POLITICAL ECONOMY RESEARCH INSTITUTE
PERI
University of Massachusetts Amherst

Monetizing Public Debt in Japan: An Empirical Critique of Modern Money Theory

By Junji Tokunaga

January 2020

WORKINGPAPER SERIES

Number 498

POLITICAL ECONOMY RESEARCH INSTITUTE

Monetizing Public Debt in Japan:
An Empirical Critique of Modern Money Theory

By Junji Tokunaga*

Abstract
Is Japan really a 'success' case that supports the Modern Money Theory (MMT) framework? The Bank of Japan (BOJ), the country's central bank, has conducted more aggressive monetary quantitative easing since April 2013, which could effectively allow the Japanese government to monetize its cheaper public borrowing. This paper argues that the economic and financial situations in Japan have provided little support for the MMT view, for these reasons: (i) The huge issuance of public debt by the government and the large-scale supply of monetary base by the BOJ did not create enough new money required to revive the economy as a whole, contrary to the MMT view that the issuance of sovereign currency can easily achieve full employment. (ii) It is difficult for Japan's monetary authority to manage the government bonds market under the multicurrency-based shadow banking system, opposed to the MMT hypothesis that purchasing government bonds is discretionally determined by monetary authorities without a financial constraint. (iii) The monetization of public debt backed by the BOJ, which MMT regards as an example of success, could lead to a perverse outcome--the buildup of financial fragility in the real estate market. In conclusion, the monetization of Japan's public debt, applauded by MMT advocates, would leave the burden of the vast costs of its failure to our children in the future.

JEL Codes:
E12, E51, E52, E58.

Keywords:
Abenomics, Bank of Japan (BOJ), Japanese government bonds (JGBs), Modern Money Theory (MMT), Quantitative easing.

*Visiting Scholar, Political Economy Research Institute (PERI), University of Massachusetts Amherst, USA, and Professor, Economic Department, Dokkyo University, Japan.
E-mail: junji@dokkyo.ac.jp

"I would like to ask policymakers and officials in this country (Japan: author) about these critical questions as follows: Do you have family?; Could you state confidently and proudly not only how can we maintain the sustainability of the fiscal and monetary policy from now on, but also how can our country preserve the future for your children, grandchildren, and all children in this country? ... Considering the future in our country, it can never be admitted at all that we make those excuses as follows: It does not matter to us that only our generation is now all right at the expense of the future generation; and it is now beyond our expectation that the current situation of 'zero interest rate' or 'negative interest rate' in domestic and global context will end in the future."
From Sayuri Kawamura (2016), Can central bank hold its own? 245-246. (Translated from Japanese to English by author)

I. Japan as "a success example" of MMT

Since the end of 2012, the Abe government has carried out an economic revitalization program called "Abenomics," consisting of three 'arrows': aggressive monetary easing, massive fiscal stimulus, and structural reforms to the economy. Abenomics has been Primarily about the first arrow-- more aggressive monetary quantitative easing. The Bank of Japan (BOJ), the country's central bank, has engaged in "Quantitative and Qualitative Monetary Easing" (QQE) since April 2013, with its main goal of raising the inflation rate to 2 percent within two years. After that, the Bank introduced "QQE with a Negative Interest Rate" in January 2016. In turn, the BOJ conducted a comprehensive assessment of the QQE policy's effects, and introduced "QQE with Yield Curve Control," in which the Bank applied a negative interest rate of minus 0.1 percent in the short-term policy interest rate, while purchasing long-term Japanese government bonds (JGBs) in order to maintain 10-year JGB yields to be around zero percent since September 2016. In effect, the shape of the yield curve for JGBs has been in line with this guideline under the Control (Bank of Japan (2019b), 12). This suggests that the QQE by the BOJ could effectively allow the government to monetize its cheaper public borrowing. The government's initial budget for fiscal year (FY) 2019 was to be the first ever to top ¥100 trillion (about $918.9 billion), reflecting a fiscal stimulus package to underpin the economy after a consumption tax hike in October 2019. Furthermore, general-account budget requests from the government agencies and ministries for FY 2020 are now expected to remain above ¥100 trillion.

