
<th>Purchased Amount (Billion yen)</th>
<th>Valuation at Market Prices (Yen, Points)</th>
<th>Average of Purchase Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nikkei 225</td>
<td>TOPIX</td>
<td>JPX-Nikkei 400</td>
</tr>
<tr>
<td>March 2011</td>
<td>101</td>
<td>104</td>
<td>-</td>
</tr>
<tr>
<td>March 2012</td>
<td>447</td>
<td>427</td>
<td>-</td>
</tr>
<tr>
<td>March 2013</td>
<td>822</td>
<td>751</td>
<td>-</td>
</tr>
<tr>
<td>March 2014</td>
<td>1,518</td>
<td>1,350</td>
<td>-</td>
</tr>
<tr>
<td>March 2015</td>
<td>2,442</td>
<td>2,098</td>
<td>31</td>
</tr>
<tr>
<td>March 2016</td>
<td>4,035</td>
<td>3,388</td>
<td>145</td>
</tr>
<tr>
<td>Sept 2016</td>
<td>5,301</td>
<td>4,372</td>
<td>249</td>
</tr>
</tbody>
</table>

Note: 1. We assume that the BOJ does not make direct ETF purchases through the stock exchanges, and that it does not sell any of the ETFs that it has purchased.
2. Data does not take into account the difference between each ETF’s operational performance and stock index, dividends and various fees.

Source: BOJ, NEEDS-FinancialQUEST

Although the BOJ buys large quantities of ETFs, share prices could potentially make a sharp fall. Looking at annual fluctuation rates for the Nikkei Stock Average since FY2001, we find that it was negative for seven years, the average magnitude of decrease being 19.0%, and the largest decrease was 35.3% in FY2008, the year of the collapse of Lehman Brothers. Fig. 2-8 summarizes the valuation amounts and the valuation profit/loss if the stock price decreases by 19.0% or 35.3%. The estimation for the end of FY2017 was prepared on the basis of the estimate at the end of September 2016, assuming that half of the annual purchases were bought at current share price levels. If there is a drop of 19.0% at the end of 2017, the loss on valuation would be 1.7 trillion yen (USD 15.5 billion), and if there is a drop of 35.3%, the loss on valuation would be 3.9 trillion yen (USD 35.5 billion). Ordinary income at the BOJ for the fiscal year ending March 2016 was 800 billion yen (USD 7.3 billion), net assets 3.5 trillion yen (USD 31.8 billion), and net worth including account reserves 7.4 trillion yen (USD 67.3 billion). At present, there are no reserves for ETFs, and even at around half of the average drop in the past, there would be a deficit, causing great harm to finances. The BOJ has not made clear what it intends to do with its ETF holdings upon its exit operations. The BOJ has started selling equities bought in the past from April 2016, planning to offload 1.3 trillion yen-worth (USD 11.8 billion-worth) of equities in the next 10 years. By the end of FY2016, the BOJ’s ETF holdings is expected to amount to 10 times that of equities; if it were to sell off its massive ETF holdings, the process would be lengthy, and the BOJ would be prone to facing long-term risk exposures.

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3 Estimated from the opening price of the first business day of April and the closing price of the last business day of March.
4 The BOJ has been accumulating reserves, and posted net transfers to provisions for unrealized losses on index-linked exchange-traded funds in the settlement of accounts for FY2010, but these were terminated in the FY2011 settlement of accounts.
Fig. 2-8 Simulation Result in the Case of Market Prices Fall

