May 01, 2017

Underwriting by the Bank of Japan of floating-interest-rate perpetual government bonds with conditions precedent:

An idea of helicopter money that can be salvaged

Mitsuru Iwamura
Professor, Graduate School of Business and Finance Waseda University

Current situation and basic concept

In Japan, a proposal by Prof. Christopher Sims based on the Fiscal Theory of the Price Level (FTPL) has been attracting attention lately. The essence of Prof. Sims' proposal could be summarized as follows. Under the FTPL, from which are derived the constraint conditions that should be satisfied by current and future price levels, reflecting both the size of payment obligations and the size of possible sources of funding for such payments under an integrated government (a hypothetical government under which the government's fiscal sector and the central bank were consolidated), the formula for determining the basic equilibrium price level is shown below:

$$P = \frac{M + B}{s}$$

where P is current price level; M is monetary base; B is nominal current value of balance of government bonds issued, not including central bank holdings; s is effective current real value of source of funding for repayment of integrated government debt. It should be possible to generate upward pressure on the price level by intervening in expectations for the denominator, the effective current value of sources of funding for repayment of integrated government debt[1]—for example, by causing it to decrease by declaring that there would be no tax increase until the rate of inflation in consumer prices reaches a certain target.

However, there are two points on which it is difficult to agree with Prof. Sims' proposal: (i) the fact that what would result from his proposal fundamentally are expectations of a discontinuous and unsustainable rise in the price level, which differ in nature from the expectations of sustained gentle inflation that should be what is desired by advocates of inflation targets[2], and (ii) to begin with, the denominator of the above formula for determining the basic equilibrium price level is no more than mere vague expectations about the sources of funding that could be used to repay the principal and interest on treasuries in the future, and directly encouraging such expectations would not only involve a process occurring through the appearance of results that would be difficult to ascertain but also would be likely to make it difficult to control any excessive expectations.

So is there any way to affect equilibrium price levels while maintaining more reliable controls? There is: By intervening in the numerator of the formula instead of the denominator.

Each of the components of the numerator in the formula for determining the basic equilibrium price level under the FTPL is distinguished above all by the fact that it involves the size not of people's expectations but of actual contracts. In addition, the discount rate used to convert their sizes to their current values is, for the numerator, the nominal interest rate, rather than the natural rate of interest used for the denominator, which is difficult both to control through policy and to measure objectively. Accordingly, the numerator of the formula is easier to manipulate and more measurable than the denominator.[3]

From these perspectives, one would tend to notice that one solution to the challenge of trying to influence expectations of the equilibrium price level under conditions in which the nominal interest rate remains unchanged would be through supply to the public of obligations of the integrated government that would not change either the denominator or the other component of the numerator—that is, helicopter money.[4] Incidentally, whether or not the presence of obligations of the integrated government would have the effect of helicopter money depends not on their form or their origins but on what people think about how such obligations are dealt with.[5] For this reason, if conditions were created under which people did not think that there was a need for a source of funding for repayment of existing obligations and payment of interest, then that in itself would have the effect of helicopter money even if no new obligations were supplied. Probably the proposal by the former Chairman of the UK's Financial Services Authority (FSA) Adair Turner reflects this context.

Perhaps due in part to the way it sounds, the term "helicopter money" gives some people a strong impression of being a moral hazard. However, in a practical sense as long as the policy demonstrates the expected results it does not differ from the policy proposed by Prof. Sims. If that is the case, then would it not be safer to adopt "numerator policy"—that is, a moral hazard that is visible—than a "denominator policy"—or a moral hazard that is not visible?

During a lecture he gave in Japan in 2003, Prof. Joseph Stiglitz proposed issuance of government paper. If we notice that government paper can be summarized as integrated government obligations that do not require a future source of funding for repayment, then we should be able to see this as a proposal for a policy of helicopter money.[6] Incidentally, the effects of the Bank of Japan's direct underwriting of Japanese government bonds implemented at the initiative of Finance Minister Korekiyo Takahashi, who took office at the end of 1931, also can be considered, more or less, to have had the aspects of helicopter money policy.[7] In sum, Prof. Stiglitz's proposal had something in common with the policy of Finance Minister Takahashi from about 70 years earlier, in that it shut down the Ricardo-Barro equivalence theorem through the issue of government debt outside of the markets.

Based on the understanding outlined above, below this paper will show how the plan to create floating rate perpetual government bonds with conditions precedent —that is, interest-free from the time of their issue until when they are sold to buyers outside the integrated government—and to issue them through underwriting by the BoJ could be one way of intervening in the numerator of the FTPL formula for determining the basic equilibrium price level.

