

Asia-Pacific Policy Papers Series

Comparison between ‘Quantitative Easing’ by the
Federal Reserve Board and ‘Quantitative and
Qualitative Easing’ by the Bank of Japan:

A theoretical verification of the favorable effects of QE/QQE and
an examination of the four monetary policy tools held by central
banks after the Great Financial Crisis

By Naoki Tabata

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By Naoki Tabata

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Mr. Tabata is originally a central banker, having worked at the Bank of Japan for more than thirty years, and he has assumed various important positions such as the member of the IMF Executive Board representing the Japanese government, Head of the New York Office of the Bank of Japan, which is responsible for all North and South American matters, Director General of the Financial Organization Stabilization Department at the Bank of Japan, and a member of the Basel Committee on Banking Supervision. He has also been a Trustee of the Japan Association of Corporate Executives for more than ten years.

Mr. Tabata has frequently published on quantitative monetary policy, international policy coordination, financial supervision, and so forth in theses and columns such as:

- “The Bank of Japan Has Come To Hold Four Monetary Policy Tools.” *Nikkei Newspaper*, September 2017.
- “Practical Exit Policy from QE without Provoking Market Confusion and Making Central Bank’s Loss Small.” *Nikkei Newspaper*, June 2017.
- “New Government Debt Management Policy in Exit from QE through Coordination of Fiscal Authorities and Central Bank.” *Nikkei Newspaper*, November 2016.
- “Comparison of Normalization among FRB, BOJ, and ECB.” The U.S.-Japan Financial Conference, Harvard Law School, November 2015.
- “Monetary Policy by the Bank of Japan: Current Problems and Necessary Measures.” Lecture at the graduate school of Keio University, December 2012.
- “From Shareholder Capitalism to Multi-Value Capitalism.” World Alliance Forum in San Francisco, November 2011.

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Abbreviations

BOJ	Bank of Japan
B/S	Balance Sheet
FF	Federal Funds
FG	Forward Guidance
FOMC	Federal Open Market Committee
FRB	Federal Reserve Board
GDP	Gross Domestic Product
GFC	Great Financial Crisis
JGB	Japanese Government Bond
LSAP	Large-Scale Asset Purchase
MOF	Ministry of Finance
NIP	Negative Interest Rate Policy
NYFED	New York Federal Reserve Bank
QE	Quantitative Easing
QQE	Quantitative and Qualitative Easing
YCC	Yield Curve Control

I. Introduction

The purpose of this paper is to make a comparison between the Federal Reserve Board's (FRB) 'Quantitative Easing' (QE) and the Bank of Japan's (BOJ) 'Quantitative and Qualitative Easing' (QQE), including potential exit strategies. The monograph puts particular emphasis on the theoretical analysis of the effects of QE or QQE, and the new as well as supplementary monetary policy tools that central banks have gained through implementing QE, QQE, and the experience of the Great Financial Crisis (GFC).

First, the paper briefly summarizes the balance sheet expansions of the FRB and the BOJ following the GFC of 2007-2008 and then explains the new monetary policy tools, such as forward guidance (FG) and buying non-government bond securities. Negative interest rate policy (NIP) and yield curve control (YCC) are classified as the supplementary policy tools for QE and QQE.

Second, the paper demonstrates theoretically that QE and QQE could attain an increase in real GDP through a shift in the credit market's equilibrium point by means of large-scale asset purchase (LSAP), yield curve adjustment through NIP and YCC, and the corresponding shift in the equilibrium set of interest rates and real GDP.

