

Examining the upside potential for long-term interest rates in Japan

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- ▶ Over the longer term, real economic growth rates and consumer price inflation will be essential in considering the level of interest rates.
- ▶ The fiscal and current account deficits could be a factor which push up the level of interest rates due to concerns over fiscal sustainability.
- ▶ In the event that inflation expectations align with the Bank of Japan's target level of inflation, a range of 2.0-3.0% is not an unnatural level for the long-term interest rate (10-year Japanese Government Bond yield) after the expected monetary policy change.

Investors have been closely monitoring the timing of changes in the Bank of Japan's (BoJ) monetary policy. In this report we examine the anticipated range of long-term interest rates in Japan, specifically the 10-year Japanese Government Bond (JGB) yield, after a change in monetary policy using the "Fisher's equation" (i.e., nominal interest rate = real interest rate + inflation rate).

In the aforementioned equation, the real interest rate is considered to be linked to the expected real economic growth rate. When companies invest by borrowing, they are expected to abstain from investing if they do not foresee a rate of return higher than the borrowing rate. Therefore, the real interest rate can be considered to be approximately equal to the marginal expected real rate of return on investments. When this theory is applied to the economy as a whole, the real interest rate can be regarded as the expected real economic growth rate. In addition, as future expectations tend to be partially formed on the basis of past performance, it can be thought that the expected real economic growth rate is supposed to be linked to the real economic growth rate, and the expected inflation rate to the consumer price inflation rate.

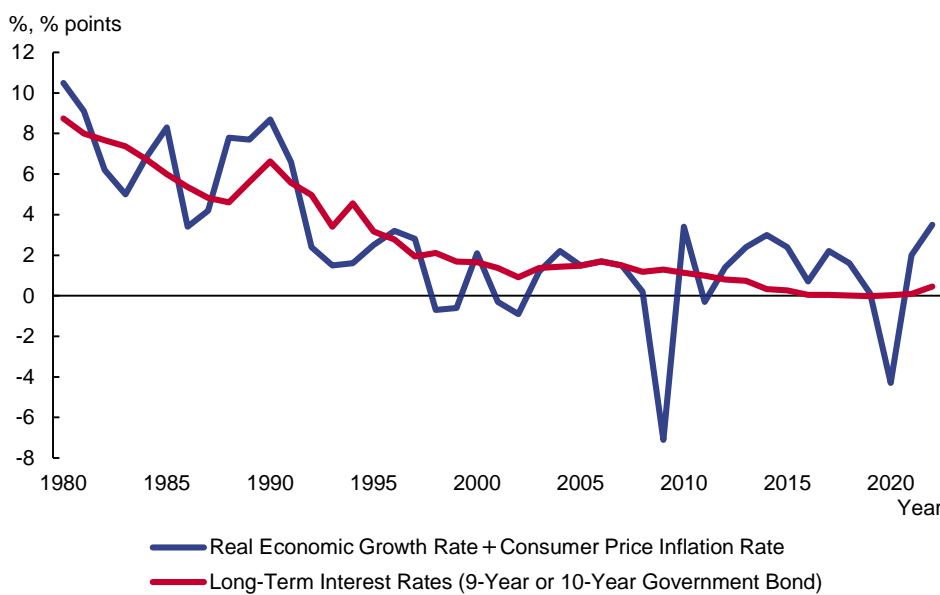
On the other hand, as there are various risks involved in holding government bonds, such as differences in remaining maturities, investors are likely to demand additional interest rates on top of the risks. On this basis, long-term interest rates can be boiled down to 'real economic growth rate + consumer price inflation rate + risk-based additional interest rate'. Nevertheless, there are a number of factors to be taken into consideration, such as the way in which the term and maturity are interpreted as well as the term structure of interest rates, which may need to be open to interpretation due to a number of assumptions.

