

# The Potential for Interest Rate Increases from the Perspective of the Structure of the Bond Market

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- Domestic investors struggling with fund management
- Majority of the market projects no increase in interest rates for around two years
- Scenarios for Japan differ significantly depending on interest rate levels

This paper will focus on participants in Japan's domestic bond market, and will consider why domestic investors continue to invest in government bonds (investor expectations), and what factors might cause their investment behavior to change.

## 1. Why do domestic investors continue to purchase government bonds?

It is known that the ratio of domestic investors

in the Japanese bond market is overwhelmingly high, reaching approximately 95% as of the end of March 2010. What is the background to this extraordinarily high domestic consumption rate, i.e. the background to the continuing purchase of domestic bonds by domestic investors? This question will be considered below from the following three perspectives:

1. The existence of funds to invest
2. Issues related to restrictions on investment by investors, and
3. Domestic investors' view of Japanese

government bonds.

#### 1) Excess funds for investment

From a macro perspective, Japan's current account balance has continued in the black (Figure 1). With domestic savings continuing to grow, the deficit in the public sector has continued to be funded by savings in the private sector. Considered from the perspective of domestic investors (as represented in particular by banks and insurance companies), against the background of domestic savings, funds for investment in government bonds are being obtained in the form of deposits, insurance contracts, etc. Naturally, in the background we have the existence of a household sector as an actor in saving which has a strong domestic bias. The growth of indirect finance in the form of overbanking is another factor in the background. Despite the occurrence of a temporary investment trust boom in the past, Japan's continuing state of low growth means that active investment (for example in stocks, real estate, or overseas investment) tends to be avoided, and the majority of funds in the household sector are directed towards savings, insurance and pensions (Figure 2).

On the other hand, the savings rate in the household sector has recently displayed a declining tendency. While it has been indicated that this will result in a decline in sources of government finance, this is not in itself a problem, because the amount of the decline is supplemented by non-finance companies (Figure 3). However, as will be discussed below, because a transition of the actor in savings from the household sector to the non-finance sector involves a change in the *expectations* of the actor directing funds towards government bonds, we

must bear in mind that it implies the possibility of a change in the structure of the bond market.

#### 2) Restrictions on investment among domestic investors

While savings, insurance and pension funds function to absorb continuously increasing domestic savings, domestic investors such as banks and insurance companies are experiencing tremendous difficulties in managing excess funds.

The banking sector, in which the outstanding amount of investment in government bonds has grown rapidly in the last ten years, loans are increasing more slowly than savings, i.e. the sector is facing a decline in the loan-to-deposit ratio (Figure 4). The gap between savings and loans stood at around 130 trillion yen as of March 2010, but as of July 2010 has increased to 149 trillion yen. Clearly, banks can be seen as increasing their level of investment in government bonds as an alternative to loans.

In addition, the diffusion of the concept of asset and liability management (ALM) has had a strong influence on insurance companies (in particular life insurance companies). Asset and liability management is a technique used by insurance companies and financial institutions to strategically manage the risk generated by mismatches between the maturity period of their assets and liabilities and interest rates. The majority of the liabilities of life insurance companies are insurance contracts (premium reserves), and the average period of these contract exceeds ten years. Given this, in accordance with the concept of asset and liability management, there has been a continuing trend towards increasing the rate of investment in yen-denominated bonds (or finance) in order to

match, as much as possible, the interest rate sensitivity of the asset side to these yen-denominated liabilities exceeding ten years<sup>\*1</sup>. In addition, in order to ensure compatibility with ultra-long-term yen-denominated liabilities, investment in ultra-long-term bonds (20-, 30- and 40-year bonds) has been increasing on the asset side (Figure 5). This is one of the main factors which have prevented ultra-long-term interest rates (over ten years) from increasing above a specific level, and why the overall yield curve for Japanese bonds is stable at a low level.