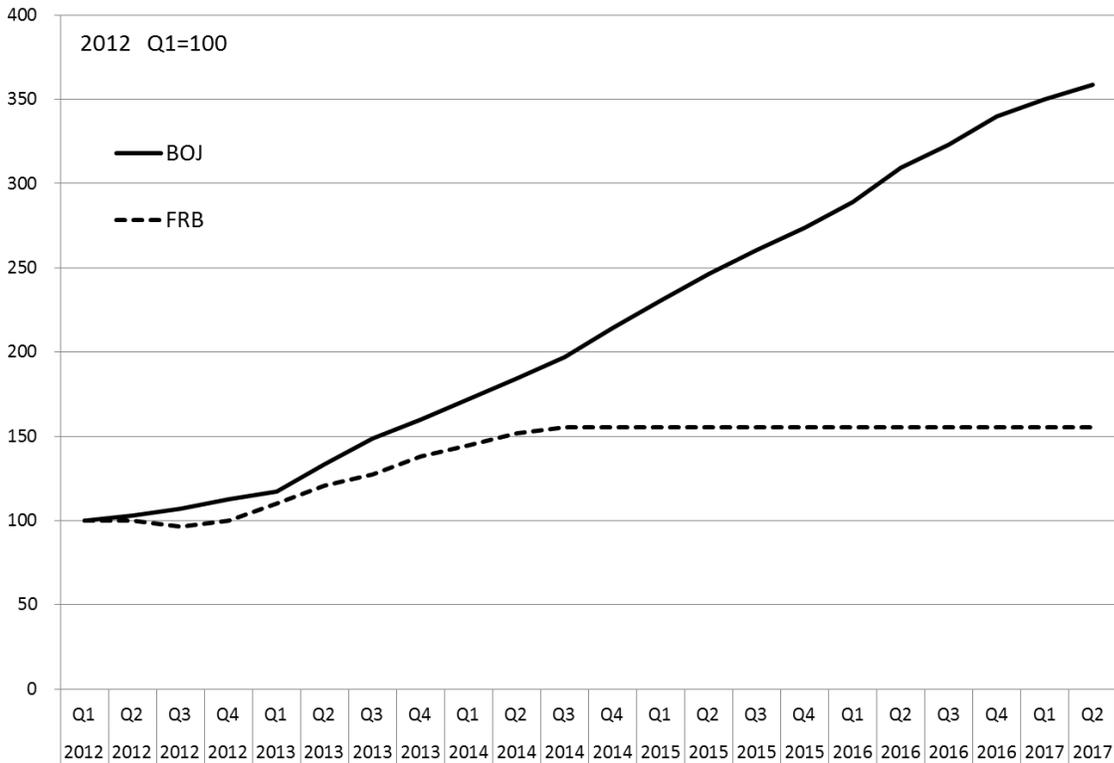
Given these findings, the paper then compares exit policies related to QE and QQE, and analyzes the lessons induced from both the implementation of and exit from QE and QQE.

Finally, the paper describes new monetary policy tools available to central banks, such as forward guidance and the buying of non-government bond securities, which were gained through the experience of implementing policy changes after the GFC. The central banks of developed countries now hold four tools of monetary policy: 1) interest rate policy using central banks' liabilities, 2) quantitative easing using a central banks' assets, 3) forward guidance using the expectations of market participants, and 4) the buying of non-government bond securities to promote portfolio rebalancing in the private sector. The paper also explains the importance of coordination between fiscal authorities and the central bank, particularly in the field of government debt management policy.

II. Balance Sheet Expansion at the FRB and the BOJ under QE or QQE

The FRB has executed QE since November 2008 to overcome the deflationary economic situation caused by the GFC in 2007-2008. The policy was terminated when the tapering process ended in October 2014. The expansions of QE were implemented in three stages. The period and increase in the B/S of QE1, QE2, and QE3 were from November 2008 to June 2010 (\$1.725 trillion), November 2010 to June 2011 (\$0.6 trillion), and from September 2012 to October 2014 (\$2.03 trillion), respectively. As of October 2017, the FRB's B/S has remained the same size from October 2014 to September 2017 (See Chart 1). The total increase in the B/S under the three stages of QE is \$4.355 trillion or approximately 23% of nominal GDP in 2016.

