Chapter 6
Fully Reserve-Backed Money: A Solution to Japan's Fiscal and Monetary Challenges

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Abstract Modern monetary systems rely on two money creation channels: the issuance of new banknotes by the central bank and increases in loans by commercial banks financed by cash deposits. The latter are possible, because bank deposits that are meant as means of exchange by their holders are subject to very low minimum reserve requirements. For a long time, renowned economists have proposed to protect cash deposits fully by 100% reserve requirements, because depriving banks from creating new money would stabilise the financial system. The chapter argues that, under the prevailing fiscal and monetary conditions, Japan would greatly benefit from shifting to a 100% reserve-backed money regime. Such a move would not only take advantage of the benefits propagated by the supporters of a reserve-backed regime. The implied Bank of Japan's (BoJ) balance sheet expansion would allow the Bank to purchase further Japanese Government Bonds (JGB). As the expansion would be permanent, the regime shift would not only stabilise the government's fiscal condition, the BoJ, too, would no longer have to worry about exiting from its policy of quantitative easing. Both the government and the central bank could focus on their primary policy goals. The shift to a 100% regime would also very likely reduce Japan's very high ratio of cash to GDP.

6.1 Background and Outline

Japan faces two big macro economic challenges: a huge government debt and a historically equally record high monetary base (OECD 2015, pp. 112–115).[1] Neither one nor the other has been imposed by external factors, but are instead the outcome of explicit policy choices. They are also partly related because the expansion of the monetary base under the quantitative and qualitative easing (QQE) starting in April 2013 was brought about by massive purchases of Japanese

[1]The monetary base comprises coins and banknotes in circulation plus current account balances at the Bank of Japan (www.boj.or.jp/en/statistics/outline/exp/exbase.htm).

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government bonds (JGBs) (Waldenberger 2014). The goal of QQE has been to escape from deflation and to reach 2% inflation. The inflation target has not been achieved to date. But QQE, nevertheless, had two positive side-effects. It supported the re-financing of government debt at a time when the amount of JGBs reaching maturity peaked, and it stabilised the financial system by reducing the exposure of private financial institutions to government debt (Waldenberger 2015).

However, QQE is basically designed to be only of a temporary nature. It does not finally answer, but only postpones, the fundamental questions pertaining to government debt and the future of monetary policy: When should the government consolidate its record high debt? Will it be able to do so? If not, what will be the consequences for the Japanese and the world economy? What will happen once the Bank of Japan (BoJ) achieves its inflation target? How can the BoJ exit from its policy of monetary easing? How will this affect the fiscal conditions of the government?

In the following, the shift to a fully reserve-backed money regime is proposed as a solution to both Japan's fiscal and monetary challenges. If implemented, the fundamental uncertainties surrounding both policy areas would be greatly reduced. The argument underlying the proposed solution makes use of two insights. One is the observation that, since the burst of the real estate and stock market bubble at the beginning of the 1990s, Japan's private corporate sector has been generating financial surpluses. Its internal cash flow exceeded its investment in non-financial assets by large amounts. As a result, demand for new credit has been very low, which means that commercial banks have had no outlet for the liquidity that they obtained from the BoJ, instead they invested in JGBs and deposited the money again with the BoJ.[2]

The second insight borrows from the discussions about fully reserve-backed money (Fisher 1936; Friedman 1960; Benes and Kumhof 2012; Jackson and Dyson 2012). In the present monetary regime, money as a means of payment is created by both central banks and commercial banks. This is possible because the money deposited with banks for the purpose of cashless transfers[3] does not have to be fully backed by central bank money. In fact, the minimum reserves for deposits that commercial banks have to maintain at the Bank of Japan are truly minimal in the range of 0.05–1.2%.[4] The portion of deposits not tied by reserve requirements can be used to finance loans or for the purchase of other asset. Proponents of a fully reserve-backed monetary regime, see money creation by commercial banks as one of the sources of the fragility and instability of modern economic systems (Benes and Kumhof 2012, pp. 4–5). They, instead, propose a 100% reserve requirement for

[2]Money that commercial banks deposit with the central bank will be referred to as "bank reserves" or just "reserves".

[3]Equivalent terms are "demand deposits", "transferable deposits", "cash deposits", "transaction deposits" or "current accounts".

[4]Ratios differ across types of institutions and types of deposits. For present requirements, see www.boj.or.jp/en/statistics/boj/other/reservereq/junbi.htm.

those deposits that are used for cashless transfers. The central bank would then be the only institution to create money.

The first insight tells us that Japan is de facto moving towards higher reserve ratios. For depository institutions, the ratio of BoJ reserves to transferable deposits was already at 47% at the end of June 2016 (see Fig. 6.10 and Table 6.3). This, however, represents no shift in regime. Commercial banks are not required to hold these reserves. They do so because they see no better investment opportunity. The second insight says that such a move might actually be beneficial and that even reserve ratios up to 100% might be desirable. However, they would then need to be obligatory and permanent.

The important aspect is that the expansion of the BoJ's balance sheet resulting from QQE would be permanent. Being permanent, the JGBs held by the BoJ would not have to be redeemed. The Bank would not have to worry about how to exit from QQE. QQE would, in the end, be the mechanism by which the transition to the new monetary regime is achieved. With a 100% reserve requirement, the BoJ could permanently accommodate more than half of the presently outstanding amount of JGBs (see Table 6.3). It would be a great leap towards consolidating Japan's government debt.

It will not be possible to elaborate in full detail on the optimal design of the proposed regime and the specifics of the transition process here. The main purpose of this chapter is to highlight the potential of a fully reserve-backed money regime as a solution for Japan's profound macro-economic challenges. Given the high uncertainties surrounding Japan's fiscal and monetary conditions, a regime shift is worth serious consideration and should be included in public policy discourses.

The next Sect., 6.2, will describe the fiscal and monetary policy challenges that Japan is facing. Next, the logic behind the 100% reserve-backed money regime will be elaborated. It will then be shown how a shift to such a regime, which is de facto already observable, could—if it were de jure made permanent—solve the fiscal and monetary challenge that Japan is facing. The last Sect., 6.4, considers the risks of such a move and also hints at some of the possible implications for the use of cash.

6.2 Japan's Fiscal and Monetary Policy Challenges

6.2.1 Government Debt

Japan's government sector, which comprises the central, prefectural and municipal, as well as the social security accounts, boasts a record high level of outstanding gross and net debt in comparison with other advanced economies. The gross debt to GDP ratio had reached 230% in 2015. Net debt was at 130% of GDP (Fig. 6.1).

Looking at this composition, we see that the increase in debt occurred at the central government level. The financial positions of local governments and of the social security system have remained relatively stable over the last two decades (Fig. 6.2).