A number of shared restrictions on investment also exist for domestic investors, including a tendency towards comparatively stringent financial administration in relation to overseas investments (the institutional system relating to investment, rules for the management of funds, requirements for detailed reporting, etc.), a tendency, due to accounting standards, to avoid products to which mark-to-market accounting is applicable, which would affect profit-and-loss statements, and a tendency to tolerate market risk (i.e., a greater sensitivity to the manifestation of credit risk than to profit and loss in portfolios due to increases or decreases in interest rates). These may all be indicated as background factors which influence investment in Japanese government bonds.

### 3) Optimistic outlook regarding Japanese government bonds

Next, I would like to touch on the short-term view concerning investment in government bonds held by domestic investors<sup>\*2</sup>.

First, I will consider this from the perspective of fundamentals. Most domestic investors believe that Japan's macroeconomic environment will

continue to be weak for a fixed period in future (at least two years), and that the Bank of Japan will continue to apply its loose monetary policy over the long term. As a result, there is little possibility that the amount of investment in government bonds will decline in future. Assuming that Japan will follow the U.S. and Europe in pursuing an exit strategy that will see a move towards the tightening of the loose monetary policy, we can predict that there will be no increase in the interest rate for around two years. Because of this, there is little risk in investment in two-year bonds, and we can predict that investment in five-year bonds will also continue based on the same outlook. As this indicates, a species of time-axis effect has recently been observed in the Japanese bond market.

Next, what is the outlook for government finances? Despite the fact that Japan's ratio of government debt to GDP continues to be the world's highest, the market has not become inured to this situation, and in fact fears of a gradual but steady and sustained growth in the fiscal deficit are increasing. With the reduction of fiscal deficits a worldwide trend against the background of the sovereign debt problem of Greece and other Southern European nations, Japan's fiscal deficit shows no sign of decreasing. To the contrary, while the national budgets for the past several years have relied on reserves and surpluses, the drying up of these funds from fiscal 2011 raises the undeniable possibility of an increase in the fiscal deficit (an increase in issuance of new financial resource bonds) unless there is a certain increase in the taxation rate.

Amid this situation, with the market having focused its attention on fiscal restructuring against the background of the Greek crisis for a period of only a few months, at present long-term interest

rates are declining. The major factors in the background are, in the short term, the abovementioned expectations regarding the macroeconomic environment and the monetary policy of the central bank. We must not forget, however, that declining interest rates might make a continuous expansion of government debt appear acceptable.

I would like to consider this point numerically. The potential for a continuously increasing government debt should be verified using multiple methods, but the Japanese bond market tends to focus on the interest coverage ratio (interest rate payments divided by tax revenue; “IC ratio” below). At present, interest rate payments are approximately 10 trillion yen, and tax revenues are approximately 40 trillion yen, giving us an IC ratio of 25% (10 trillion yen divided by 40 trillion yen). Let us simulate the future trend in the IC rate based on specific assumptions and scenarios (Figure 6). In the basic scenario, which assumes the continuation of the present low interest rates, the IC ratio remains below 40% even in fiscal 2035. While it is not possible to specify with any certainty what percentage the IC ratio should be at to ensure the confidence of the market, if we assume the continuation of low interest rates, an increase in the consumption tax in the near future, and continuing economic growth, even if at an extremely low level, the possibility is high that the market will display a reasonable degree of confidence in government bonds for the foreseeable future (probably over the long term, ten years or more). These *expectations* with regard to future national finances are functioning to justify investment in government bonds for domestic investors.

## 2. How strong is the possibility of an increase in interest rates?

As shown in Section 1, we can indicate that a variety of factors including fundamentals, supply and demand, and optimism in relation to future national finances are functioning to promote confidence in government bonds, and that this enables the realization of low-cost and stable national finances.

However, isn't it possible that this situation will change in the future? And isn't it possible that the yield on government bonds will increase significantly as a result? While we can indicate that the possibility is low in the near future, if we consider a period in excess of ten years, the possibility increases. I would like to consider the background factors here from a variety of perspectives.

### 1) The possibility of a change in investment behavior

Excess funds held by domestic investors are the resources used to purchase Japanese government bonds, and as I have already indicated, these funds originate in domestic savings based on the current account balance continuing in the black. We can predict that there is little possibility that Japan's current account balance will go into the red in the short term, but looking into the future, the ability to maintain the current account balance in the black will depend on strategic responses based on strong government commitment, such as efforts to maintain or increase the nation's international competitiveness.