Chart 1: Balance Sheet Expansion at the FRB and BOJ



The BOJ began its QQE in April 2013 and has been led by Governor Haruhiko Kuroda, who took office in March 2013. At a press conference held on April 4, 2013, Governor Kuroda clearly stated:

The key operating tool for implementing monetary policy is changing from the overnight call rate to the monetary base. QQE is an unprecedented and epoch-making policy package consisting of a 2% price target, which could be attained within 2 years, increases in the monetary base, and the holding of long-term JGB and ETF will be doubled within 2 years. The BOJ will buy long-term JGB at a rate of ¥50 trillion per year.

This policy package produced favorable effects for the Japanese economy in 2013 and the first half of 2014. The Consumer Price Index (CPI) increased by 1.5% in August 2014 and real GDP increased as well. However, the recovery of the Japanese economy was delayed due to a severe decline in the price of oil, larger than expected negative impacts related to the consumption tax increase from 5% to 8% in April 2014, and backward-looking expectations in the private sector. Taking the economic situation into account, the BOJ decided to increase the buying of long-term JGB from ¥50 to ¥80 trillion per year and increase the rate of expansion of the monetary base from ¥60 to ¥80 trillion per year in November 2014. The BOJ has continued to buy JGB at a rate of ¥80 trillion in annual up to now.

Reflecting these increases in JGB and other securities, the BOJ's B/S reached a total of ¥383 trillion at the end of 2015, ¥476 trillion at the end of 2016, and is estimated to exceed ¥500 trillion by the end of 2017.

Chart 2: Bank of Japan Balance Sheet

(Billion Yen)

	End of March 2013	End of 2013	End of 2014	End of 2015	End of 2016	End of March 2017
Long Term Government Bond	91.3	141.6	201.8	282.0	360.7	377.1
ETF	1.5	2.5	3.8	6.9	11.1	12.9
J-REIT	0.12	0.14	0.18	0.27	0.36	0.38
Loan Support Fund	3.4	8.4	23.4	29.8	38.8	43.4
Short Term Government Bond	16.4	24.2	38.4	31.6	40.5	32.6
Total Asset	164.8	224.2	300.2	383.1	476.5	490.1
Bank Note	83.4	90.1	93.1	98.4	102.5	99.8
Current Deposit Account	58.1	107.1	178.1	253.0	330.2	342.8
Total Liability and Net asset	164.8	224.2	300.2	383.1	476.5	490.1
Monetary Base	146.0	201.8	275.9	356.1	437.4	447.3

III. New and Supplementary Policy Tools for QE and QQE

a.) Forward Guidance

As the implementations of QE and QQE, as well as the related exit policies, are first-time experiences for the FRB and the BOJ, market participants across the corporate and household sectors do not necessarily understand the intentions of the FRB and the BOJ correctly through information strictly available in the market. The lack of precise information begets idle fears and provokes market confusion. Consequently, the FRB and the BOJ introduced a new method for providing information, including their policy intentions, to the market to avoid market confusion and disorder. This method is known as forward guidance (FG).

In August 2011, the FRB stated that economic conditions “warrant an exceptionally low level for the FF rate through at least mid-2013.” This is said to be the first instance of FG, in other words, calendar-based FG. However, it is thought that Chairman Bernanke’s publishing of a 2% price targeting policy in the FOMC statement in January 2012 was the first use of FG. In actuality, Chairman Bernanke ordered Deputy Chairwoman Yellen to assume the chair of the Subcommittee of Information Strategy to investigate effective FG. On the basis of the proposal by the Committee, Chairman Bernanke published the setting of a 2% price target.

FG is the most effective measure to provide information to markets. Professor A. Blinder of Princeton University has said that FG is one of the new policy instruments that central banks gained after the GFC.

While the scope and substance of FG have not yet been established, Professor Benjamin Friedman of Harvard University has presented the following concept, which is clear and understandable:

“Central banks’ attempts at guiding market participants’ expectation of the future trajectory of monetary policy”

He emphasizes the importance to appeal to market participants’ expectations. Professor B. Friedman investigated the FRB’s FG since it was initially introduced as part of the exit strategy and commented that it did not necessarily succeed in the early stages. Due to the multiple revisions in the FRB’s forecasting of the interest rate, it did not provide the market with correct information and could not fulfill the role of proper FG.