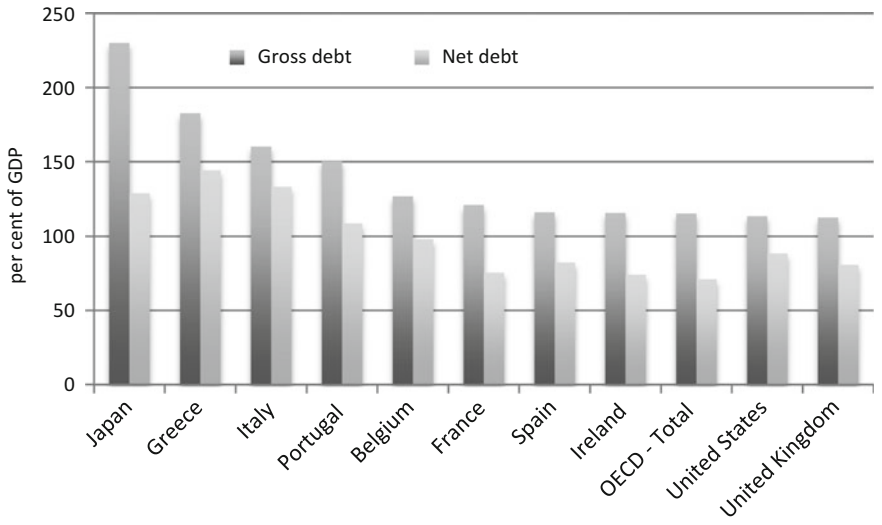

Fig. 6.1 Gross and net debt to GDP ratios of ten most indebted OECD governments, 2015. Source: OECD, Government at a Glance/Public finance and economics, stats.oecd.org

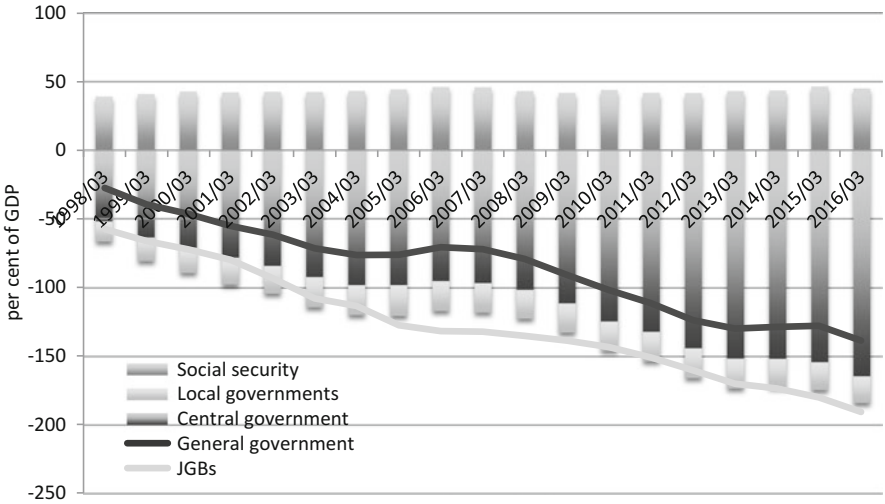

Fig. 6.2 Japan's government net financial position by sector and JGBs, FY 1997–2015. Source: Bank of Japan, Flow of Funds, www.stat-search.boj.or.jp; GDP data from Cabinet Office, Annual Report on National Accounts, www.esri.cao.go.jp

The outstanding amount of JGBs, on which most of the discussion of government debt focuses, surpasses the central government's level of net debt, though it does not reach the level of gross debt. The composition of the central government's outstanding gross debt is depicted in Table 6.1. "Normal", i.e., annual budget financing JGBs dominate. The Fiscal Investment and Loan Programme (FILP)

Table 6.1 Central government debt by financial instrument

Financing instrument	End of March 2013 trillion Yen (per cent)	End of March 2016 trillion Yen (per cent)
Government bonds	821 (83)	911 (87)
Normal bonds	705 (71)	805 (77)
Long term (>10 years)	463 (47)	575 (55)
Mid term (2–5 years)	196 (20)	194 (19)
Short term (<1 year)	47 (5)	36 (3)
FILP bonds	109 (11)	96 (9)
Other bonds	7 (1)	9 (1)
Loans	55 (6)	55 (5)
Treasury bills	115 (12)	84 (8)
Gross debt total	992 (100)	1049 (100)
Financial assets	220 (22)	234 (21)
Net debt	772 (78)	815 (79)

Ministry of Finance, Japanese Government Bonds/Data/Central Government Debt "Outstanding Bonds and Borrowings", www.mof.go.jp; financial assets are taken from Bank of Japan, Flow of Funds, www.stat-search.boj.or; net debt equals gross debt minus financial assets

and other bonds finance investments. They are expected to be redeemed by the returns generated by the respective investment projects. Only if such investments fail, will taxpayer money be needed. Over the last 3 years, the weight of long-term bonds has increased, extending the average maturity of the outstanding debt.

The build up of debt occurred over the last 25 years when expenditures rose steadily, while revenues remained flat (Fig. 6.3). The level of expenditure jumped twice, first in 1998 in response to Japan's banking crisis, then again in 2009 during the global financial crisis. However, the increase over time was mainly driven by outlays for social security necessitated by the fast ageing of Japan's population.

Overall, the government expenditure to GDP ratio is now in line with other OECD countries, whereas the revenue to GDP ratio remains still three percentage points below the OECD average (Fig. 6.4).

Japan's public debt is financed domestically, mainly through financial intermediaries (Fig. 6.5). However, massive purchases of JGBs by the BoJ under QQE propelled the Bank's share to 35% by the end of June 2016. However, the share of overseas investor's remained stable and well below 10%.

Net surpluses by households and non-financial corporations have, in sum, continuously surpassed the funding needs of the government sector. They have also been large enough to finance the further accumulation of net foreign assets, as indicated by the persistent net deficit position of the overseas sector (Fig. 6.6). Japan continues to be the world's largest supplier of capital.[5] Surprisingly, domestic financial surpluses have increasingly been generated by the corporate sector, while the household sector's contribution has declined, thereby reflecting the increasing share of older households, who are consuming formerly accumulated savings. The

[5]IMF, Balance of Payments and International Investment Position Statistics, (data.imf.org).

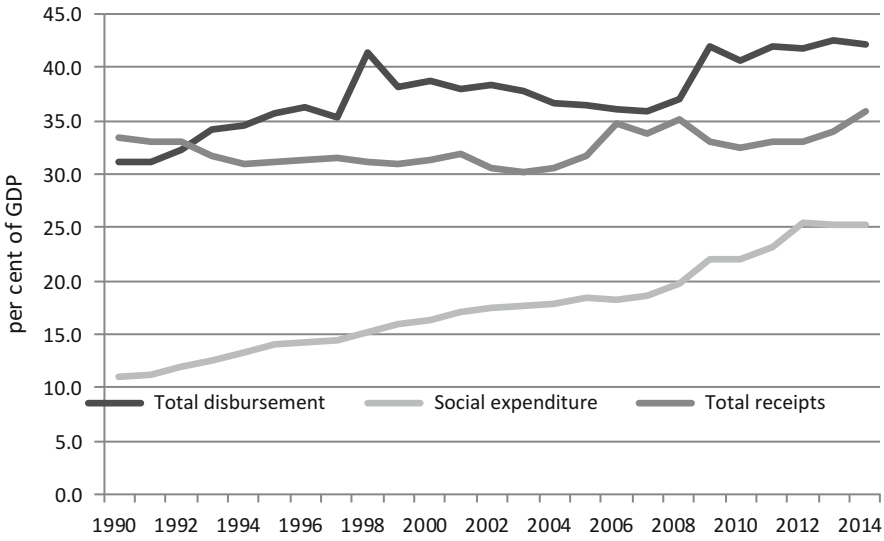

Fig. 6.3 Japan's government expenditure and receipts, FY 1990–2014. Source: OECD, Government at a Glance/Public finance and economics, stats.oecd.org