<table>
<thead>
<tr>
<th>(Yen, Points)</th>
<th>Market Prices</th>
<th>Valuation at Market Prices</th>
<th>Valuation Gain or Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nikkei 225</td>
<td>JPX-Nikkei 400</td>
<td>Nikkei 225</td>
</tr>
<tr>
<td>As of Sept 30, 2016</td>
<td>16,450</td>
<td>1,323</td>
<td>11,846</td>
</tr>
<tr>
<td>Case 1 19% Fall in Market Prices</td>
<td>13,324</td>
<td>1,071</td>
<td>9,596</td>
</tr>
<tr>
<td>Case 2 35% Fall in Market Prices</td>
<td>10,643</td>
<td>856</td>
<td>7,665</td>
</tr>
<tr>
<td>As of March 31, 2017</td>
<td>16,450</td>
<td>1,323</td>
<td>11,846</td>
</tr>
<tr>
<td>Case 1 19% Fall in Market Prices</td>
<td>13,324</td>
<td>1,071</td>
<td>9,596</td>
</tr>
<tr>
<td>Case 2 35% Fall in Market Prices</td>
<td>10,643</td>
<td>856</td>
<td>7,665</td>
</tr>
</tbody>
</table>

Note: 1. Case1: Average of years the Nikkei 225 index YoY change turned negative from FY2001 onward (average over 7 years: -19%).
2. Case2: Largest % fall in the Nikkei 225 index YoY change (FY2008: -35%)
Source: BOJ, NEEDS-FinancialQUEST

The monopoly on the ETF market and the risk of a decline in prices are not the only problems involving BOJ purchases of ETFs. By buying ETFs, the BOJ becomes the largest shareholder in many companies. Fig. 2-9 indicates the extent of the BOJ’s indirect holdings of shares in index component issues through ETFs. For the estimation, we used the weights of individual issues in each index, the indexed ETF holdings shown in Fig. 2-7, and the closing price on September 30, 2016. Moreover, we judged whether the Bank is the largest shareholder based on the number of shares held by the leading shareholders excluding trust accounts, and the number of actual BOJ share holdings. Results indicated that the bank is already the largest shareholder of approximately a quarter of the companies on the Nikkei 225. Furthermore, the Bank’s holding ratio of floating stocks now exceeds 10% in 35 companies, over 40% in some. The BOJ’s massive holdings lead a fall in floating stocks, which may cause individual stock liquidity to deteriorate.

Fig. 2-9 BOJ’s Rise to Top Shareholder of Companies

<table>
<thead>
<tr>
<th></th>
<th>Number of Companies of which the BOJ is the Largest Shareholder</th>
<th>Number of Companies Surveyed</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikkei 225</td>
<td>54</td>
<td>225</td>
<td>24.0</td>
</tr>
<tr>
<td>JPX-Nikkei 400</td>
<td>36</td>
<td>395</td>
<td>9.1</td>
</tr>
<tr>
<td>TOPIX</td>
<td>55</td>
<td>1980</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Note: 1. Data excludes security investment trust account.
2. Family shareholders are not taken into consideration.
Source: BOJ, NEEDS-FinancialQUEST

Since the BOJ holds shares indirectly through ETFs, the shareholder voting right is held by the company operating the ETFs. It has been pointed out that “since ETF commissions are low, there is no time for operating companies to spend on analysis or using a proxy to represent shareholders. The
market oversight role is hollowed out by the use of proxies to represent shareholders”. In February 2014, the Financial Services Agency published the Japanese Version of the Stewardship Code, a collection of rules for the “responsible institutional investor.” Although the Government Pension Investment Fund (GPIF), which manages employee pensions and national pensions, entrusts the management of shares to other institutions, it has announced a policy of meeting its stewardship responsibilities by cooperating with the entrusted institutions. The BOJ is said to be the real shareholder of long-term holdings, and if the BOJ continues to buy, its presence will only increase. The BOJ may have to find some way of fulfilling its responsibilities as a major shareholder.

2-3. Limits to the BOJ’s JGB Purchases on the Horizon?