The methods of FG are various, but some typical ones include the following:

1. Central banks’ business report produced every 10 days or every month
2. Speech by governor or other executives
3. Testimonies by governor
4. Lectures by executives
5. Press conference by governor
6. Publications

The BOJ regards Governor Kuroda’s press conferences, testimonies, and speeches as the most effective methods of FG since the implementation of QQE in April 2013.

During the period of April 2013 to October 2014, the BOJ bought JGB to the value of ¥50-60 trillion annually. QQE had a positive impact on the Japanese economy; the CPI increased by 1.5% in the 3rd Quarter of 2013 and real GDP increased by 3.0% in CY 2013. However, as the negative impacts of the oil price decrease, consumption tax hike, and backward-looking expectations regarding the Japanese economy were larger than expected, the BOJ decided to augment the buying amount of JGB to ¥80 trillion per year effective as of November 2014 to push the economy forward.

Governor Kuroda said in his statement on October 31, 2014, that, “since there is some risk that the process of changing the deflationary outlook could be delayed, the BOJ will continue QQE up to attaining the 2% price goal.” His statement demonstrated the firm commitment of the BOJ to attain the 2% price target by continuing QQE. This is an example of effective FG that provides a clear signal to markets.

Reflecting the situation that the long-term interest rate did not decline as expected, the BOJ introduced NIP effective as of February 2016. Governor Kuroda explained the NIP as follows at his press conference on January 29, 2017:

The current account of the BOJ is divided into three categories:

- 1) Fundamental Balance --- 0.1%
 - Up to the average balance during the period from January to December 2015 in each financial institution’s current account balance at the BOJ

- 2) Balance Increasing by Macroeconomic Growth --- 0.0%
 - Reserve requirement balance + necessary balance for the liquidity of the Loan Support Fund and Financial Institution in Causality Area Support Fund + increasing balance by economic growth.

- 3) Balance Applying Policy Interest Rate --- Minus 0.1% is applied to the current account balance excess to 1) and 2).

This explanation is quite precise, but market participants do not necessary understand the real intention of the BOJ. Three major Japanese banks instantly decreased their interest rate on deposits instead of rebalancing their portfolios.

As NIP made the whole yield curve decline larger than expected, where even interest rates for longer than 10 years fell below zero, financial institutions lost their profit-taking opportunities.

Consequently, the BOJ made a thorough investigation into the effects of QQE and NIP on the Japanese economy and the current, as well as future, prospects of the Japanese economy in August 2016. On the basis of this investigation, the BOJ decided to introduce a yield curve control (YCC) policy, known as QQE with YCC.

Governor Kuroda stated at his press conference in September 2016, “QQE has produced positive effects for the Japanese economy. The BOJ will continue QQE until the 2% price target is attained and the 2% or more price increase is maintained for a certain period.” This means that the B/S of the BOJ is expanding and this policy will be extended for a certain period after the 2% target is attained. This statement was effective FG and provided important information that the BOJ would continue QQE for a certain period after the 2% price goal is achieved.

Regarding exit policy, Governor Kuroda explained at his press conference in June 2017 that, “as the BOJ’s QQE is still in the middle of the process of attaining the 2% target, it is too early to state clearly a practical exit policy or to discuss the results of simulations of a certain exit policy.” This is a clear message to market participants as they formulate expectations on the future trajectory of monetary policy. This is effective forward guidance.

b.) Purchasing Non-government Bond Securities to Promote Portfolio Rebalancing in the Private Sector

In isolation, the expansion of a central bank’s B/S does not necessarily result in portfolio rebalancing among private sector actors. The FRB bought mortgage-

backed securities to expand the market as well as to promote portfolio rebalancing in private financial institutions.

