The Japanese Experience with QE and QQE

John Greenwood

This article provides an overview of the three episodes of quantitative easing (QE) pursued by the Bank of Japan (BOJ) since 2001. It begins with a brief account of the initial reluctant shift to unorthodox policies under BOJ Governors Hayami and Fukui in 2001–06 (here designated QE1) and then covers the equally reluctant adoption of QE by Governor Shirakawa in 2010–13 (QE2). The article then turns to an account of the attempt since April 2013 by the BOJ under Governor Kuroda, designated "quantitative and qualitative easing" (QQE), to revive the economy and achieve a 2 percent inflation target. None of these attempts at QE has been successful in raising the broad money growth rate for M2 sustainably above the 2–3 percent per annum range where it has languished for the past 25 years. Consequently, Japan's attempts at QE have all failed to raise the equilibrium level of Japanese nominal GDP by any material magnitude, and so far, attainment of the 2 percent inflation target under QQE has remained elusive. At the time of writing (October 2016), the Japanese economy therefore continues to grow at a low rate with periodic lapses into deflation. After discussing the case of Japan, the article compares the experience of the United States in 1929–33, when there was no QE, and the experience of 2008–14, when the

---

Cato Journal, Vol. 37, No. 1 (Winter 2017).

John Greenwood is Chief Economist at Invesco. This article was originally presented at a conference hosted by the Institute of International Monetary Research and the Institute of Economic Affairs, November 3, 2016, titled "Quantitative Easing: Triumph or Folly: Is It Still Relevant?"

Fed conducted QE over three periods. The comparison is deliberately focused on the quantitative aspects of the policy, not its interest rate effects. Finally, the article explains that there are two brands of QE, and that the failure of QE in Japan is fundamentally due to the choice of the wrong brand of QE. Given the type of QE that the Japanese authorities have chosen, the policy cannot be expected to succeed, except under limited conditions.[1] If QE were to be implemented according to a different design, the prospects of success would be much greater. In brief, the primary reason for the failure of BOJ-style QE or QQE derives from the habitual tendency to buy securities from banks instead of from nonbank private-sector entities (such as nonbank financial firms, nonfinancial firms, households, or foreigners). While QE policy in Japan boosts the monetary base, it does not increase broad money. But it is broad money that drives nominal GDP, not the monetary base.

BOJ's QE1: 2001–06 under Governors Hayami and Fukui

The Japanese economy experienced a classic asset bubble during the period 1985–90, featuring steep rises in the prices of equities, real estate, and other assets such as golf club memberships.[2] The stock market peaked in December 1989 and the real estate market peaked in the July–September quarter of 1991. Those peaks were followed by steep declines in asset prices, culminating in contractions of real GDP in several quarters of 1992 and 1993 and deflation as measured by the CPI from July 1994.

[1]The same critique applies almost verbatim to the European Central Bank's QE policy.

[2]The underlying cause of the bubble was a sustained acceleration in the growth of the M2 money supply from 8 percent to 13 percent between 1985 and 1990, along with a parallel surge in bank lending and nonbank credit (from the *Jusen* or mortgage finance companies, and more generally the practice of *Zaitech*—credit creation and financial engineering by nonfinancial corporations). It can be argued that the cause of the acceleration in money and credit was, in turn, Japan's participation in the Plaza Agreement of September 1985 and the Louvre Accord of February 1987. These undertakings derailed domestic Japanese monetary growth, which had been remarkably stable over the preceding decade, by requiring the BOJ first to encourage a depreciation of the U.S. dollar (Plaza), and then to promote dollar appreciation by intervening in the foreign exchange market, buying dollars and creating yen, accelerating M2 growth (Louvre).

During the 1990s, numerous types of countermeasures were adopted by the Japanese authorities to combat the economic downturn, such as a series of fiscal expansion plans (see Wright 2002), a half-hearted attempt to recapitalize the banks and sell off the toxic assets from 1998,[3] cutting the BOJ's overnight policy rate to zero (ZIRP, or zero interest rate policy) by 1999, and intermittently allowing the Japanese yen to depreciate in an effort to promote export-led growth. All of these policies proved ineffective. The reason was that by September 1992, the money supply (M2) had *declined* on a year-on-year basis—unprecedented in postwar Japan—and it continued to grow only at a snail's pace, averaging just 2.5 percent per annum ever since 1992.[4] Without adequate growth of the broad money supply, nominal GDP remained in a prolonged slump, reflected in weak real GDP growth combined with persistent deflation.

After the BOJ adopted ZIRP in the spring of 1999, and after a second round of capital increases for the banks in March 1999, the economy started to perform a little better, with real GDP strengthening into 1999 Q4. Inflation remained negative but moved back toward zero. Influenced by these more favorable developments and by the arguments of crusading BOJ Policy Board member Eiko Shinotsuka that Japanese savers needed higher interest rates from the central bank, the BOJ decided to end ZIRP and increased the (targeted) uncollateralized overnight interest rate to 0.25 percent in August 2000. The rate hike was maintained until March 2001, but by then, stock prices had fallen back and a renewed economic downturn, was evident, accompanied by a recession in the United States following the bursting of the tech bubble. Faced with this further downturn, the BOJ lowered the overnight rate again and finally turned to a radical new proposal: quantitative easing.

The Policy Board statement of March 19, 2001, emphasized the extraordinary nature of its decision: "The Bank has come to a

[3]It was only after the financial crisis of 1997–98 (when one bank, a large brokerage house, and a large insurance company had failed), and almost eight years after the peak in the stock market, that the authorities first began to take serious measures to address the problem of bank capital.