It has been pointed out that it is possible that the reduction in the individual savings rate

consequent upon the aging of the population might function as an impediment to the procurement of funds by the Japanese government. However, this view is not strictly correct. Restricting the discussion to the facts, the current account balance will continue in the black, and even if there is a decline in the savings rate in the household sector, this will represent nothing more than a transition to savings in another sector (most recently, the corporate sector). However, if there is a transition from the household sector to the corporate sector as the actor in saving, we cannot be certain that investment behavior will not be affected. If we ask which of the domestic and the corporate sectors has the stronger domestic bias, which is most risk-averse, and which has the lower expectation for the rate of return on investment, the answer will presumably be the household sector. Therefore, as this transition of domestic savings from the household sector to the corporate sector takes place, it is likely that we will see changes in the present structure of procurement of funds from investors in Japanese government bonds (savings, insurance, etc.), and that the yield demanded from JGBs will increase as the expected rate of return on investments increases. I believe that we should continue to focus on changes in the structure of supply and demand that will be brought about by changes in factors in the background of the funds that are invested in Japanese government bonds.

In addition, as indicated above, the recent increase in the use of ultra-long-term investments by life insurance companies is one factor that has exerted a specific effect on the recent stability of long-term interest rates at low levels. However, it is quite possible that this demand will dry up over the next few years<sup>(3)</sup>. Investment in

ultra-long-term bonds will probably continue in the short term, but it is dangerous to consider that the transition to long-term bonds will maintain its present pace into the future. In a certain sense, the reconsideration of government procurement of funds and the delineation of a path to fiscal restructuring become all the more important while life insurance companies are displaying this demand for ALM.

## 2) Increased interest payment expenses

As indicated above, if we assume that the present low interest rates will continue, that consumption tax will be increased in the near future, and that economic growth is maintained, even at an extremely low level, then there is a strong possibility that the market will retain considerable confidence in Japanese government bonds for the foreseeable future (probably for an extended period of ten years or more). However, there is no guarantee that these three conditions will continue to be satisfied in future. It must also be admitted that the state of Japan's public debt is extremely vulnerable to an increase in interest rates stemming from a loss of confidence.

Let me attempt to enlarge upon the IC rate simulations conducted above. The future IC rate differs significantly between the pessimistic scenario and the extremely pessimistic scenario (in these scenarios interest rates increase). For example, let us assume that the market loses confidence at an IC rate of 50% or more, i.e. a level at which 50% or more of national tax revenues are appropriated for the servicing of interest on previously issued government bonds. The IC ratio exceeds 50% in fiscal 2018 in the case of the pessimistic scenario, but in fiscal 2013 in the case of the extremely pessimistic scenario.

In the past, debt servicing expenses in relation to government bonds displayed a declining tendency, in part due to an ongoing decline in long-term interest rates. However, the effect of the decline in interest rates is already exhausted, and debt servicing expenses are now increasing with an increase in the amount of outstanding debt. We can predict that in the future, changes in the interest rate level will affect the confidence of market participants in the sustainability of national finances to an increasing degree.

As this indicates, it can be predicted that the possibility is increasing that there will be a future change in the confidence that sees enormous sums invested in Japanese government bonds. At present, long-term interest rates are low, and there is a limited awareness of danger in relation to public finances (i.e., market warning mechanisms are failing to function). Having been granted this period of grace, what is now required is that our political leaders consider the expectations of the Japanese government bond market and make an ongoing commitment to fiscal restructuring with a focus on sustained economic growth and the realization of increased tax revenues, including by means of tax increases.