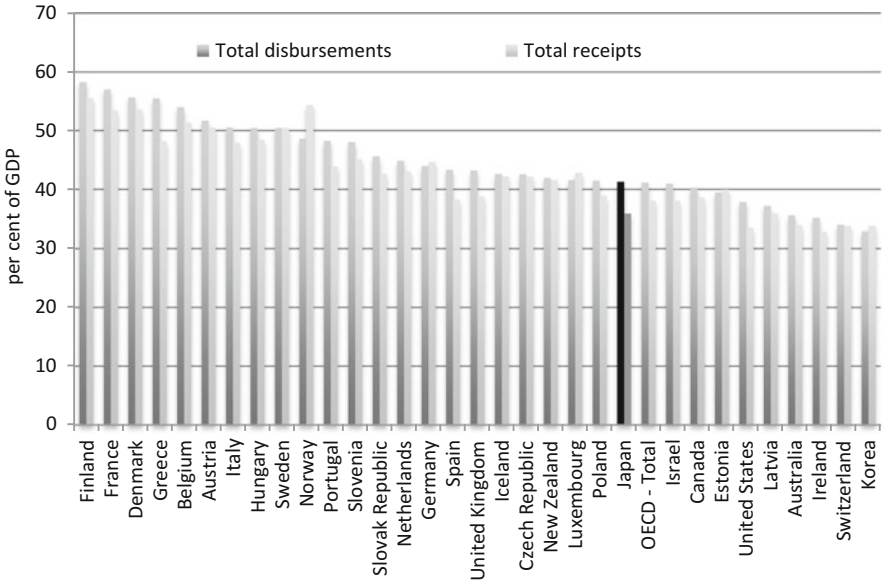

Fig. 6.4 OECD government expenditures and receipts, 2015. Source: OECD, Government at a Glance/Public finance and economics, stats.oecd.org

private corporate sector turned into a net supplier of funds after the burst of the asset price bubble in 1990/1991. The sharp decline in stock and real estate prices increased the sector's debt exposure. To improve their balance sheets, companies started to reduce their leverage. However, one sector in the economy can only

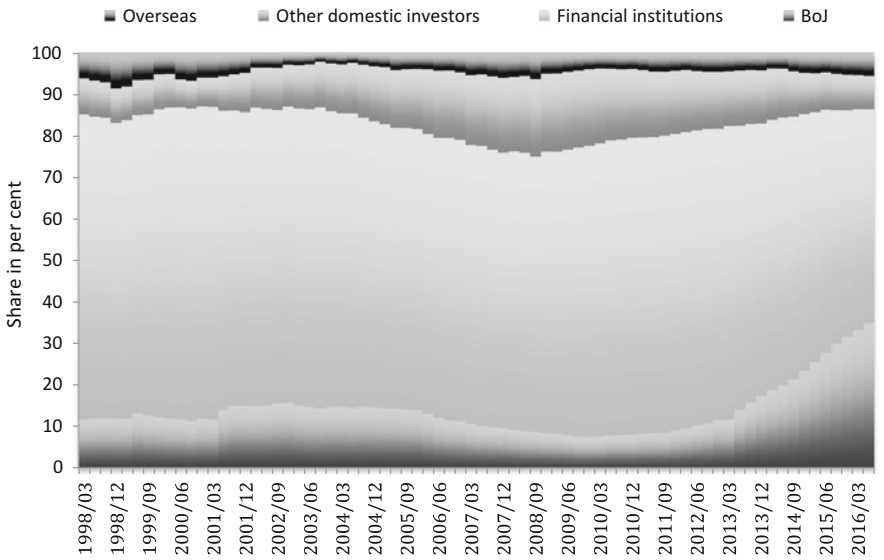

Fig. 6.5 Ownership structure of JGBs, March 1998–June 2016. Source: Bank of Japan, Flow of Funds, www.stat-search.boj.or.jp

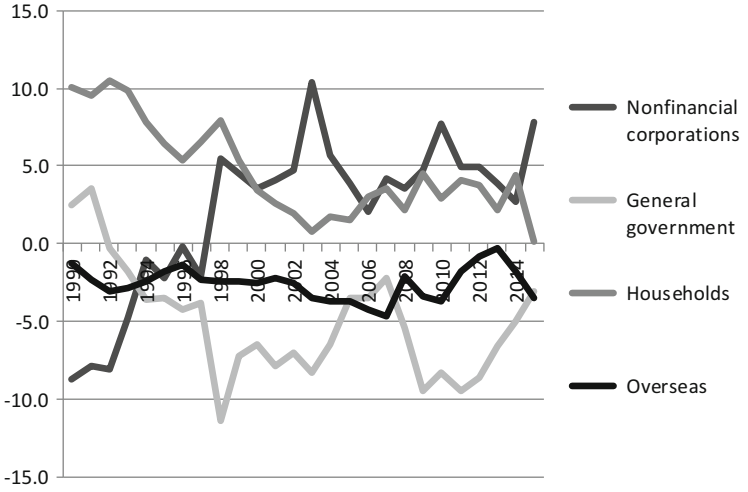

Fig. 6.6 Financial surpluses and deficits of main sectors in per cent of GDP, 1990–2015. Source: Bank of Japan, Fow of Funds, www.stat-search.boj.or.jp

improve its financial position if other sectors are willing to move in the opposite direction, because, in sum, the financial surpluses and deficits across all sectors—corporation, households, government and the outside world—will cancel each other out. It was mainly by the government sector's willingness to take on debt that the private corporate sector was able to de-leverage (Koo 2003). However, the private

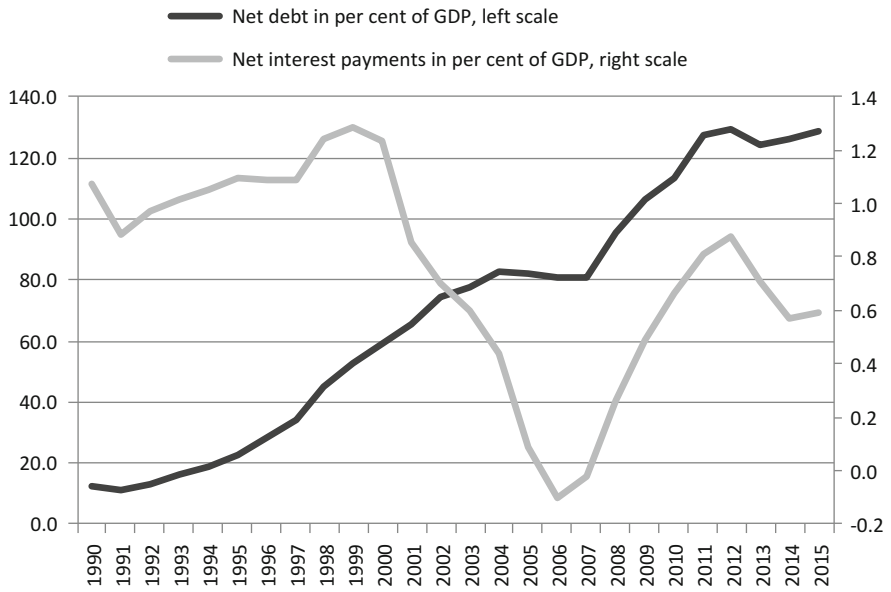

Fig. 6.7 Net debt and net interest payments, 1990–2015. Source: OECD, Government at a Glance/Public finance and economics, stats.oecd.org

corporate sector continued to generate saving surpluses even after balance sheets had been restored. Given the low growth prospects in a domestic market confronting a strong predictable decline in population, companies are understandably reluctant to expand production capacities at home.