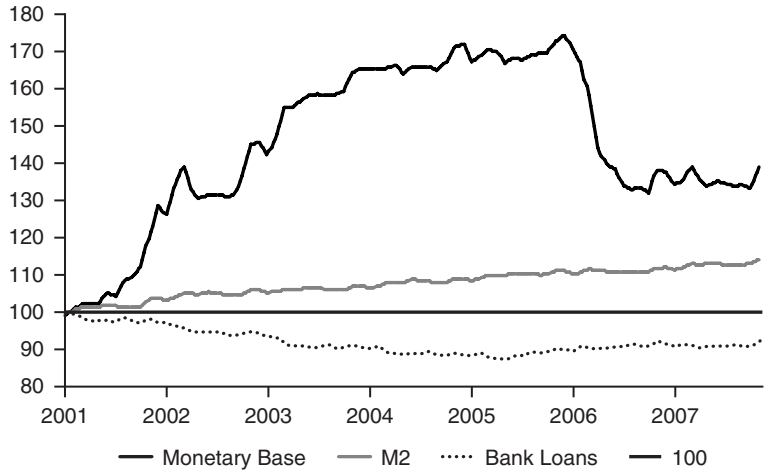
[4]Given the average annual decline of 2.3 percent per annum in M2 velocity since 1980, Japan would have required a minimum of 4 percent per annum M2 growth just to maintain price stability, or 6 percent per annum to hit a 2 percent per annum CPI target.

conclusion that the economic conditions warrant monetary easing as drastic as is unlikely to be taken under ordinary circumstances" (Bank of Japan 2001). In this first episode of QE, which started in March 2001 and ended in March 2006, the BOJ purchased a net 37 trillion yen of securities, expanding its balance sheet from 115.3 trillion yen to 152.3 trillion yen. Its purchases consisted of Japanese government bonds (JGBs) and short-dated financing bills or promissory notes (known as *tegata*).

However, as Figure 1 demonstrates, the increase in Japan's monetary base was not matched by any significant change in trend of the broad money supply, M2. Between 2001 and 2006, the monetary base expanded by 70 percent, but there was virtually no change in the trajectory of broad money (M2), while bank lending declined by close to 10 percent over the period 2001–06.

Even so, the policy started to have some success when stock prices increased by 57 percent between May 2005 and April 2006, although it should also be noted that there was a significant rally on Wall Street at the same time. The economy, too, had started to perform better, recording steady increases in real GDP during the six quarters from 2005 Q1 until 2006 Q2. Moreover, inflation returned to

FIGURE 1
Japanese Monetary Base, M2, and Bank Lending
(March 2001 = 100)



Source: Macrobond.

relative price stability. It can therefore be argued that QE1 was terminated prematurely.

Throughout the period 2001–06, the BOJ Policy Board members, with some exceptions such as the forthright Nobuyuki Nakahara, were far too timid, frequently expressing the desire to return to orthodox policies—by which they meant implementing monetary policy by adjusting short-term interest rates. Fundamentally, they failed to recognize that major balance sheet repair was needed across key sectors—households, and financial and nonfinancial corporations—and they therefore expected the economy to return to normality after only a brief interlude of unorthodox policy (Koo 2003).

In 2003–05, the BOJ had set three conditions for exiting QE, and by late 2005, these conditions were being met. Therefore, on March 9, 2006, the Policy Board decided to terminate QE, deciding to return to ZIRP while the outstanding excess reserves were reduced.

The speed with which the BOJ's balance sheet declined from April 2006 and the minimal impact this had on financial markets or the economy highlight a second aspect of the problem with the BOJ's brand of QE. Instead of buying only long-dated securities such as JGBs that would remain on the BOJ's balance sheet for an extended period, the BOJ purchased large amounts of *tegata* (short-term financing bills with maturities of less than one year), also primarily purchased from banks rather than nonbanks. Consequently, without the BOJ overtly selling any securities into the market, the maturing of these securities reduced the BOJ's balance sheet abruptly from 152 trillion yen in March 2006 to just 114 trillion yen, or by 38 trillion yen by the end of June 2006.

If BOJ-style QE purchases were supposed to have an expansionary effect on asset markets and the economy, a reduction in the BOJ's balance sheet should have led to seriously adverse or contractionary effects on the financial markets and the economy. Yet the drastic decline in the monetary base (or its counterpart, BOJ assets) between April and June 2006, unwinding the entire five-year build-up of QE within three months, had remarkably little impact on either the Japanese stock market or on the Japanese economy. Measured by the Nikkei index, equities continued to rise to a peak of 17,563 on April 7, 2006, and then declined to 14,751 by June 9, a decline of 16 percent. However, by February 23, 2007, almost a year after the end of QE1, the index had reached a new interim high of 18,188, or a rise of 23 percent. Similarly, following the termination of QE1 the

economy continued to grow until 2008 Q1, with only two negative quarters of real GDP growth before the 2008 global recession—in 2006 Q3 (followed by a strong upturn in Q4) and 2007 Q3. Inflation, too, increased to 0.9 percent year-on-year by August 2006 and remained in positive territory until February 2007. In short, the reversal of QE in April–June 2006 had none of the negative consequences that one might expect, suggesting that it had never been as stimulatory as had been intended in the first place. This would be consistent with the view expressed here that the BOJ made a policy design error in purchasing assets from banks rather than from nonbanks.