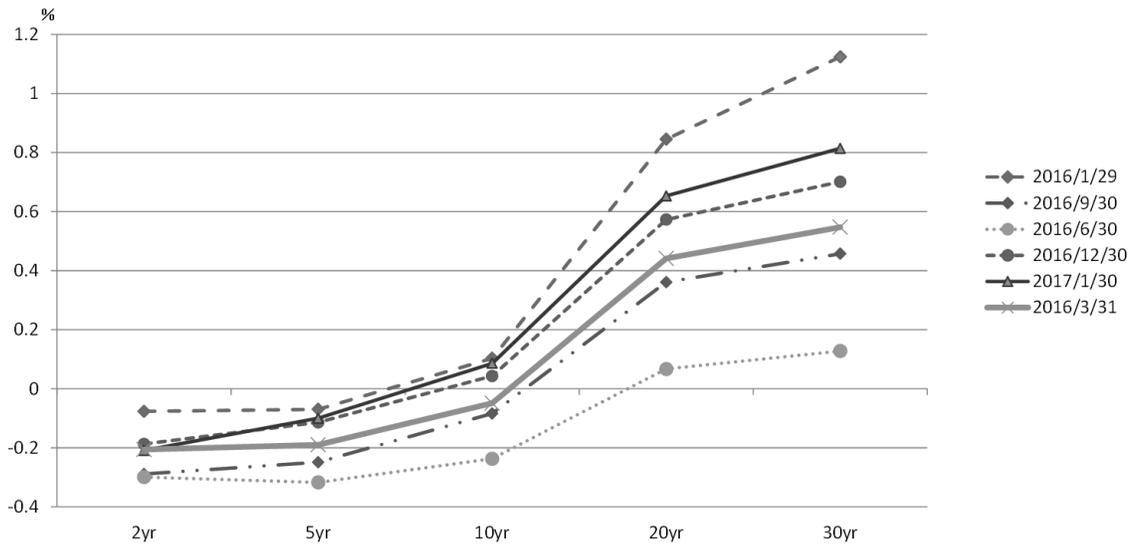
The BOJ decided to buy both ETFs and J-REITs up to ¥1.0 trillion and ¥30 billion, respectively, when it launched QQE in April 2013. These amounts were later increased to ¥3.0 trillion and ¥90 billion in October 2014, when the BOJ augmented the size of its JGB buying from ¥50-60 trillion to ¥80 trillion. The BOJ further increased its ETF buying activities to ¥3.3 trillion in April 2016 and to ¥6.0 trillion in September 2016 once YYC was introduced.

Reflecting this large-scale purchase of ETFs, the Nikkei Stock Average, which was around ¥14 thousand in April 2013, rose to ¥17 thousand in November 2014, and later surpassed ¥20 thousand in May 2015. After the introduction of NIP, it declined to around ¥15-16 thousand, but rose again in November 2016 to ¥18 thousand as a result of the doubling of the BOJ's purchasing activities of ETF to ¥6.0 trillion. The Nikkei was around ¥19 thousand during the period from June to August and has been more than ¥20 thousand since mid-September 2017. This increase in stock price greatly contributed to portfolio rebalancing in the private sector.

c.) Negative Interest Rate Policy

The implementation of QE can decrease short- and medium-term interest rates. However, the long-term rate does not necessarily decline as expected due to restraints on long-term lending self-imposed by risk-averse banks. In order to further lower the long-term interest rate, the BOJ introduced a negative interest rate policy (NIP) in February 2016. The objective of the NIP is to set the initial point of the yield curve below zero in an effort to shift the whole yield curve downward. After the declaration by the BOJ in January, the policy was launched in February 2016. The long-term interest rate declined by 60bp from January to March 2016 and declined an additional 40bp from April to September 2016.