Considering the importance of fiscal stimulus for supporting the economy in major advanced countries since the Great Recession in the 2010s, Modern Money Theory (MMT) has received much attention among heterodox economists, mainstream economists and even policymakers. The framework of the MMT consists of three main components state here: (i) chartalism, (ii) monetized budget deficits without a financial constraint, (iii) progressive spending programs. Based on these components, MMT advocates suggest that the government, which has the monopolistic power to issue its own sovereign currency, should increase monetized fiscal deficits in order to revive the economy into full employment. (Wary (2012))

Remarkably, some MMT advocates point to Japan as 'a success example' of the MMT framework (Mitchell (2017); Kelton (2019b)). Fiscal stimulus backed by the actual monetization of public debt could steadily stabilize the Japanese economy in the 2010s, though Japan's outstanding fiscal deficit is about two and a half times the country's gross

domestic product (GDP), the worst ratio among advanced countries. Why do the MMT scholars regard the monetization in Japan as a 'success'? In response to the question, MMT thinkers provide this evidence from the Japanese economy since the introduction of Abenomics: (i) low unemployment, (ii) increases in private consumption and investment, (iii) growing real wages, and (iv) very low interest rates.

In my view, the framework of MMT could, essentially, be considered an exogenous economic policy, in the sense that government spending, which is supported by the monetization of public bonds by the central bank, "*puts* new money in the economy" (Kelton (2019a), Italic: author), thus reviving the economy to full employment without any constraints or problems. As some critical essays (for instance, Mehring (2000); Epstein (2019); Palley (2019)) already point out, the monetized fiscal spending based on MMT lacks theorical, institutional, and empirical validity.

Is Japan really a good example that supports the MMT framework? Considering the institutional structure in Japanese financial markets, which is very important but almost neglected by MMT advocates, I raise some questions about the empirical validity of the MMT doctrine. In this paper, I show that the economic and financial situations in Japan since April 2013 when BOJ began engaging in QQE policy do not support the MMT doctrine.

II. Who creates new money?

According to the MMT, the government could print sovereign currency without financial constraint, which might enable it to increase public spending until there is full employment. Based on this view, the issuance of sovereign currency will easily lead to a full-employment economy. Curiously, in explaining the issuance of sovereign currency, MMT advocates consolidate the balance sheets of the government and the central bank into one integrated balance sheet. This approach makes it unclear who issues new money in modern finance. (Mehring (2000))

The major institutions that create new money in modern finance are, fundamentally, commercial banks, not the government, as MMT explains. In Japan, banknotes issued by the central bank, and coins created by the government serve as final means of payment. But most of the final means of payment are deposits created by commercial banks. Average outstanding amounts of M1 in Japan total ¥ 803.1 trillion as of October 2019, of which currency in circulation is ¥102.1 trillion, and deposits currency is ¥701.0 trillion. (Bank of Japan, Preliminary figures of money stock as of October 2019)

Next, I will explain how new money has been created during the time of the QQE by using the simplified T-accounts. **(Figure 1)**

	Ministry of Finance (MOF)		Bank of Japan (BOJ)		Commercial Bank (CB)		Nonfinancial Corporation (NFC)	
	A	L	A	L	A	L	A	L
(i) Issuing JBG	+Deposit BOJ	+ JGB CB		-Deposit CB + Deposit MOF	-Reserve CB +JGB MOF			
(ii) Government spending	-Deposit BOJ +Asset			-Deposit MOF + Deposit CB	+Reserve BOJ	+Deposit NFC	+Deposit CB	+ Net worth
(iii) The implementation of the QQE			+JGB MOF	+Deposit CB	-JGB MOF +Reserve BOJ			
(iv) Lending by CB to NFC					+Lending NFC	+Deposit NFC	+Deposit CB	+Borrowing CB

Figure 1: A Simplified Example of Balance Sheets in the Time of the BOJ' QQE

(i) Issuing JBG: Commercial bank purchases JGB issued by Ministry of Finance (MOF) on negative yield. The MOF holds a deposit in the BOJ, while the MOF owes a JGB to the bank. (ii) Government spending: The MOF uses a deposit held in the BOJ for government spending, whereas it has an asset such as tangible fixed asset. In turn, the government spending flows finally to the bank as a deposit held by a nonfinancial corporation (NFC). (iii) The implementation of the QQE: JGB with negative yield held by the commercial bank is immediately sold to the BOJ at a high price in the secondary market, thus enabling the bank to achieve immediate profits through the "BOJ trade".[1] This trade leads the BOJ to supply the commercial bank reserve, that is a current account deposit held in the BOJ that consists