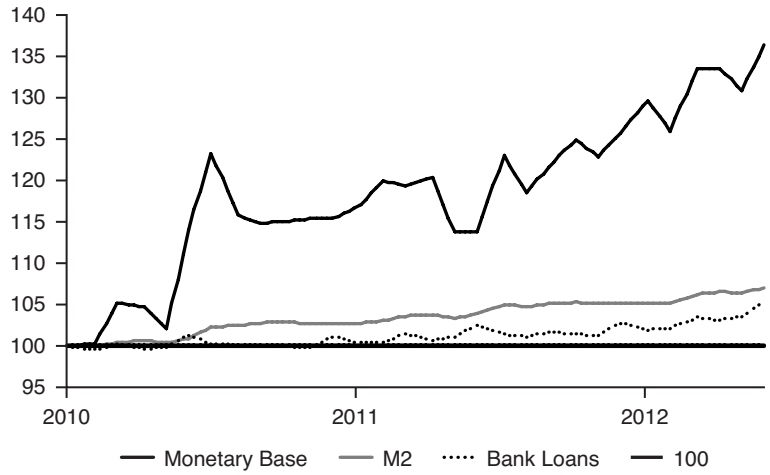
To sum up, there were three major problems with QE1 in 2001–06 under Governors Hayami and Fukui:

- First, the scale of the asset purchases was too small.
- Second, when the BOJ purchased Japanese government bonds, these were predominantly acquired from the commercial banks, not from nonbanks. This had the effect of increasing the monetary base but had a negligible impact on M2 or broad money growth.
- Third, roughly half of the BOJ's purchases were in the form of short-term financing bills held entirely by the banks. This is why, when QE1 was terminated in April 2006, the BOJ's holdings of short-term securities, including *tegata,* fell sharply.

BOJ's QE2: 2010–13 under Governor Shirakawa

Japan's second episode of QE was initiated by Governor Shirakawa and the BOJ's Policy Board in October 2010 (Figure 2). In the July–September quarter of 2010, the headline CPI and the narrow core CPI (excluding fresh food) both declined to −1.1 percent, generating political pressure on the BOJ to take stronger action to eliminate the incipient deflation. In addition, two private-sector economists with known preferences for "easy money" policies were appointed to the Policy Board (Ito 2006). The BOJ responded by setting a target for a CPI increase of 1 percent instead of the previous goal of price stability, which had generally been interpreted as a zero inflation target. Embarking on a new round of asset purchases, the BOJ's balance sheet was expanded from 121 trillion yen in October 2010 to 164 trillion yen (by 43 trillion yen, or by 35.5 percent) by

FIGURE 2
Japanese Monetary Base, M2, and Bank Lending
(October 2010 = 100)

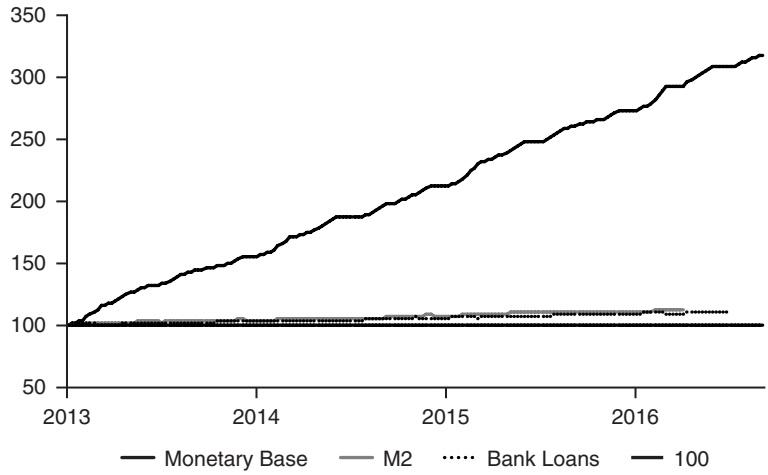


Source: Macrobond.

March 2013. The main assets purchased were once again JGBs along with *tegata*, but Tokyo-listed ETFs and REITs were added to the menu of assets purchased. Although the BOJ's holdings of JGBs and short-term financing bills (*tegata*) expanded rapidly from 77 trillion yen to 121 trillion yen—especially in 2012–13—this expansion was offset by a decline in BOJ holdings of other assets, diluting the effectiveness of the QE program.

Throughout his tenure, Shirakawa was a reluctant expansionist, frequently making speeches to the effect that QE alone would never succeed in reviving the Japanese economy. Originally, he had intended that the QE program would be completed by the end of 2011, but with the CPI still falling in November and December 2011, operations were extended through 2012 and 2013. Compared to QE1 in 2001–06, Shirakawa's QE2 was a much weaker program. In March 2013, when Shirakawa was replaced, the BOJ's balance sheet was only modestly larger than it had been in March 2006 at the end of QE1 (164 trillion yen compared with 152 trillion yen). Not surprisingly, when Shinzo Abe became prime minister in late 2012, Governor Shirakawa was replaced by Governor Kuroda.

FIGURE 3
Japanese Monetary Base, M2, and Bank Lending
(March 2013 = 100)



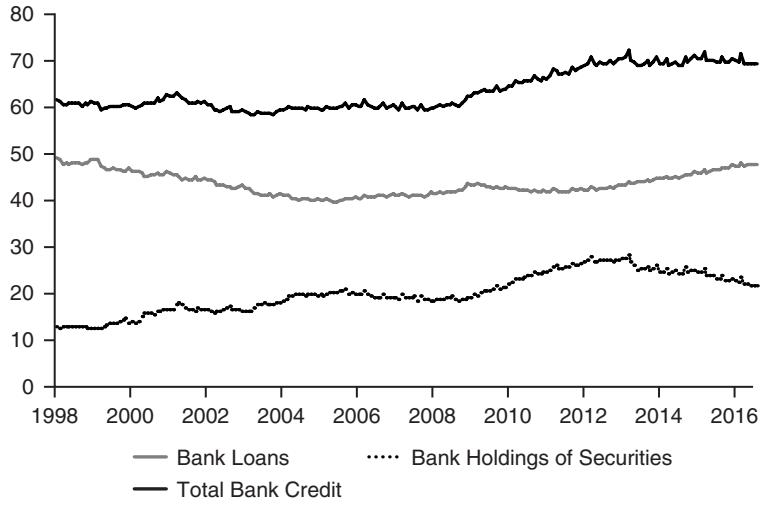
Source: Macrobond.