At the Monetary Policy Meeting at the end of September 2016, the BOJ revised its buying policy for government bonds as of October 2016. The bank will reduce investment in bonds with remaining term of less than one year, 5 to 10 years, and more than 10 years, and increase investment in bonds with terms between 1 and 5 years. The bank is also adding the 1 to 3 year, and 3 to 5 year classifications to the 1 to 5 year category, and the 10 to 25 years, and the 25 years or higher classifications to the 10 years or higher category, further refining the categories of remaining terms for intended purchases of government bonds. Overall, the lower limit for monthly purchases has been reduced to 680 billion yen (USD 6.2 billion) and the upper limit has been reduced to 1.2 trillion yen (USD 10.9 billion), but there is no change to the policy of spending 8 to 12 trillion yen (USD 72.8 to 109.1 billion). By introducing QQE with Negative Interest Rate and QQE with Yield Curve Control policies, the BOJ appears to have shifted its attention to the policy rate, though the Bank has not yet abandoned “quantity.”

According to the BOJ’s Flow of Funds Accounts, the balance of BOJ holdings in government bonds and the Fiscal Investment and Loan Program (FILP) bonds was 344.2 trillion yen (USD 3.1 trillion) in June 2016 (Fig. 2-10). Looking at the balance of holdings by entity (Fig. 2-11), the BOJ accounts for the highest ratio (35%), an increase from the same period in the previous year (30%).
For how long can the “quantitative” part of QQE continue? In Fig. 2-12-1, we trace the flow of long-term government bond transactions. We verified the limits for bond purchases based on data for September 2015 in Kimotsuki, Samikawa, and Takahashi (2016) which pointed out the limits will be reached in June 2017. For this report, we have updated the analysis using data available up to March 2016. Other than reducing the amount of Japan Post Bank’s disposable government bonds to 34.3 trillion yen (USD 311.8 billion), the prerequisites concerning the conditions for bond holding ratios etc are the same as in Kimotsuki et al. (2016).
Fig. 2-12-1 Flow of Long-Term JGBs

BOJ’s annual purchases ×N years = Net annual long-term JGB issuance ×N years + Amount available for sale by the private sector

We estimate that the amount of disposable long-term government debt held by private banks, insurance companies, public pension funds, and other public financial institutions totals 114.1 trillion yen (USD 1.0 trillion). In December 2015, the BOJ introduced supplementary measures that expanded eligible collateral for its provision of credit, accepting foreign currency-denominated loans on deeds and financial institutions' housing loans portfolio. The value of collateral is calculated by multiplying the market value of the pledged asset or the outstanding principal amount by an assessment rate (haircut rate) according to the remaining term or risk (Fig. 2-13). Taking the supplementary measures into account, we calculate that the extra room for JGBs amounts to 11.7 trillion yen (USD 106.4 billion) as shown in Fig. 2-12-2.

Source: Summary Reports released by banks and other financial institutions and their websites.
According to our latest estimation, the limits to the BOJ’s JGB purchases will be reached in summer 2017. However, the amount of JGB purchases by the BOJ is based on their purchasing policy as of September 2016. The BOJ’s JGB purchasing program was recently modified in October 2016, resulting in a decline in JGB purchases that month. If JGBs are purchased at the same pace as in October 2016, we find that the limit to BOJ’s purchases will be reached later, in fall 2017. On the other hand, with the introduction of BOJ’s fixed-rate purchase operation of JGBs under QQE with Yield Curve Control, the BOJ’s JGB purchases may expand, in which case, purchasing limits will be reached earlier than estimated. In fact, on November 17, the Bank offered to buy unlimited amount of JGBs with between one and five years left to maturity.

Will the BOJ continue to buy JGBs? Banks and the Japan Post Bank hold abundant disposable government bonds, and if they disposed of all of them, they would have the cash equivalent at hand. They are likely to keep deposits in Policy Rate Balance of the BOJ current accounts where negative rate applies. This could badly effect on Japan’s financial system. There may be some investment options, including regional revitalization funds, PFI projects, and overseas infrastructure funds. However, their current scale seems insufficient for investing all the funds received from the sale of JGBs. Thus, there is a risk of reluctance among private financial institutions and investors to sell their JGBs to the BOJ, to avoid increasing the Policy Rate Balance, which may have an adverse impact on their profits. The higher the prices of JGB purchases, the larger the loss incurred by the BOJ will become.
At present, the BOJ is buying long-term government debt, ETFs, J-REIT, corporate bonds, and commercial paper (CP). Even as the BOJ continues to buy large quantities of these securities, a debate has surfaced about whether foreign government bonds should be included among the buying options.