[1] The "BOJ trade" enables not only banks to enjoy a profit without credit risk, but also the government to depend on cheaper borrowing by issuing JGBs. On the contrary, the BOJ suffers loss between face value and market value through the BOJ trade. The amount of unrealized loss by the BOJ trade increased from about ¥1,320 billion in April 2013 to around ¥ 9,320 billion in October 2016. ("The BOJ suffers an unrealized loss reaching ¥10 trillion by holding of JGBs," *Nikkei*, morning edition, November 13, 2016, 3)

of most of the monetary base. (iv) Lending by the CB to an NFC: Along with providing a monetary base, the commercial bank enhances loans and purchases other financial assets, if the bank can find a profitable borrower in an NFC. In the example of the balance sheet, we recognize that the commercial bank has two opportunities to create new money. First, the commercial bank's purchase of JGB from the MOF could lead to the increase in bank deposits to an NFC. Second, the bank might create deposits to an NFC, led by a massive supply of monetary base by the BOJ.

Could the banks put the two opportunities in practice fully? First, new money through the issuance of JGBs are likely to be relatively limited, compared to the total amount of JGBs issuances. In the JGB issuance plan in FY2019 (breakdown by legal grounds), newly-issued bonds account for 21.96 percent, while refunding bonds, which achieve debt repayments on outstanding bonds, reaches 69.35 percent.[2] (estimated from Financial Bureau, Ministry of Finance (2019), 17) Second, most importantly, the massive supply of the monetary base through the QQE could not lead banks to create new money sufficiently. The quantity of money is expressed in M2, a major indicator of money stock (previously defined as money supply), which consists, mainly, of currency in circulation and deposits deposited at banks. **Figure 2** shows the outstanding monetary base and M2 (index = April 2013).

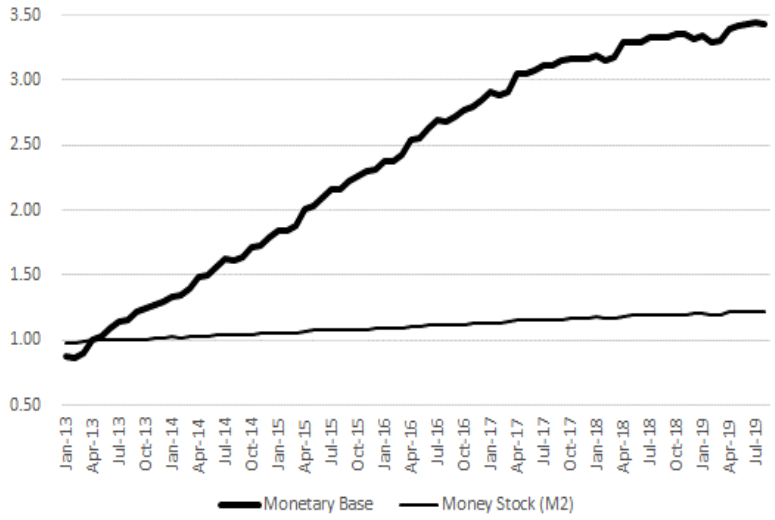


Figure 2: Monetary Base and M2
(Average Monthly Outstanding; Index = April 2013)

Source: Bank of Japan website.

The divergence of the outstanding monetary base from M2 has broadened since the introduction of the QQE in April 2013. The large divergence implies that banks have massively accumulated a current account held in the BOJ as their monetary base, while having moderately increased lending and other assets.

[2] The high ratio of the refunding bonds resulted, mainly, from the so-called "60-year redemption rule" in a peculiar fiscal system in Japan, which means redeeming every government bond on 60 years after issuance.

In short, it can be analyzed that both the huge issuances of public debt by the MOF and the large-scale supply of the monetary base by the BOJ could not create enough new money required to revive the economy as a whole, contrary to the MMT view that the issuance of sovereign currency easily brings the economy to full employment.

III. US dollar and Japanese yen in a multicurrency-based shadow banking system

In turn, who has bought a large amount of JGBs? On the MMT hypothesis that government could print sovereign currency without financial constraint, it is possible that the quantity of purchasing government bonds is discretionally determined by monetary authorities. Is this view right in Japan? Breakdown by JGB holders is illustrated in **Table 1**.

	Mar-13	Mar-19	Changes
Bank of Japan	**11.6**	**43.2**	**31.6**
Banks, etc.	**43.2**	**16.1**	**-27.1**
Life and Non-life Insurance, etc.	23.6	18.7	-4.9
Public Pensions	7.8	4.1	-3.7
Pension Funds	3.8	2.8	-1.0
Foreigners	**4.4**	**12.7**	**8.3**
Households	3.0	1.2	-1.8
General Government (exc. Public Pensions)	0.3	0.3	0.0
Fiscal Loan Fund	0.1	0.0	-0.1
Others	2.2	1.0	-1.2
Total (trillion yen)	807.1	1013.1	

Table 1: Breakdown by JGB Holders (Outstanding; Percentage)

Source: Estimated from Financial Bureau, Monetary of Finance in Japan (2013); Monetary of Finance in Japan (2019).