Chart 3: Downward Shift of JGB Yield Curve by Negative Interest Rate



d.) Yield Curve Control

The BOJ introduced QQE with Yield Curve Control (QQE with YCC) in September 2016 based on its thorough investigation on the effects of QQE since the launch in April 2013. QQE produced favorable results for the Japanese economy and it helped the economy reach a non-deflationary stage. The NIP was also effective at reducing the long-term interest rate by more than 120bp from January to July. However, the yield curve decline was greater than expected and banks lost their profit-taking opportunities. Additionally, life insurance corporations and pension funds struggled to make a profit once interest rates for more than 10 years became negative.

Taking the situation into account, the BOJ introduced YCC to fix the 10-year JGB interest rate at around 0% through buying-selling operations of JGB. The implementation of YCC provided banks, insurance corporations, and pension funds with greater opportunities for profit.

The downward-sloping line in the left-hand panel of Chart 4, labeled C^S , indicates the supply of securities in the household and corporate sectors as a function of the market interest rate for a given set of expectations regarding future output and inflation.

The upward-sloping line, labeled C^D+C^{CB} , indicates private investors' demand for private securities as a function of the interest rate they carry for given amounts of the following variables: expectations of future income, the current policy interest rate set by central bank, future expectations for how the policy interest rate will change, and the level of holdings of these securities by the central bank. The initial supply-demand equilibrium in the credit market before the GFC in 2007-2008 is represented by point A and in the goods market at point A', while the corresponding GDP is Y_A .

The economic shock caused by the GFC shifted the credit demand curve to the left, and the new equilibrium point is B. The corresponding decrease in GDP can be seen in the shift from Y_A to Y_B in the right-hand panel.

The central bank's large-scale asset purchase (LSAP) shifted the credit demand curve rightward, which is represented at the new intersection with the credit supply curve at point C. The corresponding increase in GDP is marked by Y_C .

When the long-term interest rate did not decline as the BOJ expected, it launched the NIP in February 2016. This action shifted the credit demand curve downward substantially. The resulting intersection with the credit supply curve is represented by point D and GDP increased, correspondingly, to Y_D .

As the decline of the long-term interest rate was greater than the BOJ and markets expected, the BOJ introduced YCC policies that resulted in a slight upward shift in the credit demand curve. The intersection of supply and demand is now at point E and GDP decreases slightly to Y_E .

The BOJ has continued to expand its balance sheet by ¥80 trillion per year. This means that the central bank's balance sheet has continued to increase in a similar fashion to the initial large-scale asset purchase. This action is represented by LSAP' and the resulting intersection is point F. It is important to note that the income level has now increased to Y_F , which is higher than the pre-GFC level of Y_A .

This theoretical analysis clearly explains the main purposes of QE or QQE: to produce a decline in the equilibrium interest rate in the credit market and an increase in GDP through the realization of a lower interest rate. Actually, Japan's real GDP has increased by 3.5% during the period from 2013 to 2015, and has increased for six consecutive quarters since the beginning of 2016 and further at an annualized rate of 2.5% in the second quarter of 2017. While former Chairman Bernanke noted that, "QE made some good effects on the economy, however, it is difficult to explain theoretically the reason for realizing these favorable results," the preceding analysis has shown that it is possible to explain the positive results of QE and QQE on a theoretical level.

V. The Exit Policy Implemented by the FRB

The FRB finished tapering in October 2014 and began to implement its exit policy. The expected phases of the policy were publicized in a FOMC statement in September 2014 to serve as an act of forward guidance:

First Stage	Tapering ends in October 2014.
Second Stage	The FRB will maintain policy interest rates (Federal Funds Rate, FF rate) within a range of 0.00-0.25%. It will maintain its B/S at the size as it was during tapering by reinvesting all repayment principals of securities held by the FRB.
Third Stage	The FRB will raise the FF rate to a certain target range and continue to gradually increase them based on the changing economic situation.

Fourth Stage The FRB will diminish its B/S through decreasing reinvestment of maturity principals of securities held by the FRB and, at the same time, the FF rate will be increased to the equilibrium point.