According to Koichi Hamada, Special Advisor to the Cabinet, “buying foreign government bonds is an option for the BOJ if it is difficult for the government to intervene in the market amid the ongoing pressure of the high yen on the currency markets”. Kazumasa Iwata, President of JCER, has also been proposing the creation of a 50 trillion yen (USD 454.5 billion) fund to buy foreign bonds, in the wake of a financial crisis.

The purchase of foreign government bonds has also been discussed at past Monetary Policy Meetings. It started at the Monetary Policy Meeting on October 11 and 12 in 2001 when Nobuyuki Nakahara, then a policy board member, observed that the Bank should consider buying foreign government bonds as a backup for buying JGBs. At the Monetary Policy Meeting on November 15 and 16, 2001, there was a formal proposal to “start to buy foreign government bonds as soon as the preparations for the practical systems are in place in case it is judged necessary to ensure smooth operations”. At the time, a prolonged deflation was expected, and since it was highly likely that further monetary easing would take place in the future, the proposal was based on awareness of the need to increase the means of supplying funds. The objectives of buying foreign government bonds are (1) to increase the capacity for supplying funds (monetary base), and (2) to diversify the means of supplying funds at the BOJ. A method of making constant purchases of foreign government bonds for a fixed sum every month was proposed to make it clear that the purpose was not the foreign exchange intervention.

The Bank of Japan Act poses problems when buying foreign government bonds. The following are two excerpts from the Bank of Japan Act on the purchase of foreign government bonds and partial statements by board members at the time.

Policy board member Miyako Suda insisted that “the purpose of monetary policy is not to stabilize the currency value, including the exchange rate, but to stabilize prices which are the internal value of the currency. If the BOJ buys foreign currency and foreign debt as part of monetary adjustment, an essential condition is that there is no impact on the exchange rate, or at least no intention. Even if the exchange rate moves toward yen depreciation more than expected, we need to have the resolve to continue buying foreign debt”.

Article 33 of the Bank of Japan Act: In order to achieve the purpose prescribed in Article 1, the Bank of Japan may conduct the following business: […] (iii) Buying and selling of commercial bills and other negotiable instruments (including those drawn by the Bank of Japan in this item), national government securities and other bonds, or electronically recorded claims;

Board member Nobuyuki Nakahara: Article 33 includes “national government securities and other bonds” in day-to-day business. Of course, this includes foreign government bonds, so if there is a need to buy and sell foreign debt in order to supply yen as part of normal business, this is clearly possible.

At the Monetary Policy Meeting at the time, the following points were cited as the advantages of buying foreign debt: (1) Ease of providing current deposits since there is low substitution with other base money than government bonds; (2) Unlike increasing operational funds to buy long-term government bonds, there is no risk of exciting fears around fiscal discipline among market participants; (3) It is easier to secure neutrality compared to purchases of shares and corporate bonds. On the other hand, there were also concerns about the need to buy foreign debt, and whether the currency authorities in the United States...
and neighboring countries would fully understand the situation.

Article 40 (1) of the Bank of Japan Act states;
“The Bank of Japan may, when necessary, buy and sell foreign exchange on its own account or as an agent handling national government affairs pursuant to Article 36, paragraph 1, and it may also buy and sell foreign exchange on behalf of foreign central banks, etc. (foreign central banks and those equivalent thereto; the same shall apply hereinafter) or international institutions (international institutions of which Japan has a membership, including the Bank for International Settlements; the same shall apply hereinafter) as their agent in order to cooperate with them as the central bank of Japan.”

The argument arose to whether the BOJ purchase should invade Article 40 (2) of the Act which states as follows;
“The Bank of Japan shall buy and sell foreign exchange as an agent handling national government affairs pursuant to Article 36, paragraph 1, when the purpose of the buying and selling is to stabilize the exchange rate of Japanese currency.”