BOJ's QE3 or QQE: 2013 to Present under Governor Kuroda

With the resignation of Governor Shirakawa and the appointment of Governor Haruhiko Kuroda by Abe in March 2013, the BOJ began a new, more vigorous program of QE, designated "qualitative and quantitative easing." On this occasion, the extravagant promise was made that, within two years, the monetary base would be doubled and a new inflation target of 2 percent would be reached—popularly known as the 2-2-2 plan.[5] The policy has again consisted mainly of JGB purchases, but with a much more rapid expansion of the BOJ balance sheet. However, the program is once again marred by failing to purchase exclusively assets held by nonbanks. In the three and a half years since QQE started, the monetary base has trebled. However, as in QE1 and QE2, there has been almost no perceptible change in the trajectory of the M2 money supply (Figure 3), and the

[5]Under QQE, the BOJ initially set the inflation target at 2 percent for the year-on-year change in the CPI, excluding fresh food but including energy (known as the "core CPI" in Japan), but later changed the relevant index to the CPI, excluding fresh food and energy (known as the "core-core CPI").

FIGURE 4
Japanese Bank Credit (Loans and Securities)
(Yen Trillion)



Source: Macrobond.

inflation target has not been met. Perhaps surprisingly to some observers, and as a direct result of BOJ purchases of securities from banks instead of nonbanks, bank credit has actually *contracted* so far (April 2013–July 2016) as the decline in commercial bank holdings of securities (due to BOJ purchases) has exceeded the increase in their lending (Figure 4). However, as will be shown below in the case of the United States in 2008−11, increased lending is not important to the achievement of broad money growth in the initial stages of QE.

Fundamentally, despite the change of name from QE to QQE, the new version of QE is simply more of the same: larger purchases of securities (again mainly from the banks), and continued purchases of short-term securities, together with much smaller purchases of ETFs and J-REITs. Once again the monetary base is expanding rapidly but with almost no transmission through to the broad money supply. Moreover, the BOJ's underlying philosophy has hardly changed at all. In May 2015, the BOJ published a seven-page "Assessment" of QQE, which concluded that "changes in various economic and financial indicators have been in line with the mechanism anticipated," but that the policy had been derailed by the

decline in oil prices since mid-2014, which in turn had lowered inflation expectations (Bank of Japan 2015).

The BOJ view of the QQE transmission mechanism also ignores the quantitative impact on the money supply, concentrating—as most orthodox studies do—on the interest-rate effects. According to the BOJ, QQE would increase inflation expectations "through a strong and clear commitment to the price stability target of 2 percent and large-scale monetary expansion to underpin the commitment." At the same time, the BOJ's "massive purchases of Japanese government bonds (JGBs)" would exert "downward pressure . . . on the entire yield curve." The result of these actions was expected to decrease real interest rates and stimulate private demand, leading to an upturn in the economy and an improvement in the output gap. Moreover, the BOJ expected higher actual inflation, enhanced inflation expectations, higher asset prices, and portfolio rebalancing effects (Bank of Japan 2015).

The BOJ's judgment was that QQE lowered real interest rates by slightly less than 1 percentage point, and that the actual improvement in economic activity and prices was mostly in line with the mechanism anticipated by QQE. Soon after this "Assessment" was released, however, the year-on-year rate of increase in the CPI slowed abruptly due to the effects of the decline in crude oil prices, adversely affecting inflation expectations, and again delaying the BOJ's attainment of its 2 percent inflation target.

A year later, by mid-summer 2016, the BOJ was still not achieving the 2 percent inflation goal, so a further "Comprehensive Assessment" of QQE was commissioned and published in September 2016. This document makes no serious reexamination of the underlying strategy and even goes so far as to reproduce virtually the same diagram of the supposed QQE mechanism that had been published with the earlier May 2015 Assessment. This time, the Comprehensive Assessment was 65 pages in length, and the blame for not attaining the 2 percent inflation target was spread more widely. First, inflation expectations were reduced by the fall in oil prices; second, demand weakness followed the increase in the consumption tax in April 2014; and third, the slowdown in emerging economies and volatile global financial markets had lowered the observed inflation rate.

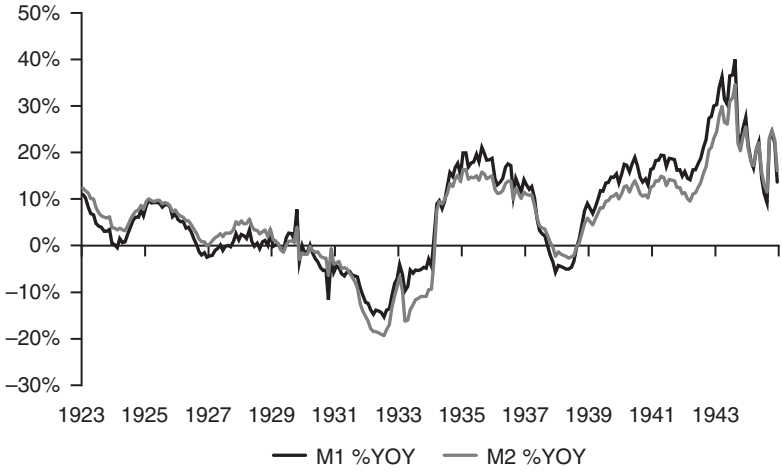
Although the monetary base is mentioned 11 times in the September 2016 Comprehensive Assessment, mainly in relation to

the formation of inflation expectations, M2 or money supply is not mentioned once in the entire document (Bank of Japan 2016). The only mention of money is "monetary expansion," but the authors are referring to the monetary base, which undoubtedly has been expanding, and not broad money, which has barely shifted from its previous trajectory.