The FRB finished tapering in October 2014 and has attempted to slowly raise the FF rate, while taking market conditions into account. However, market as well as economic conditions did not allow for raising the rate immediately. For the first time since the GFC, the FRB was able to raise the FF rate in December 2015. It then continued to raise this rate in December 2016, March 2017, and June 2017 by 0.25% each period.

The FOMC statement on September 20, 2017 stated that, “in October, the committee will initiate the B/S normalization program described in the June 2017 Committee’s Policy Normalization Principles and Plans.” The reducing of securities will be achieved through the decrease or cessation of reinvestment of the principals for securities held by the FRB. Government bond and mortgage-backed securities will be reduced by an amount of \$6.0 billion and \$4.0 billion per month, respectively, from October to December. After a year has passed, the monthly amount will be \$30 billion and \$20 billion, respectively.

VI. Lessons Induced from the Federal Reserve Board’s Exit Policy

The lessons to be learned from the FRB are as follow:

- 1.) It is extremely important to execute exit policy slowly and gradually, while taking economic and market conditions into account without provoking market confusion and/or disorder. Before the GFC, the principles of implementation of monetary policy were “quickly” and “promptly.”

- 2.) Price targeting should be flexible. If it is rigid and the time to reach the target is delayed, central banks could continue providing larger liquidity than expected. Actually, the FRB as well as the ECB began their exit policy before attaining the 2% price target.
- 3.) Precise and practical forward guidance is definitely needed to provide adequate information to market participants, so that they can understand the authorities' real intentions and to appeal to their formation of expectations on the future trajectory of monetary policy.
- 4.) The speed of decreasing or increasing the FRB's B/S as well as the expected period of completion of the exit policy can be changed to reflect economic and market conditions.
- 5.) During the initial stage of the exit policy in September 2014, the FRB planned to absorb all the liquidity provided by QE. At the press conference after the FOMC, Chairwoman Yellen stated that the liquidity would be absorbed through 2020. However, the FRB seems to have conceived that it is not necessary to absorb all the liquidity provided by QE, reflecting the fact that the money multiplier and velocity have become unstable as well as that banks need more reserves than before the GFC. The adequate amount to absorb may be determined by the specific economic and market conditions.
- 6.) Reflecting current economic conditions, the FF rate has been raised more slowly than expected. The FRB decided to raise the target range of the FF rate from 0.00-0.25% to 0.25-0.50% in December 2015, the first instance of an increase since tapering ended. The next increase of the FF rate to 0.50-0.75% occurred in December 2016. In July 2017, the FF rate reached the 1% level.

VII. Possible Exit Policy by the Bank of Japan

Governor Kuroda of the Bank of Japan has frequently stated at his press conferences that, “it is too early to state practical exit strategies or to discuss the results from simulations of specific exit policies since the Bank of Japan is still in the middle of the process of attaining the 2% price target.”

Under these circumstances, the BOJ has not yet clarified any exit policy nor its intentions on when and how the exit strategies will be launched. Consequently, the exit policy described below is the plausible plan of which markets are conceiving.

The markets expect the following exit policy after the BOJ attains the 2% price target:

- 1.) The best way to absorb liquidity without provoking market confusion is to reduce reinvesting in maturity principals of securities held by the BOJ in a certain period, and thereafter to cease reinvesting.
- 2.) The successful implementation of this policy requires that the term structure of maturity principals should have a gentle slope in the downward-right direction. If the shape of the term structure is decided only by market participants’ estimation of future buying operations conducted by the BOJ, or for the stability of markets, both a gentle-sloping curve and equal amounts in each quarter or each year present no special differences. However, taking the necessity of absorbing a large amount of JGB at the initial stages of the exit policy into account, it is desirable that the total amount coming due in a gentle slope in the initial couple of years should be larger than that of an equal amount due in each year.
- 3.) Improving the buying operation method is definitely necessary to make maturity term structure in a gentle slope. Currently, the BOJ has five bidding categories for buying JGB: below 1 year; 1 to 3 years; 3 to 5 years; 5 to 10 years; and 10 years or more. If these five categories were extended beyond ten, namely, 0 to 1 year; 1

to 2 years; 2 to 3 years; 3 to 4 years — 9 to 10 years; 10 to 12 years; 12 to 14 years — 18 to 20 years; and 20 years or more, the term structure might have a gentler slope.