The share of the BOJ rose drastically from 11.6 percent in March 2013 to 43.2 percent in March 2019, while the share of banks, etc. dropped rapidly from 43.2 percent to 16.1 percent, respectively. With respect to the latter, commercial banks have been a major investor source for medium- to long-term JGBs since the 1970s. But large banks have substantially reduced JGB holdings since the launch of the QQE. This is because negative interest rates have made it difficult for banks to gain sufficient profits on JGB holdings. In response, in July 2016, Bank of Tokyo-Mitsubishi UFJ (BTMU), Japan's largest bank, announced that it would no longer be a primary dealer of JGBs.

Remarkably, the share of foreign investors also increased swiftly from 4.4 percent in March 2013 to 12.7 percent in March 2019. (See again, **Table 1**) In addition, **Table 2** displays the breakdown by T-Bill holders, in which the share of foreign investors in T-bill holdings rose rapidly from 28.6 percent to 71.2 percent in March 2019.

	Mar-13	Mar-19	Changes
Bank of Japan	**21.0**	**10.6**	**-10.4**
Banks, etc.	**38.4**	**16.0**	**-22.4**
Life and Non-life Insurance, etc.	2.0	2.1	0.1
Public Pensions	0.0	0.0	0.0
Pension Funds	0.0	0.0	0.0
Foreigners	**28.6**	**71.3**	**42.7**
Households	0.0	0.0	0.0
General Government (exc. Public Pensions)	7.9	0.0	-7.9
Fiscal Loan Fund	2.2	0.0	-2.2
Others	0.0	0.0	0.0
Total (trillion yen)	162.0	97.8	

Table 2: Breakdown by T-Bill holders (Outstanding; Percentage)

Source: Estimated from Financial Bureau, Monetary of Finance in Japan (2013); Monetary of Finance in Japan (2019).

How and why do foreign investors invest in JGBs? The Financial Bureau, Ministry of Finance (2016) (2019) analyzes that a wide range of foreign investors have increased investments in short-to medium-term JGBs through basis swaps. An example of basis swap (dollar-yen basis) scheme is displayed in **Figure 3**.