Takahiro Nakano, Strategist

**“Economic growth rates
and inflation to guide
interest rates”**

A comparison of Japan's real economic growth rate plus consumer price inflation rate with long-term interest rates (10-year government bond yields, some 9-year) shows that they have generally moved in tandem (Figure 1). Apart from other factors such as growing concerns about monetary policy and public finances, the sum of the real economic growth rate plus the consumer price inflation rate can be considered as a guide to the level of long-term interest rates.

Figure 1: Relationship Between Real Economic Growth plus Consumer Price with Long-Term Interest Rates in Japan



Source: Cabinet Office, Ministry of Internal Affairs and Communications, and Ministry of Finance, Japan

Period: Annual data from 1980 to 2022

Note: Real economic growth rate is calculated based on multiple standard real GDP year-on-year ratios.

Consumer price inflation rates are national, aggregate, and annual averages.

Long-term interest rates : 9-year government bonds from 1980 to 1985 and 10-year government bonds compounded half year at year end from 1986 to 2022.

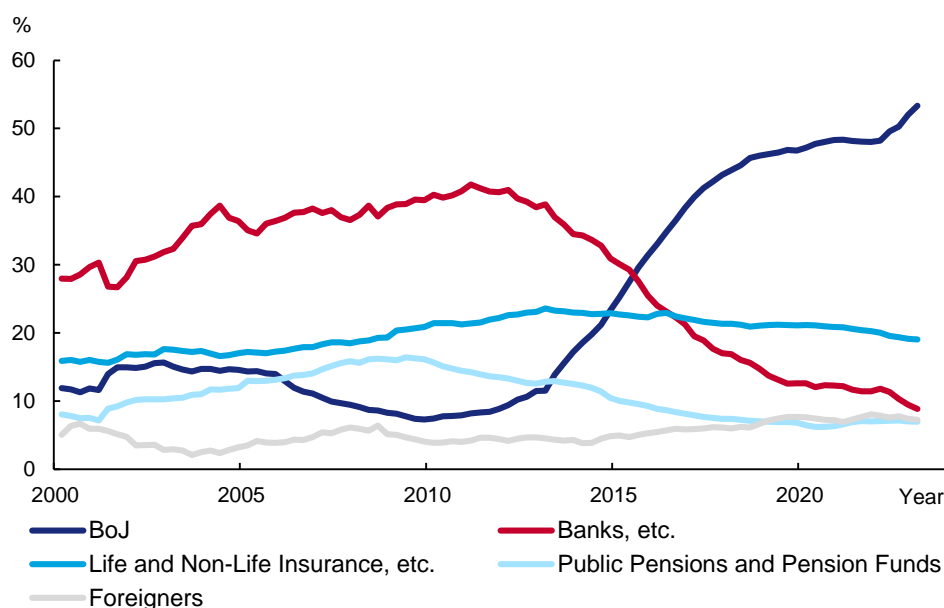
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Let us consider factors other than economic growth rates and prices. Central bank monetary policy also affects the level of interest rates. In April 2013, the BoJ introduced 'Quantitative and Qualitative Monetary Easing', which brought about a decline in long-term interest rates through massive purchases of government bonds. The BoJ introduced Quantitative and Qualitative Monetary Easing with Long- and Short-Term Interest Rate Control in September 2016, including a target setting for long-term interest rates. As a result, the BoJ's JGB holdings have recently exceeded 50% (Figure 2).

“The BoJ's purchases of government bonds also affect the level of interest rates”

The BoJ's stance on JGB purchases is an important factor influencing the level of interest rates. If the BoJ continues to purchase JGBs in some form after the change in monetary policy, it might restrain the level of interest rates, while the impact would depend on the size and methodologies deployed.

Figure 2: JGB Holdings Rates by Investor Category



Source: BoJ
 Period: Quarterly data from 1Q 2000 to 1Q 2023
 Note: JGB includes FILP bonds.