The portion of the plan described here that consists of underwriting by the BoJ of interest-free perpetual government bonds was inspired by Prof. Kunio Okina's analysis on Prof. Stiglitz's proposal. However, these were made floating rate perpetual government bonds with conditions precedent in order to make it easy to pull them out when (i) the plan has served its function, (ii) the plan proves unable to generate the expected results, or (iii) Japan has suffered an unexpected shock from the external environment. By doing so, during the time the bonds are held by the BoJ they would have an effect similar to that of Prof. Stiglitz's government paper, but if the Bank of Japan sells them on the market the government would, presumably, be encouraged to secure sources of funding for their repayment, or in other words would begin withdrawal from intervention. Put another way, this offers a methodology for salvaging the helicopter money.[8]

Of course, it goes without saying that while thinking about a method of salvaging helicopter money and thinking about how to address the risks of such salvaging are both separate issues and ones that should be considered together. This is because a policy with no readiness for exit risks both is more likely not to be trusted by people and could lead to reckless expectations due to the sparseness of options once such a policy has begun.

With regard to the exit risks of monetary easing in general, in a lecture made in Japan in 2003 the then member of the Board of Governors of the Federal Reserve System, Benjamin Bernanke argued that it would be effective to convert government bonds held by the BoJ to floating-interest-rate bonds.[9] In addition, although the author himself made a proposal in May 2016 based on the fact that the BoJ had decided to reduce short-term policy interest rates into negative territory,[10] these floating-interest-rate perpetual government bonds with conditions precedent in a way represent a revision to enable not only the BoJ but also financial institutions in general to address exit risk.[11] The framework proposed here is outlined below.

Outlines of framework proposed here

A) The government would issue floating-interest-rate perpetual government bonds (FPGBs) linked to market interest rates, underwritten by the BoJ directly.
   - ☞ The interest rate on which the linkage is based would be the overnight interest rate. However, setting a minimum or maximum level of interest rate, with a certain spread, would be possible subject to the consent of the BoJ at the time of issue.[12]

B) No interest would be paid on the FPGBs during the period they were held by the BoJ. Interest

would accrue starting on the date on which they were sold outside the BoJ.

- ☞ It is conceivable that a very low rate of interest or fees (roughly 0.01%/year) could apply during the period they were held by the BoJ, to cover the BoJ's administrative costs.

C) The BoJ could, on its own judgment—i.e., without consulting with the government—sell its holdings of FPGBs on the market.

- ☞ The BoJ could repurchase FPGBs after selling them. Payment of interest on FPGBs held by the BoJ as a result of such repurchase would continue.

D) The government could redeem some or all of the FPGBs held by the BoJ at a face value.

- ☞ Redemption of FPGBs held by owners other than the BoJ would be conducted after the BoJ had repurchased those FPGBs.

E) The government could convert some or all of the fixed-interest-rate government bonds already issued to FPGBs at a face value equal to the market price of government bonds at that time, subject to the consent of the bond holders. In such a case, conditions such as the spread and maximum and minimum limits would follow those of the FPGBs underwritten most recently by the BoJ.

- ☞ Conversion to FPGBs also could be conducted for government bonds already held by the BoJ. Payment of interest on FPGBs held by the BoJ as a result of such conversion would continue. Its efficacy would remain unchanged even if the legal form that this conversion took were to be through retirement by purchase and issue of new FPGBs at the same time.

Supplemental explanation 1: The meaning of conditional accrual of interest and the essence of helicopter money

This plan calls for no interest to be paid on perpetual government bonds underwritten by the BoJ during the period that they are held by the BoJ. In other words, it is a zero-interest-rate framework.

However, from the perspective of the FTPL, this condition of a zero interest rate is not highly meaningful. This is because payment of interest on government bonds held by the central bank in essence is no more than a transfer between accounts within the integrated government and should be neutral vis-à-vis decisions on equilibrium price levels. The benefits of making government bonds underwritten by the central bank interest free are little more than making it easier to obtain policy results by making the intention of the policy clear.[13]

There also is a price that comes with applying this condition. Making government bonds held by the central bank interest free could attract not a small degree of distaste for the policy by making its moral hazard quite clear. Indeed, this attraction of distaste for the policy was intended by the author. This is because if stepping into the domain of a moral hazard is inevitable, then it would contribute

more to the careful operation of the policy and more effective controls if the moral hazard were visible than if it were not.

From the perspective of current conditions, it would be better to notice that the BoJ already has stepped over a little into the domain of a moral hazard with helicopter money. As pointed out by Prof. Kazuhito Ikeo, whether or not a buildup in the monetary base has the effect of helicopter money depends on whether or not it is believed that the money is likely to be collected at some time. Basically it is unrelated to the background of how the monetary base was built up. Simply avoiding direct underwriting of government bonds is not the same thing as avoiding a policy of helicopter money.