Nakahara insisted that even if the BOJ bought foreign government bonds as part of monetary adjustment, there would have been no impact on the exchange rate, so long as it was not intended as foreign exchange intervention. The proposal to buy foreign government bonds continued until March 2002, and since then there have been no discussions of buying foreign debt for a long time.

Currently, with the approaching limits on BOJ purchases of JGBs, there is once again some leeway to discuss the purchase of foreign government bonds.
3. How will BOJ bear Potential Losses?

As argued in Part 2 of this report, the BOJ is now criticized as being another “whale in the pond” in the ETF market. ETFs have risk for a loss of principal, which might damage the soundness of the BOJ’s balance sheet. The fluctuations of stock prices as well as foreign exchange rate of the yen might have larger effect on the profits and losses of the Bank. It will also be difficult for the central bank to shrink its balance sheet in its “exit” phase, without exerting a negative impact on the market and incurring heavy losses that lead to national burden. Coordination between the government’s debt management policy and the Bank’s monetary policy needs to be taken into account.

3-1. Under what Circumstances will BOJ fall into the red?

BOJ prepares for Loss incurred in Exit Phase

According to the BOJ income statement and operating report for FY2015, the interest from long-term government bonds was 1.3 trillion yen (USD 11.8 billion), accounting for approximately 82% of ordinary revenue at the BOJ. This tells us that the BOJ earns most of its profit from the interest from long-term government bonds. On the other hand, of the operating expenses amounting to 834.5 billion yen (USD 7.6 billion), approximately 49% was foreign exchange losses (408.3 billion yen; USD 3.7 billion), and approximately 27% net interest payments on excess reserves (221.6 billion yen; USD 2.0 billion). Fig. 3-1 presents fluctuations in operating profits and legal reserves at the BOJ. In FY2015, operating profits at the BOJ declined by as much as 55% YoY. The main reason was that foreign exchange related profit/loss was converted to losses due to the appreciation of the yen. Consequently, if the yen appreciates further, or the ETF market shrinks, there is potential for operating profit at the BOJ to fall.

![Fig. 3-1 Legal reserves of BOJ](image)

Note: Net income = Operating profits - (Special losses - Taxes (Provision for corporate income tax, inhabitants taxes, and enterprise taxes))

Source; BOJ, Financial Statements
The BOJ sets aside as legal reserve funds a sizeable 5% of the current term surplus based on final profits. Looking at the fluctuations in the legal reserve funds presented in Fig. 3-1, 20% of the surplus in FY2013 when QQE was introduced, and 25% in the following fiscal year, were set aside as legal reserve funds. In FY2015, only 5% of the current surplus was recorded as legal reserve fund.

As of the FY2015 settlement of accounts, the BOJ revised the provisions system to facilitate the transfer of approximately 50% of the difference between the interest rate paid on excess reserve balances and the interest income from the government bond holdings to the transfer, providing for possible losses on bond transactions. In FY2015, the BOJ set aside 450.1 billion yen (USD 2.0 billion) as transfer to provision for possible losses on bonds transactions. As long as the BOJ operates in such a way that the equity ratio does not fall below 8%, the bank can freely break into the provisions for losses on bond transactions (BOJ Accounting Rules Article 18-1). This allows for a high degree of freedom compared to the legal reserve funds, which cannot be withdrawn unless a loss (deficit) arises, and for the BOJ it is a useful way of maintaining fiscal soundness. However, since the BOJ equity ratio was 8.05% at the end of FY2015, it must be noted that the actual degree of freedom under the current circumstances is low.

Interest paid on Excess Reserve becomes Heavy Burden

In FY2015, BOJ net assets including legal reserve funds and provisions for loss on bond transaction was 7.4 trillion yen (USD 67.3 billion). Has the BOJ accumulated sufficient funds relative to the losses that would occur at the time of a future exit?