The surplus situation depicted in Fig. 6.6 implies that deficit financing by the Japanese government did not crowd out private investment. The weak domestic investment demand combined with an increasingly expansionary monetary policy brought nominal interest rates to historically low levels. The government benefited from the extreme low interest rate environment. Although net government debt strongly increased, net interest payments, until 2006, declined rapidly, then increased in line with net outstanding debt, only to become decoupled again when QQE set in (Fig. 6.7).

All this gives the impression that we are in the best of all possible worlds. However, Japan's historically high level of outstanding debt raises serious concerns about whether or not it will be sustainable. But before turning to the issue of sustainability, it is first necessary to review Japan's monetary policy.

6.2.2 Quantitative and Qualitative Easing

After the burst of the bubble economy, the task of monetary policy was to relieve the private sector from the liquidity constraints caused by the sharp fall in asset prices, to stabilise the financial system, especially the banking sector, and to fight

deflation. The measures used to achieve the economic objectives changed from the lowering of policy discount and lending rates, control of overnight call-rates for uncollateralised inter-banking loans, maximum limits for bank reserves, expansion of the monetary base, and, most recently, negative interest rates on bank reserves. Each shift in instruments or operational targets prompted policy-makers and commentators to attach a new name to the policy to characterise and market the new approach. Accordingly, the simple traditional classification as "expansionary policy" gave way to "zero-interest-rate policy" (ZIRP), "quantitative easing" (QE), "quantitative and qualitative easing" (QQE), and, most recently, "negative-interest-rate policy" (NIRP). In the end, policies relied mostly on open market purchases of assets by the BoJ—mainly, but not exclusively, Japanese government bonds (JGBs)—resulting in a steady expansion of the Bank's balance sheet, the monetary base and the Bank's holdings of JGBs and other assets (Fig. 6.8). By the end of FY 2015, i.e., end of March 2016, the monetary base had reached 72% of GDP. The BoJ held 33% of outstanding JGBs.

The final target of 2% inflation formulated under QQE has not been achieved to date (Fig. 6.9). Interest rates on newly contracted loans steadily declined. However, lending by financial institutions to private non-financial corporations picked up, albeit only slightly and briefly. Looking at the financial transactions balance over the 3-year period, we can see that the additional lending that corporations received from private financial institutions between April 2013 and March 2016 was, in sum, even less than the additional loans made by non-financial corporations (Table 6.2). This well reflects the surplus condition of the corporate sector referred to above.

As a result, transferable deposits grew at a much lower pace than bank reserves, implying a steep increase in the de facto reserve ratio from 11 to 47% (Fig. 6.10).

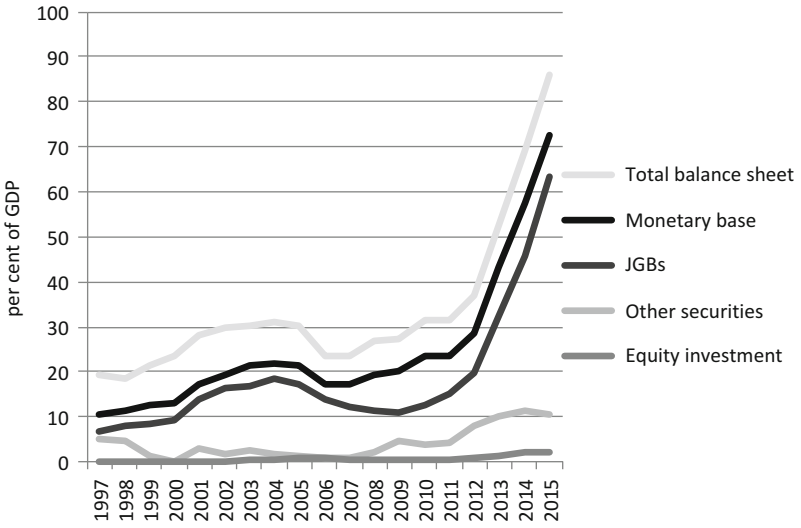

Fig. 6.8 Expansion of BoJ assets and monetary base, FY 1997–2015. Source: Bank of Japan, Bank of Japan Statistics, www.stat-search.boj.or.jp

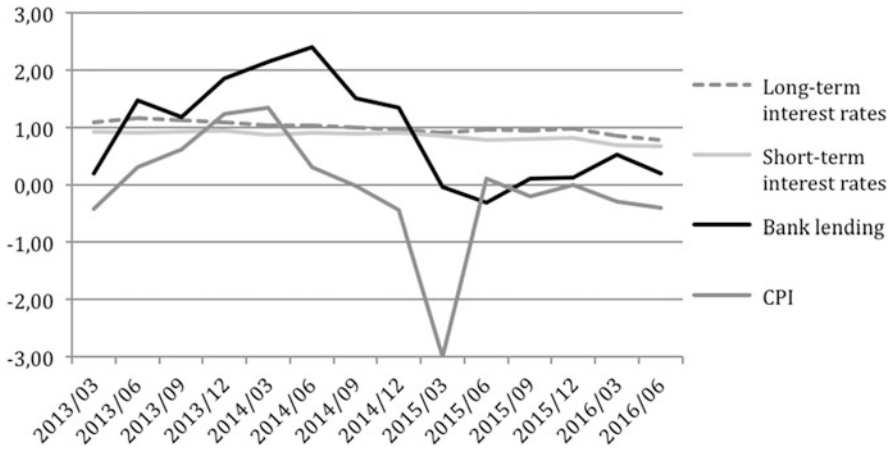

Fig. 6.9 Inflation, interest rates and growth in bank lending, 03/2013–06/2016. Source: Bank of Japan, Deposits and Loan Markets, www.stat-search.boj.or.jp; Statistics Bureau, www.stat.go.jp/english/data/cpi/index.htm. CPI and bank lending depict annual changes. CPI data from 2014/06 to 2015/03 are divided by (1.08/1.05) to account for VAT increase from 5 to 8% in April 2014

Table 6.2 Financial transactions of non-financial private corporations, FY 2013–2016

Additional financial investments		Additional funding	
Assets	trill. Yen	Source	trill. Yen
Currency and deposits	34.7	Loans by private financial inst.	10.4
Loans	10.7	Other loans	4.7
Debt securities	−0.7	Debt securities	−7.2
Equity	9.7	Pensions, guarantees	−6.1
Foreign direct investment	34.4	Equity	11.4
Other overseas investment	16.1	Other funding	29.0
Other financial investments	3.9	Total external funding	42.2
Total	108.8	Financial surplus	66.6

Source: Bank of Japan, Fow of Funds, www.stat-search.boj.or.jp

Although monetary expansion has continued for more than 20 years, the measures undertaken by the Bank of Japan are, in principle, temporary. They are supposed to be stopped—and even reversed—once the inflation goal has been reached. The vital questions that will have to be addressed then are: How can an exit from the present pace and level of monetary easing be accomplished? What effects will an exit or the continuation of monetary easing have on the economy? How will policy choices impact upon the sustainability of Japan's government debt?