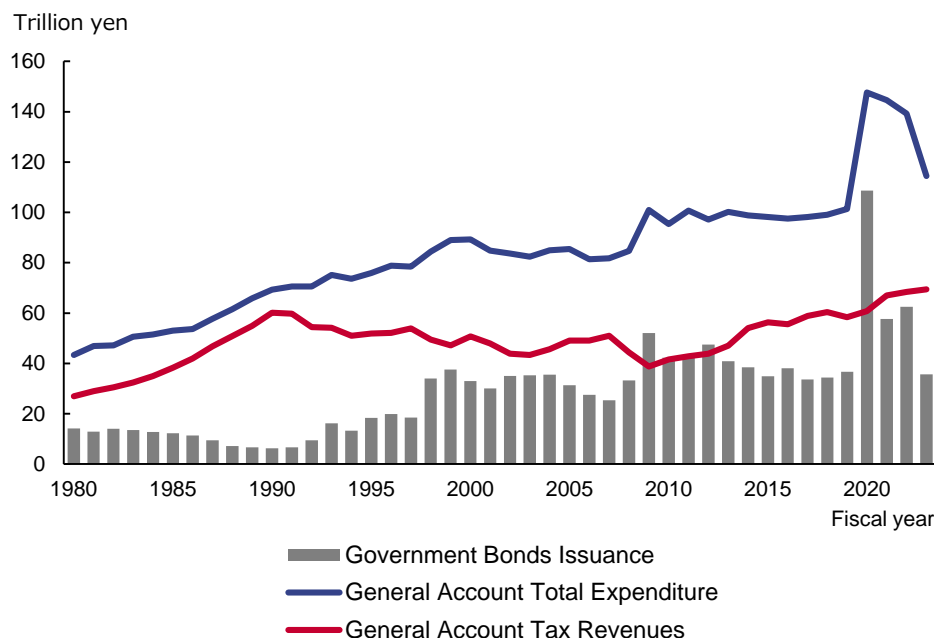
The level of confidence in the fiscal situation is also important when considering interest rate levels. If Japan's fiscal concerns increase, investors may demand higher interest rates to match the risk when purchasing government bonds. If JGBs are issued at higher interest rates without an adequate review of expenditure, the burden of interest payments will increase, and there is a risk of falling into a vicious circle that will lead to further increases in interest rates.

During the European debt crisis in the early 2010s, triggered by the window dressing of Greece's budget deficit revealed in October 2009, interest rates in some countries rose significantly due to concerns.

In Japan, expenditure continues to significantly exceed tax revenues in the country's general accounts, with the shortfall being met each year by issuing large amounts of government bonds (Figure 3). Japan's declining birthrate and ageing population are expected to continue, and if the fiscal situation deteriorates further, for example due to increased social security-related costs, there is a risk that the level of interest rates could rise.

“Concerns about fiscal deficit could push up interest rates”

Figure 3: Expenditure, Tax Revenues and Government Bonds Issuance in Japan



Source: Ministry of Finance, Japan
 Period: From FY1980 to FY2023
 Note: Figures for each year is based on the following criteria.
 Settled figures (From FY1980 to FY2021)
 Second supplementary budget (FY2022)
 Budget(FY2023)