Professor Benjamin Friedman at Harvard University pointed out that the relation between base money and/or money stock and price or GDP has become weak or almost nonexistent due to instability in the money multiplier and/or velocity. As already stated in the case of the FRB's exit policy, the BOJ is currently thinking that it is not necessary to absorb the total liquidity provided under QQE.

Regarding the expected losses of the BOJ, if it reinvests half of the maturity principals of securities it holds in the first year of the exit policy, followed by the full amount in the second, third, and fourth years of the policy, ¥150 trillion will be absorbed in the first four years. Currently, the annual average issuance of the BOJ's bank note is approximately ¥100 trillion. Assuming that the amount of JGB and other securities held at the beginning of the exit policy is ¥500 trillion and the interest rate gap between assets and liabilities is 0.75-1.00%, the expected loss will be ¥1.875-2.5 trillion, which can be absorbed by either the reserve or seigniorage and presents no specific problems for the implementation of monetary policy.

VIII. New Monetary Instruments of the Central Bank

The traditional tool of monetary policy is the changing of interest rates to affect the speed and cost of accumulating reserve requirements for financial institutions with deposit accounts in the central bank.

The purpose of raising the FF rate by the FRB or the overnight interbank interest rate by the BOJ is to increase the cost of reserve deposit holding and delay the accumulation speed. This policy utilizes the liability side of a central bank. A negative interest rate policy (NIP) works to increase the cost of holding reserves for financial institutions.

From this perspective, NIP might be classified as a traditional interest rate policy using liability of a central bank.

The expansion of a central bank's assets through large-scale asset purchases (LSAP) is a policy to lower the natural rate of interest rate realizing equilibrium of demand and supply in the macro-economy. Consequently, this policy that utilizes the asset side of a central bank should be distinguished from the traditional buying operations that focus on the liabilities of a central bank.

Since the introduction of QQE in April 2013, reserve deposits increased by ¥285 trillion. This is completely different from the authorities' intention to make commercial banks expand lending to the private sector for increasing consumption, business fixed investment, housing construction and so forth.

IX. Coordination among Fiscal Authorities and Central Bank

Given that the purchasing and issuing amount of U.S. treasury bonds under QE and JGB under QQE are so large, the successful implementation of government debt management policy through coordination between fiscal authorities and the central bank has become important. Exchanging of policy intentions as well as information among these two institutions is indispensable. The U.S. Treasury's intentions are conveyed to the Federal Open Market Committee (FOMC), which is then transferred to the FRB through the chairman of the FOMC, President of the New York Federal Reserve Bank (NYFED). The Treasury Department and the NYFED have continued to coordinate closely and exchange information on the market from time to time.

The Financial Bureau of the Ministry of Finance (MOF) of Japan and the Business Department of the Bank of Japan have maintained close coordination in the exchange of information on Japanese government bond (JGB) markets and to cope with problems such as market liquidity, volatility, and so forth. Currently, the cooperation between MOF

and BOJ is so close that no specific entity consisting of MOF and BOJ members is needed to discuss and exchange information on the JHB market.

In certain stages of an exit policy, however, the intention of raising the interest rate to restrain inflation and the fiscal authorities' will to issue government bonds at low interest rates become contradictory. Additionally, in the coming exit policy, a price decline in certain maturities of government bonds and an increase in volatility in some of them might occur. Coping with these situations, the fiscal authorities should make every effort to reduce fiscal deficits, to establish persuasive fiscal consolidation plans and to practice them. At the same time, central banks should realize by themselves that they must take a part of the responsibility for government debt management policy with the fiscal authorities.

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