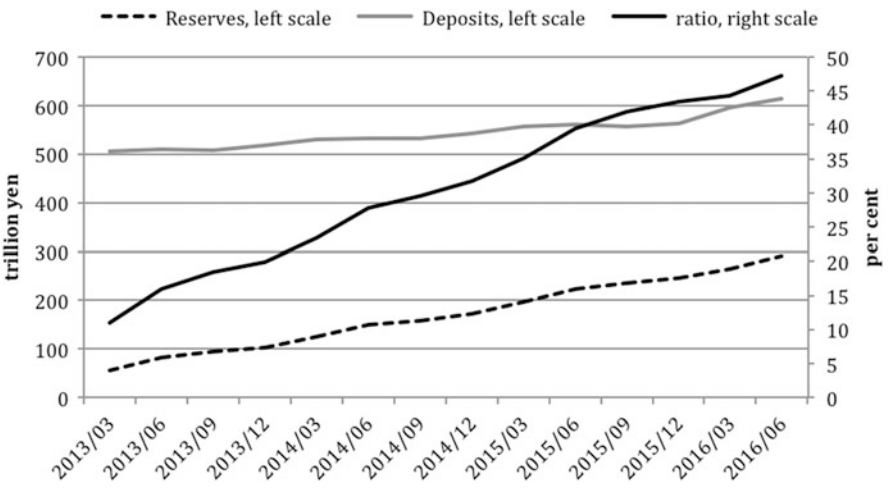

Fig. 6.10 Commercial bank reserves and demand deposits, FY 2013–2016. Data for reserves and transferable deposits refer to depository corporations. Ratio = 100 × deposits/reserves. Source: Bank of Japan, Flow of Funds, www.stat-search.boj.or.jp; own calculations

6.2.3 Fundamental Uncertainties Surrounding Fiscal and Monetary Policy

The sustainability of government debt depends on whether future financing needs can be funded. Annual financing needs are the sum of the primary balance,[6] interest-rate payments and the amount of outstanding debt reaching maturity and having to be repaid. The availability and the cost of funds are determined by the surplus conditions of the other sectors of the economy including the rest of the world, the level of trust investors have in the sustainability of public debt, and the monetary policy stance. It is not possible, and, for the argument put forward here, also not necessary to explore these demand and supply conditions fully. The following analysis mainly aims to highlight the uncertainties surrounding the various factors.

Future primary balances depend on the consolidation efforts of future governments, i.e., the willingness to cut expenditure and/or to raise taxes. Although the intermediate target formulated by the government in 2010 to halve the primary balance deficit by 2015 was achieved, the final goal of a primary balance surplus by and beyond the year 2020 is very likely to be missed even under relatively favourable macro-economic conditions (OECD 2015, pp. 108–112). Given Japan's demographic challenges and the persistent reluctance of past and present governments to raise taxes, the chances for a smooth and timely consolidation seem very

[6]The primary balance describes the difference between revenues and expenditures net of debt services.

unlikely. Reforms in the budget planning and monitoring process, as, for example, proposed by a recent IMF working paper, will be necessary to ensure political commitment to debt consolidation (Kopits 2016).

Interest-rate payments and re-financing needs are influenced by the maturity of outstanding debt. The increased issuance of JGBs with up to 40 years maturity allows the Japanese government to take advantage of the extremely low interest rate environment for many years to come, to delay the impact of future interest rate increases, and to move re-financing needs further into the future. These measures alone, however, will only buy time and not resolve the fundamental task of having to repay debt at some time in the future. A more radical approach would be the issuance of perpetual bonds with no maturity date, as suggested by some experts (Buckland and Nozawa 2016; Pesek 2016). Given the present monetary policy stance, the placement of such bonds might be feasible. They could be issued at a higher interest rate or with flexible interest rates to mitigate the interest rate risk borne by investors. However, the issuance volume will have to be very substantial if perpetual bonds are to reduce future re-financing needs significantly.

Future financial surplus conditions constitute a fundamental uncertainty on the supply side. The fact that governments around the world have recently been able to issue new sovereign bonds at historically low interest rates indicates that private savings have been surpassing private investments. Put in technical terms, the interest rate that would have been required to balance private savings and private investments in the absence of public deficits would have been negative. Given these conditions, government deficit spending did not crowd out private investors. Instead, it contributed to the stabilisation of aggregate demand. The important question is whether these conditions represent a transitory state or a "new normal". Leading economists are deeply divided on this question (Blanchard and Portillo 2016). While some argue that private investment demand will pick up and the world economy will return to the "old normal" of positive interest rates and moderate inflation (Rogoff 2016a), others see private savings in excess of private investments as a long-term phenomenon (Weizsäcker 2011; Summers 2016).

The answer as to whether we do or do not confront a "new normal" is of fundamental importance for the assessment of public debt positions not only in Japan. If the oversupply of private savings is only transitory, governments need to be strongly concerned about consolidating their debt positions. If the situation, however, continues for a longer period, consolidation should not be pursued. It would, in fact, be highly detrimental, as it would reduce aggregate demand.

Even if funds are available, investors will refuse to lend or require higher interest rates if they perceive a high risk of default. JGBs have been downgraded by international rating agencies and now range in the upper medium grade.[7] This, however, has not yet had an impact on the trust of domestic investors in Japan. They still consider JGBs as a safe asset. JGBs are still trading at historically low yield rates and the

[7]For an up-to-date comparison of four major ratings, see http://www.tradingeconomics.com/country-list/rating.

Japanese government continues to be able to place new bonds at equally low rates. The situation may nevertheless drastically change if domestic investors lose trust or if the government has to rely on foreign funds. The conditions for the first scenario can theoretically be formulated, but we do not know when or how they will be triggered (Yoshino and Vollmer 2014). Reliance on foreign investors will set in when Japan's current account turns negative. Again, it is not clear when this is to be expected or how quickly this would translate into higher funding costs.

The level of trust also depends on whether investors believe in the "new normal" interpretation of the global economic environment and on how they assess the future stance of monetary policy. Japan's expansionary monetary policy has helped the Japanese government to satisfy its financing needs at extremely low cost over the last 3 years, though, officially, this is only a side-effect. The legally-defined policy goals stipulated by the Bank of Japan Act of 1997 are price stability (Article 2), stability of the financial system (Article 1), and compatibility with the overall economic policy of the government (Article 4). Under the deflationary economic environment that has persisted over the last two decades, the measures taken by the BoJ have contributed simultaneously to all three goals (Waldenberger 2015). In the future, conflicts may well arise. For example, once the 2% inflation target is reached, it might be necessary to exit from the expansionary policy in order to preserve price stability. Such a policy shift implies the selling of JGBs by the BoJ. It will severely impact on Japan's fiscal situation, if no other sector is able or willing to buy. If the Bank refrains from selling bonds in order to support the government's fiscal condition, it will have to sacrifice price stability. Clearly, this dilemma only occurs if inflation actually picks up. Whether and, if so, when this will happen remains unclear.

Based upon the rudimentary analysis presented above, the major risks can be summarised with reference to the following scenarios:

- Under the most favourable scenario characterised by a "new normal" macro-setting and no inflationary pressures, no fiscal consolidation and no reversal in monetary policy is required. In fact, any reversal in fiscal and/or monetary policy would harm the economy. Fiscal consolidation would reduce aggregate demand, while monetary tightening would endanger fiscal stability with indirect negative effects on aggregate demand.
- If the financial surplus condition in the private sector disappears, as predicted by the proponents of the "old normal", interest rates will rise and inflationary pressures are likely to build up. In this case, fiscal consolidation and an exit from monetary easing will be required to avoid sovereign default and to contain inflation.
- Given the fundamental uncertainty with regard to the macro-setting, investor trust might vanish even if the favourable conditions of a "new normal" do, in fact, prevail. In this case, there is a high probability of the government neither being able to service its outstanding debt nor to raise new debt. The options then are to default, to increase taxes sharply or to cut expenditure or to put pressure on the BoJ to provide the funds needed.