Incidentally, the Federal Reserve, which moved toward quantitative easing in the same way as the BoJ, began debating an exit strategy at largely the same time the policy began. Discussing an exit strategy also is an indicator that there is no intent to make permanent the increased holdings of government bonds resulting from quantitative easing. In contrast, since beginning quantitative easing in 2013 the BoJ appears to have rejected the idea of a debate on an exit strategy itself. If it is worried about reckless uncontrollable expectations, the BoJ probably should have more of a sense of crisis at this time.[14]

Supplemental explanation 2: The importance of thinking about an exit strategy

Although the basic ideas behind this proposal were inspired by Prof. Stiglitz's 2003 proposal on government paper and the Takahashi finance policies (a set of fiscal and monetary policies introduced by Korekiyo Takahashi) begun in 1931, of course those should be modified when applied to the contemporary Japan. In 2003 the BoJ had not yet turned its hand to the large-scale expansion of the monetary base that would be called a new dimension of monetary easing, and the situation from which Finance Minister Takahashi was trying to break free in 1931 was (viewed with the benefit of hindsight) not only a leveling off of the global rapid economic growth that continued from the latter half of the 19th through the entire 20th century but also one in which the yen at that time had a much smaller presence as an international currency than it does today.[15] When considering these issues facing contemporary Japan, probably we should be even more conscious of the need to secure safety in an exit strategy than were the ideas of Prof. Stiglitz and Finance Minister Takahashi. That is the main reason for the variable interest rates on government bonds proposed here.

However, this is not the only reason for the author's emphasis on flexible operation in the exit strategy. As was the case with Prof. Stiglitz's proposal, the plan described here basically could be effective only once, and for this reason once its effects have run their course fully, then (as long as no self-propagation of expectations has occurred) the resulting increases in prices would end.[16] That is, even though prices would increase as a result of this plan, there is a high likelihood that it would not lead to sustained inflation. While of course it might be possible to generate something

resembling sustained inflation in its appearances through the repeated underwriting by the BoJ of relatively small amounts of FPGBs, whether or not there is a need to generate price increases to that extent probably is an issue that should be considered separately.[17] If price increases created through intervention in either the denominator or the numerator of the formula for determining equilibrium prices under the FTPL were to change into sustained inflation, then control of the situation itself might not be possible after that. It is because of a wariness about this risk that this proposal has stressed the importance of preparing a scenarios for withdrawal—i.e., an exit strategy.

---

[1] As used here, the term "sources of funding for repayment of integrated government debt" refers basically to government revenues that can be allocated to the cost of paying principal and interest—that is, the primary surplus. However, from the perspective of grounds for trust in the currency, this should include the contributions to revenues that could be made by curtailing government activities as well as gains from the sale of assets. For this reason, to make clear the fact that this meaning is more expansive than under the public finance definition, the term "primary surplus" has been avoided and a more unrestricted conceptual expression used instead.

[2] Even the resulting expectations of a discontinuous and unsustainable rise in the price level could be transformed into a continuous rise in the price level over a certain period of time if their results were extended from the present into the future through rising interest rates. (See "Inflation results from more than just fiscal expansion" January 31, 2017 issue of *Weekly Economist [Mainichi Shimbun].)*

[3] For example, the results of distribution of 20 trillion yen in helicopter money in Japan, which has a monetary base of about 400 trillion yen and a balance of government bonds (not including those held by the central bank) that has reached about 600 trillion yen, could be estimated as upward pressure of approximately 2% on the price level. However, this tells us nothing about whether this pressure would be realized at once or over time, since it would be affected by the state of price formation and wage negotiations in the market as well as the BoJ's monetary policy stance.

[4] It is possible to intervene in the equilibrium price level by changing the nominal interest rate, since the nominal current value of the balance of treasuries issued, not including central bank holdings, in the numerator would change. This is the FTPL concept of the effects of monetary policy. Japan's challenge is its inability to lower nominal interest rates beyond the barrier of zero.

[5] Prof. Kazuhito Ikeo has written, "The results of policy are determined not by the current base money balance but by people's expectations of how the base money balance will change in the future. Just as a policy of helicopter money would not be successful if the increase in base money is considered temporary, so would current policies be transformed into helicopter money policies if people believed that the current base money expansion was permanent." (*Nihon Keizai Shimbun,* June 8, 2016)

[6] In *Post-monetarist Monetary Policy* (*Nihon Keizai Shimbun*), published in June 2011, Prof. Kunio Okina argues that Stiglitz's proposal of government paper is equivalent to the BoJ's underwriting of interest-free perpetual government bonds.