### Notes

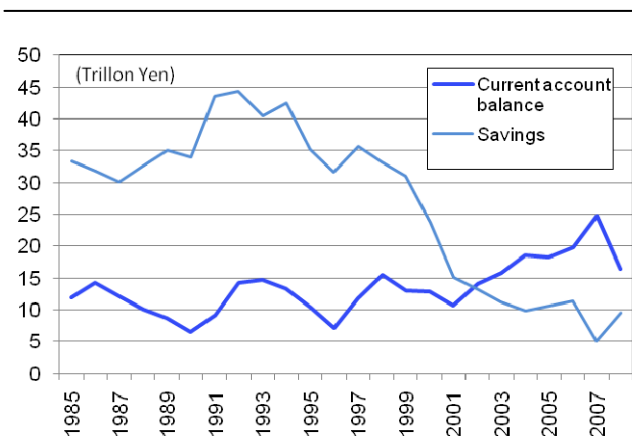
\*1) Because loans, corporate bonds, etc. involve credit risk rather than investment rate risk, from a strict ALM perspective they are not considered major investment targets, and this serves to accelerate investment in government bonds.

\*2) This is based on what can be considered to be market consensus, and does not represent the view held by all market participants.

\*3) This is not to say, however, that investment in these bonds will stop completely. The situation may also change depending on whether or not interest rate derivatives are used.

**[Figure 1]**

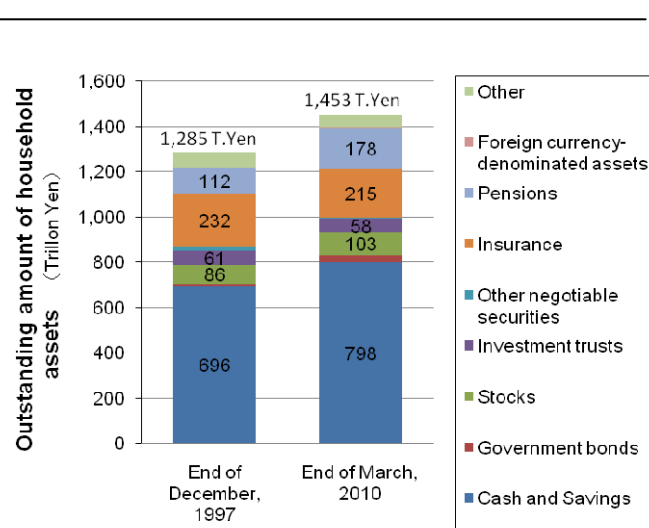
Trends in Japan's current account balance and domestic savings



(Source) Ministry of Finance, Bloomberg, Morgan Stanley Research

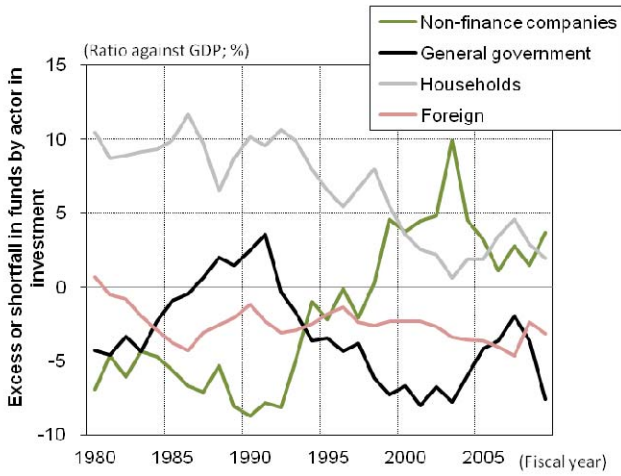
**[Figure 2]**

Breakdown of household financial assets



(Source) Compiled by Morgan Stanley Research from Bank of Japan data

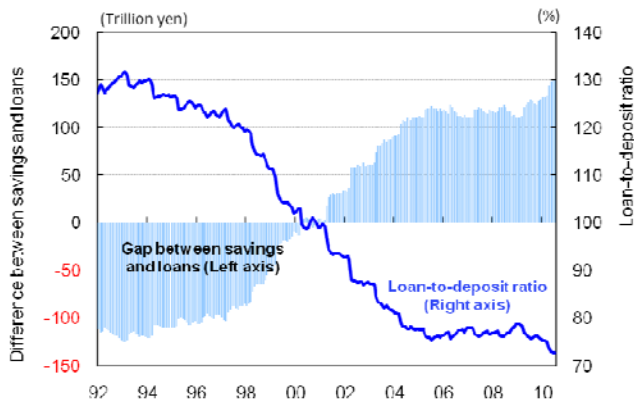
**[Figure 3]**  
Excess or shortfall in funds by actor in investment