The bank offers 0.1% interest on reserves exceeding the legally mandated reserves held in BOJ current accounts. Since the introduction of NIRP, the BOJ has divided its current accounts into three tiers with an interest rate of 0.1% applicable to the balance at the first tier, the basic balance, which has been unchanged at approximately 210 trillion yen (USD 1.9 trillion). In FY2015, the amount of interest that the BOJ paid to financial institutions totaled 221.6 billion yen (USD 2.0 trillion), increasing by approximately five times compared to FY2012, the year before the introduction of QQE.

Fig. 3-2 presents the fluctuations in BOJ’s monetary base. Since the introduction of QQE in April 2013, the monetary base has expanded with a focus on BOJ current accounts. In FY2013 ending March 2014, the BOJ current account balance increased by 59.8 trillion yen (USD 0.5 trillion) over the previous year; in FY2014 it was up by 71.6 trillion yen (USD 0.7 trillion), and in FY2015 by 74.9 trillion yen (USD 0.7 trillion).
3-2. Fiscal Dominance and Monetary Dominance

Japan’s Monetary Policy: Fiscal or Monetary Dominance?

Japan’s outstanding debt as a percentage of GDP is forecast to be 233.1% in CY2016. This is an extremely large proportion even when compared to major countries (Fig. 3-3). A low interest rate...
environment will incentivize the government to issue long-term government bonds. Is the reason for easing the monetary policy to stabilize prices or to control the cost of interest payments incurred by government? Since easing monetary policy will have an effect on both points (an unintentional effect on the latter), it is difficult to draw clear lines.

Fig. 3-3 General Government Gross Financial Liabilities

The BOJ is lowering interest rates to achieve the 2% price target. On the other hand, it is possible to control the cost of interest payments if debt is issued in a low interest environment. Fiscal dominance is a situation where the independence of the central bank fades and the fiscal conduct of the government influences monetary policy, having an impact on prices. As a result of analyzing government debt in twenty advanced economies, Greenlaw, Hamilton, Hooper and Mishkin (2013) found that monetary easing is a contributing factor when the government and parliament are acting appropriately toward sound public finances. However, in the reverse case, monetary policy is dominated by fiscal policy (fiscal dominance). In other words, whether or not the government takes appropriate measures toward sound public finances is the watershed between fiscal dominance and monetary dominance.

Fig. 3-4 shows the fluctuations in Japan’s primary balance. The primary balance in Japan has been improving since the collapse of Lehman Brothers, and has continued to improve since 2013 when the BOJ introduced QQE. Consequently, we can say that there is no fiscal dominance over monetary policy.
Greenlaw et al. (2013) also indicate that countries with government debt ratio exceeding 80% recording a current account balance deficit, run a high risk of falling into fiscal dominance. Although Japan’s government debt ratio is far in excess of 80%, Japan runs a current account surplus, so the indication does not apply in this case. However, if fiscal dominance arises, it is conceivable that confidence in the currency will disappear and hyper-inflation might develop. In order for Japan to avoid such a situation, the government must make every effort to improve the primary balance, and to achieve a primary balance surplus.

Canada’s Case of Monetary Financing – Was it a success?

Although fiscal dominance is regarded as being likely cause hyper-inflation, there is a case in Canada where fiscal dominance based on clear rule had contributed to getting over from deflation. Between 1935 and 1975, the Bank of Canada implemented monetary finance by directly purchasing government bonds from the Canadian Government. The context was the government’s goal of securing funding for the Second World War and the postwar recovery. Fig. 3-5 presents the relationship between the consumer price index and the monetary financing ratio (MFR), i.e. the proportion of total public debt held by the Bank of Canada. As a result of monetary financing, the consumer price index, which had been close to 0% in the early 1950s, recovered to close to 5% in the late 1960s. Since the introduction of inflation targeting in 1991, fluctuations in the consumer price index have been relatively small.
Ryan-Collins (2015) indicates that the example of Canada is not one of inducing hyperinflation; rather it has had a positive influence on early withdrawal from deflation. However, Canada suffered from high inflation as of the mid-1970s. As a result, Canada adopted monetary targeting, which reduced MFR from approximately 20% in 1980 to approximately 9% in 1985, and as a result the consumer price index also declined. In 1991, inflation targeting was introduced. As a factor leading to the introduction of inflation targeting in Canada, Ito and Hayashi (2006) cite a rapid increase in outstanding government debt as of the 1980s (Fig. 3-6), and a loss of confidence in the ability of the government and the central bank to manage macroeconomic policy due to the relatively high inflation that continued for a long time. Since introducing inflation targeting, Canada has kept the rate of inflation within a range of approximately 1-3%.
Should Japan, a country suffering from long-term deflation, do what Canada has done and consider monetary finance? In Japan, direct placement of government bonds by the BOJ is, in principle, prohibited under Article 5 of the Public Finance Act. The reason is that once the central bank starts to finance the government by underwriting government bonds, the government loses fiscal discipline, eventually running the risk of causing virulent inflation because the government is unable to apply the brakes to increases in the money supply at the central bank.