From a policy perspective, the risks created by the fundamental uncertainties about the macro-setting, investor sentiments and political constraints are that:

- Policy-makers might not be able or willing to take preventive measures, i.e., fiscal consolidation or monetary tightening, when needed;
- They might mistakenly consolidate and/or reverse monetary policy when it is not needed;
- They may confront a severe trade-off between sovereign default and price stability.

The root of the problem is that the outstanding government debt and the monetary base are at extremely high levels. Their potentials as fiscal and monetary policy instruments have already been exhausted, implying that their levels are no longer affordable if the economy returns to the "old normal" and/or investors lose confidence. The proposed new monetary regime of fully reserve-backed money will—independent of the prevailing macro setting—enable the economic system to accommodate a monetary base higher than the one already realised thereby allowing the BoJ to absorb government debt permanently even in excess of what it has already purchased. In the new regime, the present level of outstanding government debt will not make consolidation a pressing issue, and the government can instead focus on other social and economic challenges. The BoJ, too, will not face the dilemma of choosing between fiscal stability and price stability. It can concentrate on the latter.

6.3 Fully Reserve-Backed Money

6.3.1 Basic Outline

The proposal of a 100% or fully reserve-backed money (FRBM) has a long history (Benes and Kumhof 2012; Phillips 2015). It has been formulated and supported by leading economic thinkers, including a group of economics professors from the University of Chicago, who proposed what became known as the "Chicago Plan for Banking Reform", by Irwin Fisher (1936) and later Milton Friedman (Friedman 1960). The ideas tend to gain momentum and attention after the burst of bubbles, as was the case in the 1930s and again after the recent world financial crisis in 2008. This is not surprising given that the main concern of FRBM is the stabilisation of the financial system. The huge build-up and subsequent implosion of credit and debt during the boom and bust of asset bubbles is seen to be largely the result of the banking sector's ability to create liquidity beyond what is needed for the accumulation of productive assets (Minsky 1992).

Banks create money by using demand deposits to finance new loans. This is possible for two reasons. First, although demand deposits give the holder the right to withdraw all the money deposited at any time, the proportion of cash needed is, under

normal conditions, only a fraction of the amount deposited. Most of the money held in demand deposits is used for cashless transfers and thus stays within the system. Second, banks are only required to keep a marginal portion of the deposits as reserves with the central bank. The cash holding habits and the minimum reserve requirement ratios define the "money multiplier", the potential multiple of credit money that banks are able to create from one unit of central bank money (Samuelson and Nordhaus 1998, pp. 475–482). Proponents of FRBM emphasise that the textbook causality running from additionally provided central bank money to credit money is, in practice, reversed (McLeay et al. 2014). Banks can lend and create the respective demand deposits for the lender first, with the central bank afterwards providing the fractional reserves needed to back the deposits.

FRBM envisages a strict separation between: (a) money deposited in transactional, demand or current accounts used for cashless payments or immediate cash withdrawals; and (b) money paid into savings, time or investment accounts,[8] where the depositor agrees not to withdraw the money for a contractually specified period of time. Demand deposits do not earn interest and are perfectly secure as they are fully backed by central bank money. Savings, time or investment accounts bear an interest rate that also reflects the risk of the investment that they finance. Under the new system, banks are merely administrating the demand accounts.[9] They can no longer dispose of these accounts for the financing of loans, and the costs for their administrative services will have to be covered by fees (Jackson and Dyson 2012).[10] The financing of bank loans and other bank assets can only be done through risk bearing deposits or other funding instruments such a bonds or equity.

The proponents of FRBM argue that the separation of payment settlement and credit functions will smoothen credit and debt cycles and reduce the likelihood of asset bubbles. The financial system will be stabilised also for other reasons. Bank runs will no longer occur as the full amount of money is always in the account and not lent out, as in the present system. For the same reason, insurance for demand deposits is no longer needed. Banks that badly select and monitor lenders or otherwise take on too much risk can fail without endangering the payment settlement system. Public bailouts of banks are thus no longer necessary. All the distortions associated with deposit insurance and the public bailouts of banks can, therefore, be avoided.

The risk associated with savings deposits and other bank liabilities reflects the risk of the investments financed by these sources. Such risk can be dealt with by using the standard methods, such as credit ratings and monitoring of borrowers, the diversification of bank assets, bank equity, and, last, but not least, bankruptcy regulations.

[8]The terms are used interchangeably.

[9]It is not necessary for the accounts to be directly administered by the central bank as proposed by Huber and Robertson (2000, pp. 24–25).

[10]Friedman (1960) actually argues in favour of interest rates on bank reserves. If such rates are high enough and if competition among banks functions demand deposits will be free of charge and even earn some interest.

6.3.2 Critical Issues

The main institutional provisions of FRBM are the 100% reserve requirements for demand deposits. They imply the separation of payment settlements from lending functions within the system, and make the central bank the sole provider of liquidity in the form of money. Clearly, many details need to be decided when implementing these provisions, and many different regulatory designs can be thought of and have been proposed, also reflecting the advancement of electronic means of payments over time (Friedman 1960; Huber and Robertson 2000; Benes and Kumhof 2012; Jackson and Dyson 2012). For the purpose of the present argument, however, it suffices briefly to discuss the following three major critical aspects:

(a) The relationship between fiscal and monetary policy;
(b) Money and credit supply;
(c) The suppression of "near money" or *quasi*-money as means of payment.

Ad (a) The transition to FRBM requires the expansion of the central bank's balance sheet. This implies the acquisition of assets. Theoretically, different kinds of assets might be thought of. For example, the central bank might give out loans to commercial banks to finance the additional reserves that they need for the 100% backup of demand deposits (Fisher 1936, p. 19, Friedman 1960, p. 86). In practice, one will want to minimise the economic frictions and distortions caused by the transition. The Chicago Plan, Fisher (1936) and also the present chapter all argue in favour of government bonds because of the massive amount of outstanding public debt. Nevertheless, the focus on JGBs raises fundamental questions as to the future relationship between government debt and money supply. In principle, the transition to FRBM is a "once and for all" measure. It does not pre-condition the future relationship between monetary and fiscal policy. All proponents of FRBM stress that money supply can and should be decided independent of fiscal policy. The BoJ can adjust the asset side of its balance sheet by buying or selling JGBs and other assets that it deems suited. For the same reason, the government can decide to reduce or increase its outstanding debt independent of money supply conditions. The mutual independence of fiscal and monetary policy must be ensured by the respective governance structures and policy processes. The shift to FRBM could, in fact, provide a window of opportunity to improve Japan's budgetary process with regard to transparency and fiscal discipline, as, for example, proposed by Kopits (2016), and to safeguard the independence of the BoJ better against political pressures, as seen under the second Abe administration (Waldenberger 2015).

Ad (b) In the present system, banks can give out new credit by creating new demand deposits for lenders (Jackson and Dyson 2012). This is, of course, at the very root of the fragility of the financial system that the proponents of FRBM both criticise and aim to eliminate. On the other hand, the strict separation of money and

credit supply, and the transfer of the money-supply function to a sole public authority might not allow for the flexible creation of liquidity as needed.[11]

Under FRBM, the central bank is able to adjust the amount of money in the same way as under the present system. It can use the same transmission channels, which means that it can delegate the allocation of additional money to financial intermediaries.[12] The only, albeit fundamental, difference under FRBM is that its decisions now fully determine the variations in the total amount of money, as commercial banks would be deprived of the ability to create demand deposits. For Friedman and others, who consider the stock of money to be the most appropriate monetary policy variable, and argue for simple money growth rules, this would enable a better, i.e., a more stable and predictable, money supply than the present system (Friedman 1960, Chap. 4).