(Source) Compiled by Morgan Stanley Research from Bank of Japan and Cabinet Office data

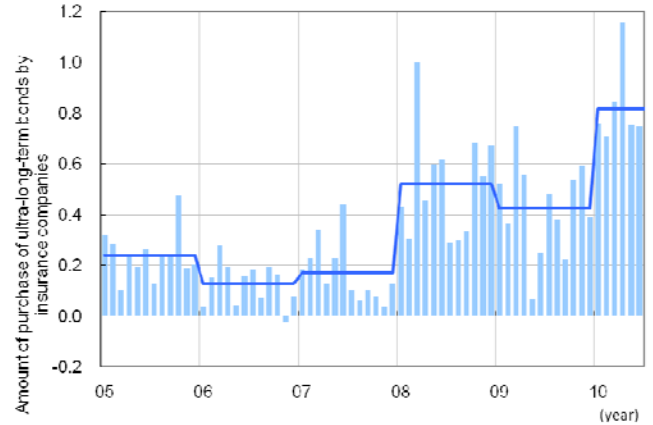
Notes:  
Necessary adjustments were made for fiscal 1998, 2005, and 2006-2009. The adjusted figures are as follows. For fiscal 1998, non-finance companies +27.2 trillion yen, general government -27.2 trillion yen. For fiscal 2005, non-finance companies +42.8 trillion yen, general government -42.8 trillion yen. For fiscal 2006, general government -12 trillion yen. For fiscal 2007, general government -6.7 trillion yen. For fiscal 2008, general government -11.3 trillion yen. For fiscal 2009, general government -7.3 trillion yen.

**[Figure 4]**  
The gap between savings and loans in the banking sector



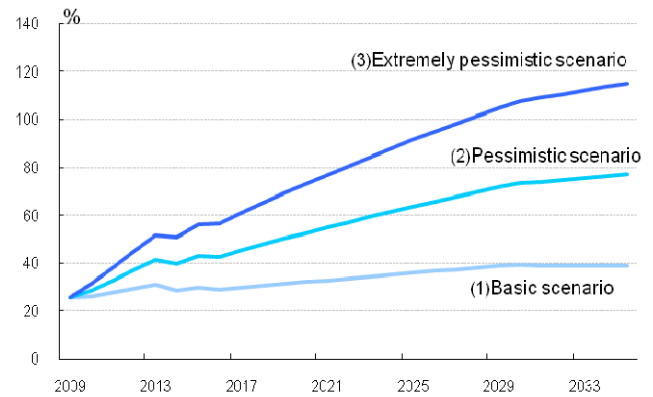
(Source) Compiled by Morgan Stanley Research from Bank of Japan data

**[Figure 5]**  
Investment in ultra-long-term bonds by insurance companies



(Source) Compiled by Morgan Stanley Research from Japan Securities Dealers Association data

**[Figure 6]**  
Three scenarios for the sustainability of Japan's public finances as determined by IC ratio simulations



(Source) Morgan Stanley Research

(Assumptions of simulation)  
With regard to the consumption tax rate, an increase from the present rate of 5% to 8% is assumed from April 2014, the year following the 2013 Lower House elections; the rate is then increased from 8% to 10% in 2016, following which it remains fixed. With regard to tax revenues, it is assumed that in addition to the abovementioned increase in the consumption tax rate, the nominal GDP growth rate will increase from 0.5% to 1.5% up to fiscal 2015, and will remain fixed at 1.5% from fiscal 2015 onwards. As a result, it is assumed that the fiscal 2009 General Account tax revenue of 39 trillion yen will increase to 86

trillion yen in fiscal 2035. With regard to the outlook for interest rates, the following three scenarios were formulated: 1) A basic scenario, in which the most recent shape of the yield curve remains unchanged; 2) A pessimistic scenario, in which interest rates across the entire yield curve increase +1% in fiscal 2010; and 3) An extremely pessimistic scenario, in which interest rates across the entire yield curve increase +2% in fiscal 2010.

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