Fig. 3-7 presents the relationship between the consumer price index and the ratio of JGBs held by the BOJ among total outstanding JGBs. Since the introduction of QQE in 2013, the ratio of government bonds held by the BOJ has risen. On the other hand, growth in the consumer price index has not only slowed, but also even been in periods of decline. This indicates that there is no correlation between trends in the consumer price index and the ratio of government bond holdings at the BOJ during the entire period.

At present, the BOJ is buying JGBs issued on the market at a higher price than the original issuance price. This increases the BOJ amortization burden and reduces the net interest receipt from JGBs. The BOJ losses reduce the government revenue in the shape of a decrease in the BOJ’s remittance to the national treasury.

In Canada, direct underwriting by the central bank is recognized in two adjacent provisions in the Bank of Canada Act. One provision recognizes direct underwriting of government bonds by the central bank, and the other stating that in case direct underwriting of government bonds exceeds one third of the estimated government revenue, such loans shall be repaid before the end of the first

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5 However, where the BOJ holds government bonds as a result of monetary control, the bonds that are nearing redemption can be refinanced by the state, but only within the amount approved by Diet resolution based on the proviso to Article 5 of the Public Finance Act.
quarter of the following fiscal year. Is moderate monetary financing an option in Japan?

3-3. Government Bond Management Policy and Monetary Policy

Some argue that price fluctuations occur as a result of fiscal policy, specifically the quantity of outstanding government bonds, and that the money supply has less impact.

The amount of outstanding public debt has continued to increase (Fig.3-8). Social welfare costs, which account for a third of annual supply expenditures, have risen each year, and estimated to exceed 20 trillion yen (USD 0.2 trillion) for the first time in FY2016. Furthermore, according to MOF estimates, the amount of outstanding public debt will reach to 1,030 trillion yen (USD 9.4 trillion) at the end of FY2025.

MOF preliminary calculations show that the cost of interest payments on government bonds is estimated to be 21.9 trillion yen (USD 0.2 trillion) in FY2025, or 2 times the figure for FY2016. The cost of interest rate payments will increase substantially when interest rates rise in the future. According to the “Preliminary Calculations on the Impact of the FY2016 Budget on Annual Expenditure and Revenue in the Future” announced by the MOF in February 2016, a fluctuation of 1% in the interest on 10-year bonds would cause debt-servicing costs to increase or decrease by 6 trillion yen (USD 54.5 billion) in FY2021. The average interest rate on the outstanding JGBs is 1.6%.

2. Interest paid = FY15: Revised budget, FY16: Budget.
3. The Ministry of Finance provisionally calculates the 10-year government bond yield for FY2016 at 1.6%. This is because that MOF estimated the rate higher to think the case the rate rise up rapidly.

Source: MOF, Documents regarding the Tax system and Finance in Japan
currently 1.1% (Fig.3-9). In case of a future rise in the interest rates for government bonds due to some shock, such as a downgrading of the Japanese government bonds, or a move towards an exit policy by BOJ, the cost of servicing the debt will greatly increase, leading to an increase in annual expenditure.