FRBM allows for the financing of additional credit out of the existing stock of money, but also through the central bank providing new money to financial intermediaries, as under the present monetary regime. The financing of credit out of the existing stock of money requires an entity A to be willing to transfer some of its cash or demand deposits to its savings account from which the money will then be transferred to entity B.[13] Clearly, lending does not only occur through bank accounts. For example, A can directly conclude a loan contract with B and simply provide the money in cash. Also, if A delivers a good or service to B, agreeing to be paid later, it provides credit without having transferred cash or demand deposits to its savings account. However, in all these cases, the total amount of money, i.e., the sum of cash and demand deposits, remains constant. The typical mechanism regulating the supply of money to satisfy new credit demand without increasing the stock of money would be the variation in the rate of interest. Higher rates paid on savings deposits increase the opportunity cost of holding cash and demand deposits, thus increasing the willingness to shift money to savings accounts, thereby allowing for the re-allocation of purchasing power both among economic entities and across time. The early proponents foresaw no specific difficulties in accommodating credit demand under FRBM. They even envisaged a more efficient lending system, since banks and other lending institutions could be freed from regulations necessitated by the fact that, under a fractional reserve system, credit defaults can

[11]It is interesting to note that economists of the University of Chicago that proposed the "Chicago Plan" in 1933 advocating a state monopoly otherwise strongly believed in the efficiency of markets (Phillips 2015, pos 1066-1068).

[12]Some proponents of FRBM suggest money supply to become a new source of government revenue (Huber and Robertson 2000, pp. 8–9; Jackson and Dyson 2012, Chap. 7). However, at the same time, they stress that monetary policy must be free from government intervention. It is questionable whether independence can be achieved with a fiscal transmission channel (Friedman 1960, p. 106).

[13]Of course, A and B could be identical. For example, if a firm directly purchases capital goods out of its cash or demand deposits. In that case, no additional credit or debt relation would be established.

cause bank runs and endanger the functioning of the payment settlement system (Fisher 1936, p. 15; Friedman 1960, p. 80).

Ad (c) FRBM requires that cash and demand deposits be the only means of payment. Economic agents might accept other relatively safe assets with a high liquidity as means of payment especially if they can earn interest on them. Quite drastic measure have been proposed to suppress near-money assets from being used as means of payment, such as the full replacement of banks by investment trusts or the implementation of a financial system without private non-equity liabilities (Benes and Kumhof 2012, pp. 18–19). Friedman's idea of paying a (to be defined) risk free interest-rate on bank reserves offers a far more elegant and less radical solution (Friedman 1960, pp. 86–91). He argues that competition among banks will pass the interest earned on reserves to the holders of demand deposits thereby reducing the social cost of holding money and reducing the attractiveness of interest earning near-money as means of payment. Interest payments on bank reserves would also allow the seigniorage earned in the process of creating money to be distributed to money holders.

6.3.3 A "Chicago Plan" for Japan

The primary concern of the present chapter is Japan's fiscal and monetary policy challenges. FRBM provides a possible solution to these challenges. The transition from the present to the new monetary system implies the persistent expansion of central bank money, because commercial bank reserves held at the central bank need to match fully the amount of money in demand deposits. It is this "side-effect" of FRBM that makes it attractive for Japan and, possibly, other countries facing similar policy deadlocks. In fact, Irwin Fisher stressed the same positive side-effect when arguing for FRBM back in the mid-1930s, as already evidenced by the title of his publication "100% Money and the Public Debt" (Fisher 1936). He saw a window of opportunity for the introduction of FRBM and the consolidation of government debt:

> One way would be to provide the banks with the needed 100% reserve, not by lending it to them as suggested by Professor Angell, but by buying back the Government bonds they hold in exchange for the new reserve money. [...] In that way most of the Government debt could be paid almost over night. This would be one of the main immediate advantages of the 100% system. (Fisher 1936, p. 19).

> There are several reasons today beckoning us toward the 100% plan. One is the huge excess reserves. Unless these are absorbed by raising the reserve requirements, they will continue to threaten us with an inflation ten times their size. These reserves were created in a vain attempt by the Federal Reserve to increase business loans. [. . .] Another important fact is the provision now in the law for increasing reserve requirements. Why not take advantage of this provision and then keep going until 100% reserve is reached? (Fisher 1936, p. 21).

The same arguments can be made in the case of Japan today. The following calculations based upon data taken from the BoJ's flow of funds statistics for end of June 2016 show how far Japan has already de facto moved towards FRBM, what more

Table 6.3 BoJ and depository corporations' accounts before and after the transition to FRMB

Depository institutions				Bank of Japan			
Assets		Liabilities		Assets		Liabilities	
Before							
Reserves	290	Transfer. deposits	614	JGBs	345	Banknotes	101
JGBs	227					Reserves	290
Loans	726	Other	1276	Other	78	Other	72
Other	647						
Total	1890	Total	1890	Total	463	Total	463
After step 1: transferable deposits fully reserve backed							
Reserves	614	Transfer. deposits	614	JGBs	572	Banknotes	101
JGBs	0					Reserves	614
Loans	726	Other	1276	Other	215	Other	72
Other	550						
Total	1890	Total	1890	Total	787	Total	787
After step 2: shifting all BoJ assets to JGBs							
Reserves	614	Transfer. deposits	614	JGBs	787	Banknotes	101
JGBs	0					Reserves	614
Loans	726	Other	1276	Other	0	Other	72
Other	550						
Total	1890	Total	1890	Total	787	Total	787

Source: Based upon end of June 2016 figures from BoJ Flow of Funds Statistics

would be needed to complete the transition, and how much of the outstanding government debt could then be settled as a result (Table 6.3). Transaction accounts at depository corporations amounted to 614 trillion Yen. This corresponded to 70% of the total amount of outstanding JGBs, including FILP bonds. BoJ reserves of depository corporations were at 290 trillion Yen resulting in a de facto reserve ratio of 47%. Moving to a 100% regime would require an additional 324 trillion Yen in reserves. This could be achieved with the BoJ buying up the remaining 227 trillion JGBs on the balance sheets of depository corporations plus 97 of the 647 trillion of their other assets. The BoJ would expand its balance sheet by adding 324 trillion reserves on the liability side and the same amount on the asset side. At the present level of banknotes, transferable deposits and other BoJ liabilities, it could accommodate 787 trillion JGBs if it held no other assets, equivalent to 89% of outstanding JGBs. The balance sheet changes of the transition to FRBM are illustrated in Table 6.3.[14]

The size relations suggest that a shift to FRBM would allow Japan to consolidate a large portion of outstanding government debt and, for the time being, avoid the tough and risky fiscal and monetary policy choices described above. Although the transition

[14]Table 6.3 underlines the size relations of the relevant assets and liabilities and the balance sheet effects of the transition. It does not depict the institutional implications, i.e., the fact that transferable deposits and reserves no longer represent assets and liabilities in the strict legal sense, but are only administered by banks.

would not need to affect the amount of bank loans, it implies that banks would have to exchange interest-bearing assets for interest-free reserves. The fact that part of money deposited in transaction accounts was financing interest-bearing assets reflects the seigniorage earned by banks from the production of money. Such benefits would be lost under FRBM. It will be necessary to compensate banks for this loss in seigniorage. However, this could be avoided if Friedman's proposal of paying interest on bank reserves was implemented. This compensation effect in the transition process constitutes an additional argument in favour of interest-bearing reserves.