A huge problem in this debate on the effectiveness of QE is the way that monetary policy is measured and assessed. In this article, I take the position—as I always have—that interest rates or long-term yields are not a good measure of the stance of monetary policy. Yet most of the academic literature on QE focuses on the interest-rate effects. However, in general, it is always better to assess monetary policy based on the rate of growth of a broad measure of money such as M2 or M3, sometimes including shadow banks, depending on the circumstances. By contrast, assessing monetary policy on the basis of the level of nominal (or even real) interest rates is highly problematic, as pointed out a century ago by Irving Fisher (1911). For example, high nominal rates can be either the consequence of a prolonged period of rapid growth in the quantity of money and, hence, the result of high inflation, or they could indicate the start of a period of monetary tightening. Conversely, low nominal rates can be either the consequence of a prolonged period of slow growth in the quantity of money and, hence, low inflation or even deflation (as in Japan over much of the past two decades), or they could indicate the start of a period of monetary ease.

Yet despite these drawbacks in the usefulness of interest rates as a measure of monetary policy, central banks and economists have mainly designed and assessed QE in terms of its interest-rate effects. The problem here is that central bank purchases of securities may initially lower longer-term interest rates (depending on the securities purchased), but if these purchases do not prompt a faster growth of the quantity of money, then low inflation or deflation may persist, leading to the apparent need to move to even lower or negative interest rates. It is therefore no coincidence that the two main areas experiencing subpar growth, near deflation, and negative interest rates—that is, Japan and the eurozone (plus the three euro-linked economies of Sweden, Denmark, and Switzerland)—are also the economies where the major central banks have implemented flawed versions of QE, relying mainly on the interest-rate effects of their asset purchases, not the quantitative effects.

FIGURE 5
U.S. Money Growth Rates, 1923–44



Source: Friedman and Schwartz (1963).

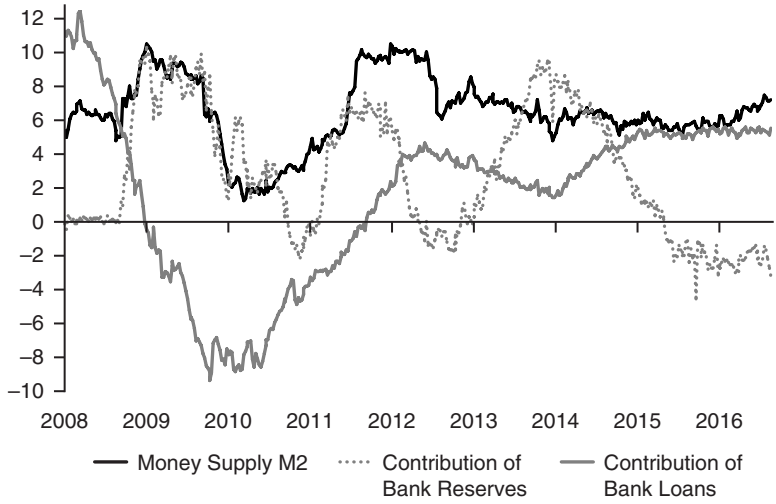
U.S. Experience with QE: 1929–33 and 2008–14

To establish the importance of the quantitative aspects of monetary policy, consider the experience of the United States in 1929–33. As shown in Figure 5, the rates of monetary growth (M1 and M2) slowed in 1929 and moved into negative territory on a year-on-year basis between November 1929 and January/February 1934. Cumulatively, the declines in the money stock amounted to 38 percent in the case of M2 and 32 percent in the case of M1. This was the basis for the Great Contraction, along with the runs on banks, in turn precipitated by concerns about their creditworthiness and the fragility of their loan portfolios (Friedman and Schwartz 1963). The runs on deposits across the country led to widespread conversions of deposits into currency, as reflected in the increases in the monetary base in 1931–32.[6]

For better or worse, the Federal Reserve did not counteract the downturn in money growth in 1931–33, either with security purchases or money creation, and thereby exacerbated the depth of the recession, the level of unemployment, and duration of the deflation.

[6]The monetary base consists of currency held by the public plus reserve deposits of banks including vault cash held by the banks. Base money did not increase due to purchases of assets by the Fed, but mostly due to conversions of deposits into currency by the public and due to decisions by the banks to hold more reserves.

FIGURE 6
U.S. Contributions to Growth of M2 (%yoy)

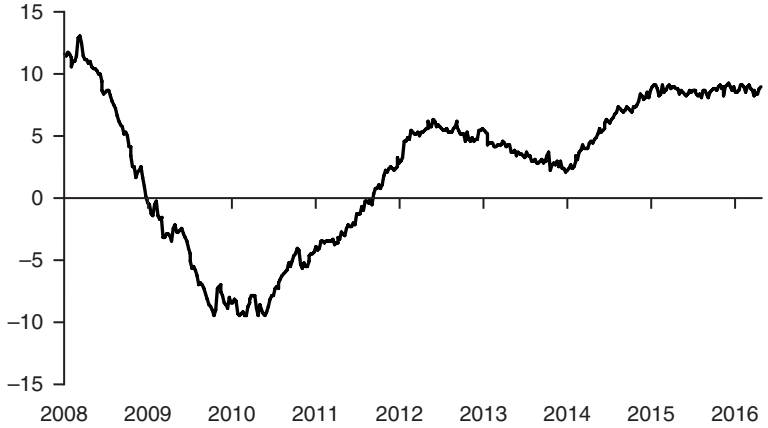


Source: Macrobond.

The key difference in 2008–11 compared with 1929–33 was that the Federal Reserve took countervailing action to buy securities from nonbanks and thereby create new deposits in the banking system. The result was that a monetary contraction was avoided. Growth in bank reserves took the place of loan growth (Figure 6), allowing loans to contract while money (or deposits) continued to grow. It is true that the Fed under Ben Bernanke's leadership placed major emphasis on the interest-rate effects of its operations (whereas the Bank of England [BOE] under Mervyn King placed more emphasis on changes in the stock of money), but nonetheless it can be argued that the success of the policy came from avoiding a monetary contraction, not from lowering interest rates.