Fig. 3-9 Interest on the Amount of Outstanding Bonds

Source: MOF, Documents regarding the Tax system and Finance in Japan

Fig. 3-10 shows that an increase in outstanding public debt is always a factor that pushes up the cost of interest payments. There is high possibility that outstanding public debt will rise up, and interest rates may also rise over time. Therefore, it is necessary to consider how to manage fiscal administration, including management policies for government bonds, in order to enhance fiscal sustainability.

Fig. 3-10 Decomposition Analysis of Interest Paid

   2. Interest paid = FY15: Revised budget, FY16: Budget.
Source: MOF, Documents regarding the Tax system and Finance in Japan

In Japan, a pattern of large government bond holdings continues with outstanding government bonds, including fiscal investment and loan bonds, reaching 901.5 trillion yen (USD 8.2 trillion) at the end of FY2015. In order to convert outstanding government bonds in a stable manner, government bond management policies have been implemented to reduce the issuance of refunding bonds by
extending the average redemption term for new bond issuance. As a result, the average redemption term for government bonds has been increasing since FY1999, to reach nine years and two months by FY2016 as shown in Fig. 3-11.

Fig. 3-11 Average Redemption Periods of JGBs issued each Year (based on Annual JGB Issuance)

Source: MOF, Debt Management Report

In addition, the scheduled amount of JGB issuance for FY2016 decreased by 5,200 billion yen (USD 47.3 billion) to 147 trillion yen (USD 1.3 trillion) compared to early FY2015 (Fig. 3-12). The government bond issuance plan for FY2016 includes initiatives aimed at securing liquidity in the government bond market, and reducing government bond procurement costs. Looking at the breakdown of government bond issuance in FY2016, the decrease in short and medium term bonds (5, 2, and 1 year bonds) was reduced while super-long bonds (40, 30, and 20 year bonds) saw an increase in 40 year bonds and a reduction in 20-year bonds, bearing in mind market needs. There is also the impact of low interest rates, but the overall picture is of an increase in issuing government bonds with longer terms including super-long bonds issued on an annual basis of 20 trillion yen (USD 0.2 trillion).

Fig. 3-12 JGB Market Issuance

Source: MOF, Material for Advisory Councils on Government Debt Management

The average redemption period for government bonds have become longer in other major
countries too (Fig. 3-13). The basic objectives of government bond management policy in these countries are also similar to Japan: suppress procurement costs in the medium to long term while considering risk. In recent years, in particular, measures have been taken to increase liquidity in the government bond market and to apply strengthen financial regulation with the UK increasing the frequency of auctions and reducing the issuance per auction.

![Fig. 3-13 International Comparison of the Average Redemption Periods of Government Bonds](source: MOF, Material for Advisory Councils on Government Debt Management)
Conclusion

The government needs to manage its financing without low interest rate by NIRP. Moreover, as analyzed in Iwata et al. (2014), if the government issue longer maturity of JGBs the effect of monetary policy may be vanished. Thus, to revitalize Japan’s economy, fiscal policy needs to cooperate with monetary policy although it is also important to keep their dependence.

In this report, we have outlined the series of unconventional monetary policies that the BOJ has introduced since the late 1990s. The BOJ has long been struggling to get out of deflation; however, CPI data shows that it will require substantial time for the Bank to attain its 2% inflation target. The BOJ will therefore be forced to continue buying large-scale JGBs and other assets, even though it shifted its numerical target from the amount of supply of monetary base to the policy rate. It is now criticized as being the “whale in the pond” in the ETF market, not to mention JGB market. ETFs have the risk for a loss of principal, which might damage the soundness of the BOJ’s balance sheet. The fluctuations of Japan’s stock prices, as well as the yen exchange rate can have larger effect on profits and losses of the Bank. In addition, it will be difficult for the central bank to shrink its balance sheet in the “exit” phase, without exerting a negative impact on the market and incurring heavy losses that lead to national burden. It may thus be the time to consider the cooperation between the government and the BOJ.
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