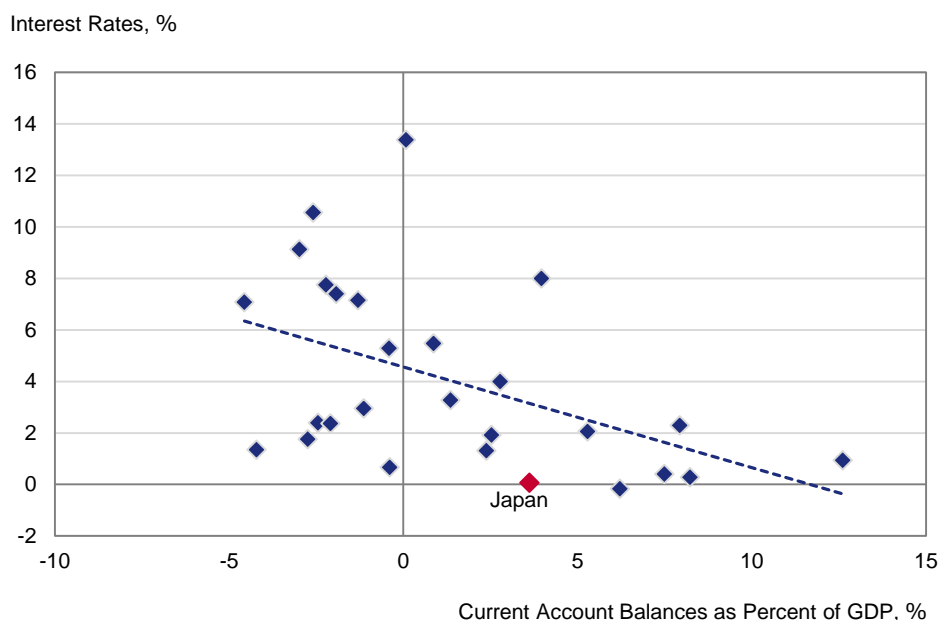
The current account balance in the balance of payments statistics may also affect the level of interest rates. A country’s current account surplus or deficit may indicate its overall financial situation, however, neither is better or worse than the other. That being said, if the current account deficit, i.e. a domestic funding deficit, is caused by a budget deficit in the government sector, this can be problematic from the perspective of fiscal sustainability.

If the government sector has a significant funding deficit, i.e. a budget deficit, a current account surplus implies that the private sector (households and companies) has a significant funding surplus and the government sector can raise funds domestically alone, e.g. by issuing government bonds. However, a current account deficit means that the country as a whole is underfunded and may have to raise funds from the foreign sector. If the level of interest rates is relatively low compared to other countries, the government may have to set higher interest rates on bond issues in order to encourage investment from abroad. Looking at the relationship between current account balances and long-term interest rates (10-year government bond yields) in the period before the Covid-19 pandemic (from 2015 to 2019) for countries with economies above a certain size, interest rates tend to be low when current account balances are in surplus and vice versa (Figure 4).

“Current account deficit under fiscal deficit poses a risk of higher interest rates”

Until now, Japan has continued to generate current account surpluses, and the ratio of government bond holdings by the foreign sector has remained at a low level (as previously shown in Figure 2). However, interest rate levels could rise if current account deficits persist in the context of a substantial budget deficit, and if Japan's reliance on funding from overseas increases.

Figure 4: Relationship Between Current Account Balances and Long-Term Interest Rates in Each Country



Source: Factset and IMF (International Monetary Fund) "World Economic Outlook Database, April 2023 Edition"

Period: Average of each year from 2015 to 2019

Note: Countries are selected with two conditions below.

1. Average GDP shares based on PPP (purchasing power parity) from 2015 to 2019 calculated by the IMF exceeds a certain size.
2. The data of long-term interest rates for 2015-2019 is available on Factset.

The countries covered : Australia, Brazil, Canada, China, Colombia, France, Germany, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, Nigeria, Philippines, Poland, Russia, South Africa, Spain, Switzerland, Taiwan, Thailand, UK, US, Vietnam

Long-term interest rates are the average of 10-year government bond yields at the end of each year from 2015 to 2019.

Current account balances as percent of GDP is the average IMF data of each year from 2015 to 2019.

The dotted line shows the trend.

With regard to potential growth, the BoJ has assumed a year-on-year rate of 0.3% for the half-year period from October 2022 to March 2023, while the Cabinet Office has assumed a year-on-year rate of 0.4% for the period from January to March 2023. Japan's growth rate is therefore expected to be around 0.0-1.0%. The BoJ has also set a price target of 2%.

Being aware of the need for a broad way of thinking, the relationship between interest rates, growth, and prices suggests that if inflation expectations rise to the level of the price target, a long-term interest rate (10-year JGB yield) level of a range of 2.0-3.0% would not be unnatural. Conversely, if inflation expectations do not rise, a range of 0.5-2.0% is considered to be the standard for long-term interest rates. However, even in this lower inflation scenario, the fiscal and current account balances could be a factor pushing up interest rates, and we need to watch the change carefully, moving forward.

**“Examine potential upside of
interest rates in Japan”**

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