The balance sheet changes can be easily and quickly affected. However, various other adaptations will have to be made to adjust to the new system. One fundamental issue relates to the banks' liabilities. They will need to be re-structured to account for the fact that non-demand deposits will be fully exposed to the risks borne on the banks' asset side. Higher equity ratios would be a natural response. Here, again, interest rates paid on reserves could help banks to cope with the higher costs of securing finance.

6.4 Concluding Remarks

The fiscal and monetary policy constellations in Japan provide the ideal conditions required for a shift to FRBM:

- High reserves of depository corporations with a de facto reserve ratio for transferable deposits of already nearly 50%;
- A sufficiently high amount of government debt outstanding to serve as the asset to be purchased during the further expansion of the BoJ's balance sheet when moving towards a 100% reserve ratio.

The fiscal and monetary policy constellations represent not only a window of opportunity for introducing FRBM, they also constitute the strongest argument in favour of such a regime shift. The extreme levels of government debt and bank reserves constitute serious macro-economic challenges. Should the economy return to the "old normal" regime, government debt will no longer be sustainable and the continuation of monetary easing will end in high inflation. On the other hand, the attempt to consolidate government debt in a "new normal" setting would harm the economy by reducing aggregate demand. A shift to FRBM would considerably lower such uncertainties and risks, because a high level of deposit reserves financing a high level of government debt on the BoJ's balance sheet no longer constitutes a threat, but a system requirement. Under FRBM, neither the Central Government of Japan nor the BoJ would be pressured into taking drastic measures or risks. They could, instead, focus on other social, economic and monetary policy goals.

The situation is, in many respects, similar to the one that the US faced in the 1930s and which other leading economies are confronting today. But why have the respective reforms not been implemented to date? The history of the Chicago Plan, written by Phillips, offers various possible explanations. First, there was opposition from the

financial, especially the banking, industry, as seen by public statements made against the proposal (Phillips 2015: pos 2336, 2358, 3189). Understandably, bankers would not want to see their traditional business model based upon the ability to create money become obsolete. Second, opposition was fueled by arguments that oversimplified and distorted, if not deliberately misinterpreted, the claims of the proposal by stating it would (a) give the government the power to create money at will and inevitably lead to inflation; and (b) mean the end of private lending institutions. The first issue clearly depends on the rules and governance of the public authority in charge of money supply, as briefly discussed above. The second argument neglects the explicit separation of the money supply and the lending functions made in the proposal. Only the former would be monopolised, while the latter would remain the business of private banks.[15] Other reasons for the failure of the plan included the blunders in the handling of the political and legislative process, and last, but not least, the onset of the Second World War (Phillips 2015: pos 2783 to 2800).

As pointed out above, the implementation of Friedman's idea of interest-bearing reserves could greatly increase the acceptance of FRBM by the banking sector, as seigniorage would not be retained by the state monopoly, but shared with the money holders. Interest payments on bank reserves runs, of course, counter to the present negative interest rate policy by the BoJ. The policy shows, in fact, that Japan's monetary authority is far from considering the implementation of a 100% reserve regime.

For sure, there are uncertainties surrounding both the transition to FRBM and the actual design. The theoretical soundness seems warranted by the reputation of the numerous economists in favour of FRBM. The theoretical claims have recently been validated in a dynamic stochastic equilibrium model for the US economy (Benes and Kumhof 2012). In the case of Japan, legislators will have to weigh the fiscal and monetary policy risks encountered when staying with the present regime, against the risk of moving to a new regime, which has historically been used, but, to date, not yet been tested, in a modern economy. The macro-economic risks are certainly high enough to consider FRBM for Japan seriously.

FRBM is likely to affect the demand for cash. Japan is known for its high ratio of cash relative to GDP. It is about double the ratios in the US and the Eurozone (Rogoff 2016b: pos 659). One reason for holding cash is lack of trust in the safety of bank deposits. However, under FRBM, such deposits will be as safe as cash. The introduction of FRBM can therefore be expected to reduce the demand for cash resulting from safety considerations. An additional shift from cash to demand deposits will probably occur if the latter should bear interest rates, as envisaged by Friedman's (1960) design proposal referred to above.

[15]Proponents of FRBM explicitly stressed that the separation of payment and lending function would reduce the need for government regulation and intervention in the lending business of banks (Fisher 1936, pp. 19–21; Friedman 1960, pp. 96–97).

References

Benes J, Kumhof M (2012) The Chicago plan revisited. IMF (IMF Working paper WP/12/202), Washington

Blanchard O, Portillo R (2016) A road map to "progress and confusion". In: Blanchard O, Rajan R, Rogoff K, Summers LH (eds) Progress and confusion. The state of macroeconomic policy. The MIT Press, Cambridge (e-book edition, no pagination)

Buckland K, Nozawa S (2016) Yen collapse seen by Kuroda Critic pitching perpetual bond plan, Bloomberg, July 21

Fisher I (1936) 100% Money and the Public Debt, Economic Forum, Spring Number 1936, 406–420 (reprint by Michael Schemmann, Thai Sunset Publications 2009)

Friedman M (1960) A program for monetary stability. Fordham University Press, New York

Huber J, Robertson J (2000) Creating new money. A monetary reform for the information age. New Economics Foundation, London

Jackson A, Dyson B (2012) Modernising money. Why our monetary system is broken and how it can be fixed. Positive Money, London

Koo RC (2003) Balance sheet recession. Japan's struggle with uncharted economics and its global implications. Wiley, Singapore

Kopits G (2016) The case for an independent fiscal institution in Japan. IMF (IMF Working Paper WP 16/156), Washington

McLeay M, Radia A, Thomas R (2014) Money creation in the modern economy. Q Bull 2014 (Q1):14–27

Minsky HP (1992) The financial instability hypothesis. Levy Economics Institute of Bard College, Working Paper no 74

OECD (2015) Economic surveys – Japan 2015. OECD, Paris

Pesek W (2016) BOJ's perpetual QE quandary. Japan Times, July 19

Phillips RJ (2015) The Chicago plan and new deal banking reform. Routledge, New York (e-book edition; first published 1995 by M.E. Sharpe)

Rogoff K (2016a) Debt supercycle, not secular stagnation. In: Blanchard O, Rajan R, Rogoff K, Summers LH (eds) Progress and confusion. The state of macroeconomic policy. The MIT Press, Cambridge (e-book edition, no pagination)

Rogoff KS (2016b) The curse of cash. Princeton University Press, Princeton (e-book edition, no pagination)

Samuelson PA, Nordhaus WD (1998) Economics, 16th edn. Irwin McGraw-Hill, New York

Summers LH (2016) Rethinking secular stagnation after seventeen months. In: Blanchard O, Rajan R, Rogoff K, Summers LH (eds) Progress and confusion. The state of macroeconomic policy. The MIT Press, Cambridge (e-book edition, no pagination)

Waldenberger F (2014) Japan's new monetary policy. In: Rövekamp F, Hilpert HG (eds) Currency cooperation in East Asia. Springer, Heidelberg, pp 43–55

Waldenberger, F. (2015): Central bank independence in times of high fiscal risk: the case of Japan. In: Rövekamp F, Bälz M, Hilpert H G (eds) Central banking and financial stability in East Asia. Springer, Heidelberg, pp 87–100

von Weizsäcker CC (2011) Public debt requirements in a regime of price stability. Reprints of the Max Planck Institute for the Research on Collective Goods, 2011/20. http://www.coll.mpg.de

Yoshino N, Vollmer U (2014) The sovereign debt crisis. Why greece, but not Japan? Asia Eur J 12:325–344