Despite central bank rates being lowered to 0–0.25 percent in the United States (and 0.5 percent in the United Kingdom in late 2008), there was essentially no appetite in the United States to lend or to borrow even at these interest rates between November 2008 and the final quarter of 2011. This is clear from the collapse in U.S. commercial banks' loans shown in Figure 7, amounting to a cumulative decline of 14 percent in the outstanding stock of bank loans over the period. Without any offsetting action, there would have been a parallel collapse in deposits and, hence, in broad money. The United States would have been on the road to repeating the disaster of 1929–33.

FIGURE 7
U.S. Commercial Bank Loans and Leases, Adjusted (%yoy)



Source: Macrobond.

In quantitative terms, the fundamental problem faced by policymakers in 2008–09 was how to avoid repeating the 1931–33 experience in the United States. In this sense, the role of QE (meaning central bank asset purchases from nonbanks) was to create new deposits in the banking system, in effect taking the place of those that were being lost through loan and securities write-offs, repayments, and deleveraging. Whether the Fed's QE in 2008–14 lowered interest rates along the yield curve or not, it certainly maintained the supply of money at a higher level than it would have been if the Fed had repeated the inaction of 1929–33.

As shown in Figure 6, the annual percentage changes in M2 can be accounted for by the contributions of three items: bank credit, bank reserves, and all other items (net)—not shown. Even after 2011, bank credit continued to grow very slowly until the start of 2014. If the authorities had done nothing, we can reasonably suppose that deposits or money supply on the other side of banks' balance sheets would have also declined by roughly the same amount—reflecting households' and nonbank financial institutions' unwinding of leverage, repayment of loans, and repair of balance sheets. All this would have deepened the recession, raised unemployment further, and intensified the deflation. Instead, M2 growth

averaged 6.8 percent per annum between January 2009 and October 2013, helping to alleviate the contractionary pressures.

The role of QE1–QE3 in the United States was therefore to ensure that the money supply did not contract in line with bank credit—as it had done in 1929–33. In this respect, the policy was successful.

Fortuitously, as the tapering of QE purchases began in December 2013, the rate of growth of bank lending began to accelerate. Consequently, although the contribution of banks' reserves to M2 growth began to decline, by now bank credit was growing more vigorously, meaning that banks were once again creating credit independently of the Fed. In short, the Fed had successfully handed the money creation baton over to the commercial banks.

From the above sketches of Japanese and U.S. experience, we can derive two rules for central banks to follow when designing a QE program:

- First, the central bank should only buy securities from nonbanks. The reason is that the primary purpose of doing QE is—or should be—to expand the money supply. If the central bank buys securities from banks, there can be no assurance that the money supply will increase. Also, if banks create new credit, leverage in the private sector is not reduced, but will increase *pari passu* with the creation of new loans. However, if the central bank buys securities from nonbanks, this guarantees that new deposits will be created, expanding the money supply, without adding to leverage.
- Second, the central bank should buy only long-term securities. This is only partly to bring down yields at the longer end of the curve (flattening the yield curve). More importantly, it means the central bank's portfolio and the stock of new deposits or money in the banking system is not eroded by the maturing or running down of its holdings. As a result, the volume of deposits created or funds injected into the economy can remain stable for a long period of time.[7]

[7]As is well known, the Fed made the mistake of buying short-term securities (Treasury Bills) during QE2, and was therefore obliged to undertake a lengthy maturity extension program between September 2011 and December 2012 amounting to $667 billion. The scheme was popularly known as "Operation Twist" because the Fed was selling short-term securities while buying longer-term securities, "twisting" the yield curve. In the case of Japan, the BOJ has continued to buy short-term securities throughout QQE.

The next section will show that the Bank of Japan has repeatedly broken both these rules. By contrast, when the Bank of England announced its QE program in February 2009, it undertook explicitly to purchase gilts with longer-term maturities (10–15 years), which U.K. banks tend not to hold due to the high capital risk, precisely so that these purchases would be from nonbanks. "The aim of the policy was to inject money into the economy in order to boost nominal spending and thus help achieve the 2 percent inflation target" (Bank of England 2011: 201). By buying securities primarily from nonbanks, the Bank of England guaranteed the success of its program.

Two Brands of QE, and Japan's Choice

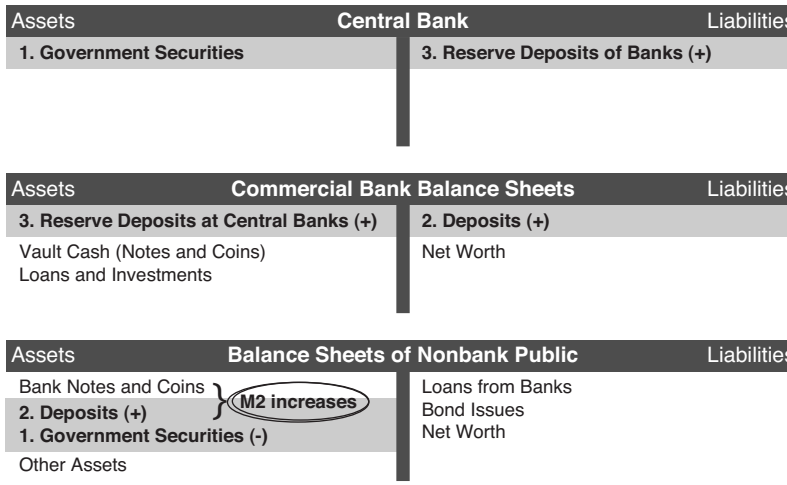
To explain the difference between the Fed or Bank of England operations on the one hand and the BOJ or ECB operations on the other, it is helpful to review the impact of their transactions on the balance sheets of the banks and the nonbank public. Figure 8 sets out a series of paired transactions (1–3), demonstrating the impact of Fed or BOE-style asset purchases:

1. The central bank purchases government securities from nonbank entities. Nonbank entities (e.g., insurance companies, pension funds, asset managers, or foreigners) sell government securities to the central bank.
2. The sellers receive new deposits from the central bank in settlement of their sale, which expands the money supply. The sellers deposit their newly acquired funds in commercial bank deposit accounts.
3. The banks deposit the payment drafts they receive from the sellers of government securities with the central bank. Banks' holdings of deposits or reserves at the central bank are increased by an amount that exactly matches the central bank's initial purchases.