[7] The policy of underwriting of government bonds by the BoJ was introduced to the Diet in June 1932, half a year after Finance Minister Takahashi had taken office in December 1931. The actual underwriting took place in November 1932. Thus, it would appear that the greater part of the effects of the so-called Takahashi finance policy was due to the way the speech and behavior of the Finance Minister overall led to expectations of fiscal expansion without a consciousness of the sources of funding for repayment.

[8] It is not the case that Prof. Stiglitz's method lacks any method of salvaging. Salvaging would occur if the government repurchased the government paper collected or underwritten by the BoJ (funds for such repurchase probably would be raised by issue of new government bonds on the markets), and

furthermore it would be possible systemically to secure for the BoJ the initiative in such salvaging by giving it a put option to resell the government paper. The reason this proposal did not adopt that method is because of a recognition of the scale of political friction likely to arise with the series of related procedures.

[9] The minutes of his speech (The 60th Anniversary Meeting, the Japan Society of Monetary Economics) include: "I am intrigued by a simple proposal that I understand has been suggested by the Japanese Business Federation, the Nippon Keidanren. Under this proposal the Ministry of Finance would convert the fixed interest rates of the Japanese government bonds held by the BoJ into floating interest rates."

[10] After publication in May 2016 on the website of Nowcast, the company that provides the Nikkei-Nowcast projected price index, it was described in the August 2, 2016 issue of the *Weekly Economist* magazine published by *Mainichi Shimbun.*

[11] The issue of revaluation losses is more important to private-sector financial institutions than to the BoJ. This is because in an integrated government, revaluation losses to the BoJ as a result of the exit from monetary easing would be offset by revaluation gains arising to the fiscal sector simultaneously. The reason the BoJ needs to be prepared for revaluation losses is due solely to the fact that under the current system government and BoJ finances are managed separately. In addition, since at present neither the government nor the BoJ marks financial assets and liabilities to market, rather than a systemic matter the issue of revaluation gains and losses should be considered an issue of the market's trust in each institution and one of securing a degree of freedom in the exit from monetary easing.

[12] While the main reason for using overnight interest rates as the base interest rates linked was due to a focus on enabling flexible redemption (purchases for redemption) as described under Paragraph D, when considering the time of selling it also could be argued that the interest rate on the longest-term government bonds should be used as the basis. Since this also involves the issue of trust in the BoJ's yield-curve controls, it is a topic for separate discussion.

[13] The form of government bonds—whether they are perpetual or not—is not the essential point. If general expectations are formed that government bonds held by the central bank are likely to be refinanced endlessly, then even if the bonds underwritten have fixed terms a helicopter-money effect would result from such expectations. The Takahashi finance policy had such an effect at first, and in response Finance Minister Takahashi can be considered to have controlled this effect by implementing sale operations in parallel to the BoJ's underwriting of government bonds.

[14] After Governor Kuroda took office in 2013, the BoJ supplied monetary base through large-scale purchases of government bonds, under the name of a new dimension in monetary easing. However, the effects of this policy on prices were limited. An interpretation of the reasons for this limited nature based on the FTPL would state that what was conducted was essentially no more than a switching of the components of the numerator of the formula for determining the equilibrium price level, with no change in its total volume. (Fair-price government bond operations would not change the sum of the numerator.) However, if wariness about the massive monetary base arising as a result and about the financial burden likely to bear on the BoJ for its resolution (the BoJ would suffer revaluation losses if interest rates were to rise during the process of recovering the monetary base, and a portion of these would be realized as losses on sale) were to cause people to believe that after reaching such a state the BoJ was unlikely to move to recover the monetary base, then a considerable portion of the monetary base in existence at the time would be transformed at once into helicopter money. Proposed safety valves for avoiding such a situation were the conversion to floating interest rates suggested in a 2003 lecture by then-Fed Chairman Bernanke as well as the author's 2016 proposal (the fundamentals of which are included in this proposal).

[15] A major distinguishing feature of the Takahashi finance policy is the fact that sale operations were conducted for government bonds held by the BoJ at the same time it underwrote government bonds. That is, while Finance Minister Takahashi began to distribute helicopter money at the end of 1932, at an early stage he also began salvaging the money thus distributed, and thus controlled its effects. However, this was possible thanks in part to the good fortune of its timing that coincided with a movement toward a global economic recovery, including the New Deal that began in 1933 in the

United States.

[16] To review, if the BoJ were to increase interest rates at the same time then the resulting inflationary expectations could be extended over time. However, this result too basically could be achieved only once.

[17] The method of applying interest to bank notes in general (negative interest rates, in particular) also should be considered seriously if the intention is to secure a degree of freedom in monetary policy under conditions of a liquidity trap.