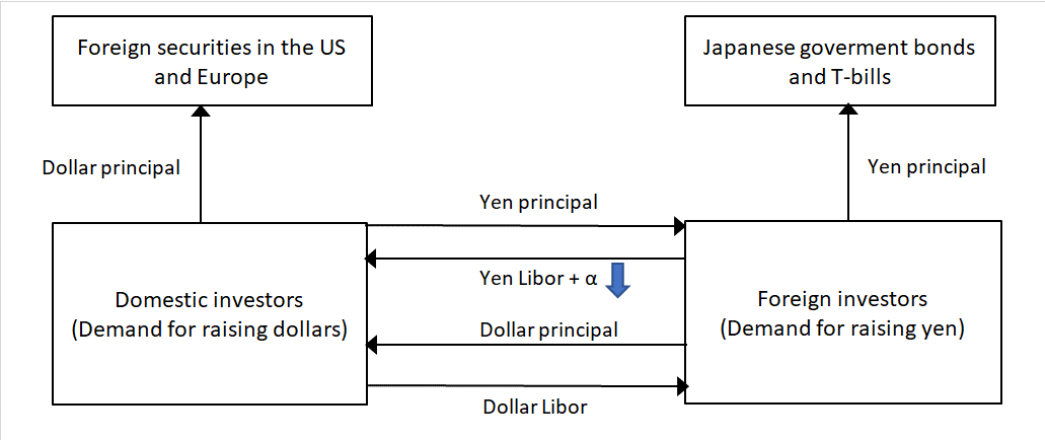


Figure 3: Basis Swap (dollar-yen basis) Scheme

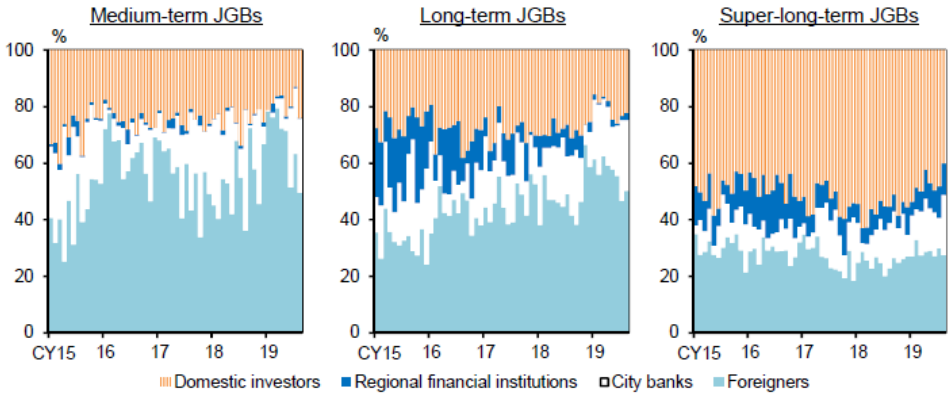
Source: Own revisions on Financial Bureau, Monetary of Finance (2016, 17-18); (2019, 12; 33-35).

In the figure, 'α' is the basis swap spread, which means a premium for a yen interest rate and it fluctuates depending on supply and demand between the currencies. In the current dollar-yen basis swap, α has, basically, been minus, because demand for raising dollars is strong even at the cost of a decline in yen interest receipts. The return on T-Bills (3-month) investment through the basis swap is as follows:

Return on T-Bill (3-month) investment utilizing a basis swap
= T-Bill (3-month) yield + Dollar LIBOR (3-month) - Yen LIBOR (3-month) - α

As explained before, the basis swap spread (= α) is marked minus, which brings about a

higher return for foreign investors, even if it faces negative interest rate of JGBs. As a background, foreign investors increase purchase of JGBs with yen funds borrowed through the basis swap and get a yield on them. Besides, Bank of Japan (2019a) states that the relative yield attractiveness of JGBs to foreign investors remains increased with foreign currency hedging costs, leading to the presence of foreigners to increase, especially for medium-term and long-term JGBs market. (**Figure 4**)



Note: 1. The proportion of each investor's share in dealer-to-client transactions. The data cover city banks, regional financial institutions, domestic investors (life and non-life insurance companies, trust banks, financial institutions for agriculture and forestry, investment trusts, and mutual aid associations of government agencies), and foreigners. Other institutions (governments, the BOJ, Japan Post Bank, Japan Post Insurance, business corporations, other financial institutions, etc.) are excluded from the data.
2. Latest data are as at August 2019.
Source: JSDA.

Source: Taken from Bank of Japan (2019a), 13

Figure 4: Foreign Investors' Presence in the JGB Market

More drastically, foreign investors intensify their active trading in secondary markets. Foreign investor holdings of JGBs in secondary markets is indicated in **Figure 5**. While the share of foreigners in spot markets increased from 21.2 percent in March 2013 to 36.1 percent in December 2018, the share in futures trading increased from 41.0 percent to 62.9 percent, respectively.

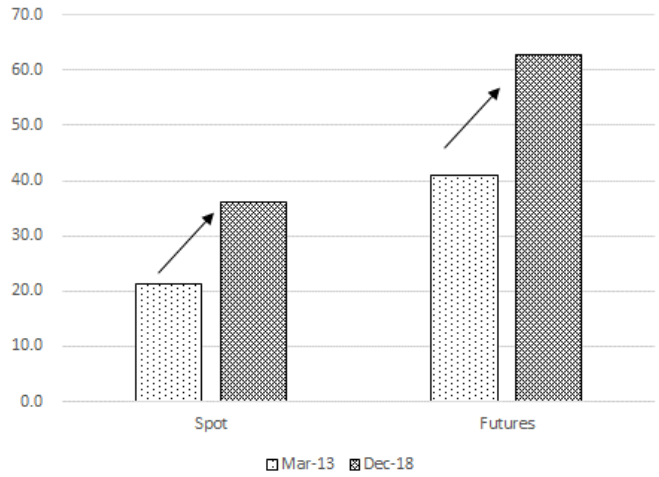


Figure 5: Foreigner holdings of JGBs in Secondary Markets (percentage)
Source: Estimated from Financial Bureau, Monetary of Finance (2013, 33) (2019, 26).