Note that after these transactions, both sides of the central and commercial banks' balance sheets have expanded, with increases in assets matched by increases in liabilities. However, at this stage, the balance sheet of the nonbank public has not increased—it has simply become more liquid, as government securities are replaced with new deposits.

There are two key points about this series of transactions. First, money (M2, M3, or M4 depending on the local definition) in the

FIGURE 8
A Well-Designed Asset Purchase Plan
(Effective QE)



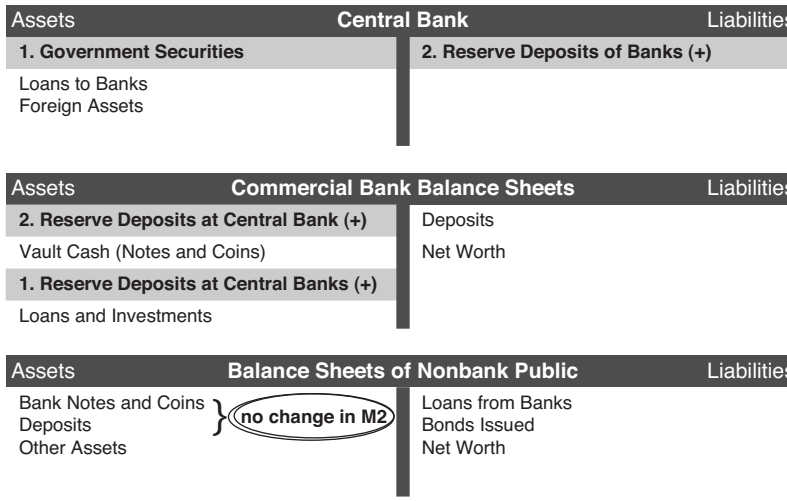
hands of firms and households has now increased, and, given that interest rates are at the zero bound, the holders will almost certainly wish to adjust their asset holdings by buying new investments, kick-starting the portfolio rebalancing effect, or shift their mix of consumption and savings. Second, since deposits have increased without an accompanying increase in bank lending, nonbank private-sector leverage will have declined.

Next, consider the effects of another type of central bank transaction such as those conducted by the BOJ—or the ECB under its QE program.[8] Figure 9 shows the corresponding series of paired transactions (1–2) in the T-form balance sheets:

1. The central bank buys securities from the commercial banks. Bank holdings of JGBs or *tegata* decline; BOJ holdings increase.
2. Commercial banks receive a credit from the BOJ for their sale of their JGBs or *tegata*; reserve deposits of banks at the BOJ increase.

[8]The ECB's LTRO and targeted-LTRO programs also involved transactions only with the banks, not with the nonbank public. The result was that banks accepted the ECB's new, cheaper funding, but did not increase total bank credit or deposits. Consequently, there was no impact on eurozone M3.

FIGURE 9
A Poorly Designed Asset Purchase Plan
(Ineffective QE)



Note that after these transactions, both sides of the central bank's balance sheet have expanded, with increases in BOJ assets matched by increases in liabilities. But commercial banks' balance sheets have not expanded; they have merely undertaken an asset swap, holding less JGBs or *tegata* but more deposits at the BOJ. In this version of QE, the balance sheets of the nonbanks are unaffected. The key point is that the money holdings (M2, M3, or M4) in the hands of the nonbank public have not increased.

Moreover, in this BOJ brand of QE, given the starting point of risk aversion by the banks and the reluctance to borrow by bank customers, there can be no assurance that the banks will expand their lending and therefore no assurance that deposits (or money) will expand either. Equally, portfolio rebalancing and new investment or consumption spending is unlikely to follow. Even if banks were to expand their lending, this would be accompanied by a parallel increase in leverage by firms or households—the opposite of the balance sheet repair process that policymakers should be seeking to achieve.

In short, only purchases of securities from nonbanks would be consistent with both balance sheet repair and enhanced liquidity (broad money) in the hands of firms and households.

A secondary problem—which continues to this day—is that the BOJ dilutes the effectiveness of its purchases by buying substantial amounts of short-term securities, also from the banks. Since these securities (MOF financing bills or promissory notes) mature within a few weeks or months, the BOJ needs to replace the maturing securities with further new purchases (which count toward its announced monthly totals) in order to maintain the size of its balance sheet or the monetary base. Inevitably, the maturing of these securities erodes the impact of the BOJ's overall asset purchase operations on M2.[9]

BOJ purchases under the QQE programme can be split into three elements: JGBs, T-Bills and other promissory notes such as commercial paper (or *tegata*), and other securities. The latter, which are collectively small, consist of corporate bonds, equity shares in the form of ETFs, and investment trusts in the form of J-REITs (Bank of Japan 2014).

Initially, from April 2013, the BOJ purchased assets to increase the monetary base at a rate of 60 trillion yen per year, but this pace was accelerated to 80 trillion yen per year from November 2014. The BOJ purchased JGBs initially at the rate of 50 trillion yen per year, but this was similarly accelerated to about 80 trillion yen per year from November 2014, while the pace of ETF and J-REIT purchases was also raised to 3 trillion yen and 90 billion yen, respectively. However, purchases of commercial paper and corporate bonds were not raised as it was decided to maintain the outstanding balances on the BOJ's balance sheet.

In sum, the Bank of Japan has repeatedly broken both the two rules set out earlier for the design of a successful QE program by (1) buying securities mainly from banks, and (2) buying significant quantities of short-term securities that require frequent replacement on the BOJ's balance sheet and therefore erode the effectiveness of its total purchases.