As Epstein (2019, Ch.4) argues, we live in a multicurrency-based shadow banking system, where major international currencies, including the dollar and the yen, are traded outside the regulated banking system. In the multicurrency-based shadow banking system, investors and financial institutions over the world search for more profitable investments through financial innovations such as derivatives. As an example of the basis swap scheme reveals (see again, **Figure 3**), foreign investors holding dollars could swiftly borrow yen funds through derivatives to achieve profit in the JGBs market. According to the MMT hypothesis, it is possible that purchasing government bonds is discretionally determined by monetary authorities, which could issue sovereign currency without financial constraint. However, foreign investors' presence in the JGBs market has increasingly risen since the QQE by the BOJ. Thus, it becomes difficult for monetary authority to manage the government bonds market under the multicurrency-based shadow banking system.

IV. Backing to the end of bubble economy in the second half of the 1980s

Considering the presence of foreign investors in Japan's financial market, we return to the stock market at the end of the bubble economy in the 1980s. In general, it can be said that Japan's real estate bubble in the last half of the 1980s resulted, mainly, from domestic factors such as (i) Japanese-peculiar business structure, culture, and finance, (ii) failures in monetary policy and supervision by the government and the central bank. But the boom and bust could not have happened without the rise of foreign financial institutions, as well as Japanese banks, driven by the drastic acceleration of financial liberalization in Japan in the 1980s.

Notably, Miyazaki (1992, 179-211) argued that foreign securities firms such as Solomon Brothers Asia conducted more sophisticated arbitrage strategy between spot and future market in Nikkei 225, the premier index of Japanese stocks, which was, partly, attributed to the surge and plummet in the Tokyo stock market in 1989-90. For instance, Solomon massively practiced arbitrage "future selling and spot purchasing" in the Nikkei 225 futures, and then did arbitrage unwinding sales at a fixed date. In particular, the latter caused a large amount of spot selling in the Nikkei 225, leading to the crash in the Tokyo stock market called "Black Monday" on October 1, 1990. As background, after the Nikkei 225 reached a peak at ¥38,915.87 in December 29, 1989, the stock price plummeted to ¥ 20,221.96 in October 1, 1990. During this crash in the stock market, the great success of the arbitrage strategy enabled Solomon to achieve a huge profit, in contrast to the massive loss by big Japanese securities firms. For example, while the change in ordinary profit in Nomura between September 1989 and September 1990 was -55.1 percent, Solomon Brothers Asia's profit amounted to +39.0 percent, respectively. (Miyazaki (1992), 210)

Certainly, there are many differences between the past in the Nikkei stock market in the 1980s and the present in the JGBs market. But what I want to stress is that foreign financial institutions have already played a critical role in Japan's financial market since the end of the 1980s, which MMT scholars seem to ignore.

V. Heating of the real estate market

Instead, with what kind of businesses have banks in Japan engaged since the QQE policy? As mentioned above, on the asset side of the balance sheet, banks have significantly increased current account deposits in the BOJ. At the same time, banks not only intensified loans to domestic risky assets, but also shifted their investments from JGB holdings toward overseas risky assets, including investment-grade corporate bonds, highly rated tranches of collateralized loan obligations (CLOs), and bank loan funds. (Bank of Japan (2019a) (2019b)) Meanwhile, regional banks, which have a close relationship with small and medium-sized enterprises, have increased their lending associated with real estate in Japan. (Bank of Japan (2019b, 30))

As Epstein (2019, Ch.6) points out, the problem of financial instability is almost ignored in the framework of MMT. Interestingly, Bank of Japan (2019a) (2019b) stresses that the amount of real estate loans by banks, particularly regional banks, has continued to increase beyond its peak during the bubble economy in the second half of the 1980s, in spite of no substantial nationwide increase in land prices. The BOJ regularly releases the Financial Activity Indexes (FAIXs) called 'heat map,' which indicates the degree of the deviation from their trends and whether there are any signs of overheating or contraction . According to the heat map in April 2019 and October 2019, 13 out of the 14 FAIXs appear as 'green', which signals neither an overheating nor a contraction, but only the real estate loans to GDP ratio has turned 'red', signaling overheating. For regional financial institutions, the share of real estate loans in total amount of loans has continued to rise, and its share has exceeded 30 percent at some regional banks. (Bank of Japan (2019b), 52). As a background, Suruga Bank, a large regional bank, took an order to suspend business from the Financial Services Agency (FSA) in Japan in October 2018, following the revelation of its massive loan scandal associated with real estate investments. According to the full-fledged investigations into Suruga's real estate loans published in May 2019, confirmed and suspected fraudulent housing loans, including falsification and fabrication of borrowers' deposit passbooks and contract notes, reached over ¥1 trillion (about $9.2 billion), accounting for over 60 percent of total real estate loans.

The BOJ's QQE has promoted fiscal stimulus and moderate money stock growth (M2) to underpin the economy. At the same time, it could drive banks, especially regional banks, to pursue careless and fraudulent loans in the real estate market which might encourage the buildup of financial fragility. In short, the monetization of public debt in Japan backed by the BOJ, which MMT regards as a successful example, could lead to a perverse outcome-- the buildup of financial fragility in the real estate market in Japan.

VI. What will happen when the BOJ stops the QQE?

So far, I show some empirical evidence to assess whether or not we can regard Japan as a successful example that supports the MMT framework. Regrettably, the answer appears to be 'no'.

Now we must discuss monetizing public debt in Japan. We must consider that the BOJ will stop the QQE policy (i.e., 'the exit strategy' from the QQE) in the future, if the Bank does not continue to roll over the monetized public debt forever. Of greater importance is the question of what will happen when the BOJ determines the exit strategy from the QQE, a question which very few MMT advocates have addressed. Actually, the BOJ has refused to discuss the exit strategy in public. This is in contrast to the US Federal Reserve (Fed), which agreed on the Fed's "exit strategy principles" in the Federal Open Market Committee (FOMC) on June 2011.[3] In the last section, I discuss what problems the BOJ will face during the exit strategy.[4]

As the BOJ stops its QQE policy, it begins to shrink its overstretched balance sheet, thus changing its role in the JGBs market from 'massive buyer' to 'massive seller.' As explained in **Figure 1**, the implementation of the QQE policy is recorded in the simultaneous increases in the BOJ balance sheet as follows: JGB holdings on the assets side, and accumulation of current accounts held by banks on the liabilities side (See again, line (iii) The implementation of the QQE). The breakdown of the balance sheet at the BOJ as of March 31, 2019 is presented in **Figure 6**.

Assets			Liabilities and net worth		
Long-term JGBs	**459,586**	**82.51%**	**Current deposits**	**393,884**	**70.71%**
Loans	47,436	8.52%	Banknotes	107,559	19.31%
ETFs	24,785	4.45%	Other liabilities	51,772	9.29%
Other assets	25,217	4.53%	Net worth	3,810	0.68%
Total	557,024	100.00%	Total	557,024	100.00%

Source: Bank of Japan website.

Note: In the negative interest rate policy, current deposits held by the BOJ consist of a three-tier system as follows: First, 'the Basic Balances' with which positive interest rate (0.1 percent) is applied, 'the Macro Add-on Balances' with zero interest rate, and 'the Policy-Rate Balances' with negative interest rate.

Figure 6: Breakdown of the BOJ's Balance Sheet (¥ Billion as of March 31, 2019)

While the share of long-term JGBs reached 82.51 percent of total assets, the share of current accounts of total liabilities and net worth amounted to 70.71 percent. In terms of yield, the former's yield on the assets side is 0.290 percent and the latter's interest rate payment on

[3] Haruhiko Kuroda, a governor of the BOJ, refrains to argue the exit strategy of the QQE as follow: "Rather, I think that it could confuse financial markets to state specifically about the exit strategy of the QQE now. Because what kind of the concrete exit strategy by the BOJ is appropriate depends on definite circumstances in economy, price, and financial markets." (Regular press conference by governor of the BOJ in April 28, 2017)

[4] This section depends, partly, on excellent critiques about the QQE in Japan as follows: Ikeo (2016); Kawamura (2016); Okina (2016)).

the liabilities side is 0.1 percent, enabling the BOJ to enjoy a small positive yield margin between two. (data from Bank of Japan, Financial Statements as of March 31, 2019)

However, it is possible that the BOJ would suffer from a negative yield margin in the 2020s. Samikawa et al (2018) analyze that the BOJ could face a negative margin from FY 2022 to FY 2028, which would cause it to incur about a ¥19 trillion loss from FY 2024 to FY 2030, on the assumption that the BOJ attains its main goal of raising the inflation rate to 2 percent in FY 2022, and then begins to raise interest rate in FY 2023. Furthermore, as interest rates could rise, reflecting the decline in market value of JGBs, this decline in value of JGBs must have negative impacts on the balance sheets of major holders of JGBs, particularly the BOJ, other things being equal. Based on this assumption, it is likely that the net worth held by the BOJ, which reached ¥3.8 trillion as of March 31, 2019, would not absorb the huge losses in the future.[5]

If the JGBs' losses negatively impact the BOJ's net worth as explained above, who helps the BOJ? Suppose that the government decides to inject public funds to support the BOJ (which is prohibited under the current Bank of Japan Law). Taxpayers will ultimately have to pay the cost associated with the monetization of public debt. Who pays this tax in the future? The answer could be the next generation. Hence, it is possible that the next generation--our children--would be forced to repay these huge costs, if the monetization of public debt fails to revive the Japanese economy.[6]

In conclusion, the exogenous monetization of Japan's public debt applauded byMMT advocates could underpin the economy in the 2010s, but the cost of its failure will be paid by our children in the future.