[9]For example, in the fiscal year ended March 2015, while purchases of JGBs amounted to 96.6 trillion yen and largely remained on the BOJ's balance sheet, purchases of short-term securities amounted to 101.8 trillion yen, but only showed up as an outstanding balance of 49.7 trillion yen due to persistent maturities and rollovers.

Conclusion

One way to contrast the two brands of QE is to consider the role of the monetary transmission mechanism in each version. On the one hand, the Fed and the BOE implicitly acknowledged that the traditional transmission mechanism for monetary policy was broken and therefore operated a brand of QE that circumvented the banking system by creating new deposits independently of the banks. By contrast, the BOJ is attempting to implement a monetary expansion through a banking system where the traditional transmission mechanism of monetary policy is not working. Normally, when banks lend to nonbank customers in the private sector, they expand deposits and, hence, the level of broad money in the economy, so that loans and deposits (or money) grow roughly in parallel. However, in the current circumstances of the Japanese economy, banks are reluctant to lend and firms and households are similarly reluctant to borrow from banks.

The result of this standoff is stagnation in the growth of broad money and a parallel weakness in the growth of nominal GDP. The deadlock could easily be broken if the BOJ were to (1) purchase most of its securities from nonbanks, and (2) ensure that its purchases consisted entirely of long-term securities. In so doing, it would directly create new deposits in the hands of nonbanks, thereby overcoming the banking system's reluctance to create new loans and deposits. Moreover, such a revision of QE design would be consistent with a measure of desirable deleveraging in the economy. As long as the nonbank private sector is not actively deleveraging (i.e., repaying loans, thus destroying deposits or money balances), broad money (or M2 plus CDs in Japan) would grow *pari passu* with the scale of the BOJ's purchases of securities.

Analysis by the BOJ (in May 2015 and in September 2016) nevertheless claimed that the program was working out largely as expected. However, the BOJ analysis focuses almost exclusively on the interest-rate effects of QE and the effect of QE on inflation expectations; it largely excludes any consideration of banks' balance sheets or the stock of money in the hands of households or nonbank companies.

It is no coincidence that in both Japan and the euroarea, economic growth is subpar, the economies are close to deflation, and both have

negative interest rates. The common source of these problems is the obsession with using interest rates as the primary tool of monetary policy, while failing to conduct QE in such a way as to create new deposit balances in the hands of firms and households, thereby overcoming the inherent reluctance of banks to lend and firms and consumers to borrow. In both regions, the monetary base is expanding, but without any significant effect on broad money.

As a consequence of the failure of Japan's QQE to gain traction, economic activity in Japan is likely to remain sluggish, while core CPI is unlikely to reach the 2 percent target and may even revert to deflation if energy prices do not rise significantly in the remainder of 2016 or in 2017.

Finally, this critique of QE policies currently implemented in Japan and the eurozone can be taken further. Some economists have claimed that even in the United States, new regulations "are constraining the supply of loans" (Calomiris 2016), but the truth is that U.S. bank loans and leases (in the H8 Release of the Federal Reserve Board) have increased at an average annual rate of 7.5 percent since mid-2014 when QE was terminated—surely an adequate growth rate for an economy with a potential real growth rate of just 2 percent per annum. In addition, a more recent fashion has been to assert that monetary policy is reaching some kind of limit in terms of what it can be expected to achieve. These commentators have therefore argued that governments and central banks should either engage in the provision of "helicopter money," or, alternatively, that since the limits of monetary policy have been reached, now is the time to engage in fiscal expansion. However, the frustration of economists and policymakers with monetary policy is not due to the failure of QE per se, but rather to the particular design of QE selected.

This article has shown that if QE is done correctly—following the brand implemented by the Fed or the Bank of England in 2008–14—then the nonbank private sector will be reliquefied in a manner that is consistent with balance sheet repair, the money supply will resume normal growth rates, and nominal GDP will recover. On the basis that QE in Japan has not been implemented in a way that would have been compatible with these objectives, there is no case for either "helicopter money" or further fiscal expansion. It would be better to redesign QE and implement it according to the U.S.–U.K. template.

References

Bank of England (2011) *Quarterly Bulletin* (2011 Q3).

Bank of Japan (2001) *Monetary Policy Statement* (March 19): www.boj.or.jp/en/announcements/release_2001/k010319a.htm.

_____ (2014) "Expansion of the Quantitative and Qualitative Monetary Easing." *Monetary Policy Statement* (October 31): www.boj.or.jp/en/announcements/release_2014/k141031a.pdf.

_____ (2015) "Quantitative and Qualitative Monetary Easing: Assessment of Its Effects in the Two Years since Its Introduction." *Bank of Japan Review* (May): www.boj.or.jp/en/research/wps_rev/rev_2015/data/rev15e03.pdf.

_____ (2016) "Comprehensive Assessment: Developments in Economic Activity and Prices as Well as Policy Effects since the Introduction of Quantitative and Qualitative Easing (QQE)." Press Release (September 21): www.boj.or.jp/en/announcements/release_2016/k160921b.pdf.

Calomiris, C. (2016) "The Microeconomic Perils of Monetary Policy Experiments." *Cato Journal* 37 (1): 1–15.

Fisher, I. (1911) *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest, and Crises*. New York: Macmillan.

Friedman, M., and Schwartz, A. (1963) *A Monetary History of the United States: 1867–1960.* Princeton: Princeton University Press for NBER.

Ito, T. (2006) "Japanese Monetary Policy: 1998–2005 and Beyond." In *Monetary Policy in Asia: Approaches and Implementation*, 105–32. BIS Paper No. 31. Basel: Bank for International Settlements.

Koo, R. (2003) *Balance Sheet Recession: Japan's Struggle with Uncharted Economics and Its Global Implications*. Singapore: John Wiley.

Wright, M. (2002) *Japan's Fiscal Crisis: the Ministry of Finance and the Politics of Public Spending 1975–2000*. New York: Oxford University Press.