[5] The BOJ already begins to transfer of funds to the provision for possible losses on bonds transactions to compensate for possible fluctuation in net income arising from the exit strategy from the QQE.

[6] The Abe government considers that the it is necessary to increase productivity and labor participation, in order to counter the critical issues led by the demographic shrinking in Japan. In promoting these goals, the administration started the Council for "the Realization of Work Style Reform" on March 2017. As the Council suggested, various labor measures have been put in force for the Work Style Reform, which contains (i) regulatory limit on overtime work with penal regulations; (ii) eliminate irrational gaps in the working conditions between regular and non-regular workers; and (iii) increasing labor participants by women, seniors, and foreign workers. Though an MMT economist Bill Mitchell in his recent blog articles (Mitchell (2019a); (2019b)) support these government's measures, there could actually be many serious loopholes in these labor market's regulations, which must give corporations advantages over workers in Japan. In this sense, we have to focus on reviewing whether each measure could function as their face value, or not.

Acknowledgements:
I would like to thank Gerald Epstein for constructive comments and suggestions on an earlier draft. And I am thankful for Kim Weinstein for editing it. Of course, all remaining errors are my responsibility.

References

Bank of Japan (2019a), *Financial system report*, October.

Bank of Japan (2019b), *Financial system report*, April.

Epstein, G. (2019), *What's wrong with modern money theory? a policy critique*, Palgrave Pivot. Doi: https://doi.org/10.1007/978-3-030-26504-5

Financial Bureau, Ministry of Finance (2013) (2016) (2019), *Debt management report*.

Ikeo, K. (2016), "The Abe government and the Bank of Japan are proceeding to monetize public debt as a fait accompli", *Nikkei*, June 8. (in Japanese)

Kawamura, S. (2016), *Can central bank hold its own?* Shueisha, Tokyo: Japan. (in Japanese)

Kelton, S. (2019a), Rethinking public finance. 10 principles of MMT, Presentation for Kyoto Symposium, July 16. URL: https://reiwapivot.jp/wp/wp-content/uploads/2019/07/MMT_Presentation_Kelton.pdf

Kelton, S. (2019b), "Fiscal deficit is needed to revive Japanese Economy", *Nikkei*, July 18. (in Japanese)

Mehrling, P. (2000), "Modern money: fiat or credit," *Journal of Post Keynesian Economics*, 22(3), 397-406.

Ministry of Finance (2019), Breakdown by JGB and T-Bill holders as of march 2019, Preliminary figures.

Mitchell, B. (2017), "Japan is different, right? wrong! fiscal policy works," Modern monetary theory, August 15. URL: http://bilbo.economicoutlook.net/blog/?p=36631

Mitchell, B. (2019a), "What is the problem with rising dependency rations in Japan: part 1?" Modern monetary theory, October 28. http://bilbo.economicoutlook.net/blog/?p=43495

Mitchell, B. (2019b), "What is the problem with rising dependency rations in Japan: part 2?" Modern monetary theory, October 29. http://bilbo.economicoutlook.net/blog/?p=43512

Miyazaki, Y. (1992), *Combined recession*, Chuoh-Kohronsha, Tokyo: Japan. (in Japanese)

Okina, K. (2016), *Interest rate and economy*, Diamond-sha, Tokyo: Japan. (in Japanese)

Palley, T. (2019) “What’s wrong with modern money theory (MMT): a critical primer,” forum for macroeconomics and macroeconomic policies, 44, March.

Samikawa, I., T. Takano, S. Fukuyama, Y. Tomita, M. Ushiba, and T. Yanaka (2018), “The BOJ’s Monetary Policy Dilemma: Fear that whether the BOJ heads for an exit or maintains monetary easing, it will put a burden on the nation,” *Financial Research*, Japan Center for Economic Research, 38, April.

Wary, R. (2012), *Modern money theory: a primer on macroeconomics for sovereign monetary system*, Palgrave Macmillan, Basingstoke: UK.