

# Daiwa's View

## JGB yield levels when adopting 0% target for 5-year yield

- Around 0.1% of 10-year yield, lower 0.3% range of 20-year yield, and flattening of yield curve

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Daiwa Securities Co. Ltd.

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### JGB yield levels when adopting 0% target for 5-year yield

[Summary]

In this report, we estimated the 10-year and 20-year JGB yields in the case of a policy change in the 0% yield target from 10-year JGBs to 5-year JGBs. In conclusion, we found a high possibility that the 10-year JGB yield level will stay in the 0.1%  $\pm$  5bp range even in the case of a policy change. In addition, as the rise in the 20-year JGB yield is more moderate than that in the 10-year JGB yield, the 10-year/20-year spread is expected to decline from the current 0.3% to around 0.25%, resulting in flattening of the yield curve.

Chart 1: Yield Curve When Adopting 0% Target for 5-year JGB Yield (simulation)

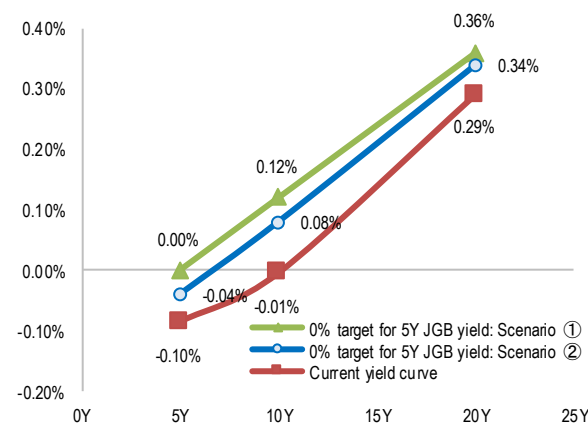
Neutral interest rate		Current (forward)	5Y5Y	10Y10Y	Current (yield curve)	5Y	10Y	20Y	10Y20Y Sprd
US	2.50%	US	2.01%	2.56%	US	1.68%	1.83%	2.20%	0.36%
Japan	0.60%	Japan	0.09%	0.59%	Japan	-0.09%	0.00%	0.29%	0.30%
Germany	0.45%	Germany	-0.01%	0.44%	Germany	-0.56%	-0.30%	0.01%	0.30%

		Estimates (forward)	5Y5Y	10Y10Y	Estimates (yield curve)	5Y	10Y	20Y	10Y20Y Sprd
0% target for 5Y JGB yield: Scenario ①		Japan	<b>0.24%</b>	0.60%	Japan	0.00%	<b>0.12%</b>	<b>0.36%</b>	0.24%
0% target for 5Y JGB yield: Scenario ②		Japan	<b>0.20%</b>	0.60%	Japan	-0.04%	<b>0.08%</b>	<b>0.34%</b>	0.26%

Source: Compiled by Daiwa Securities.  
Note: Data as of 10 Dec.

Chart 2: Simulated JGB Yield Curve



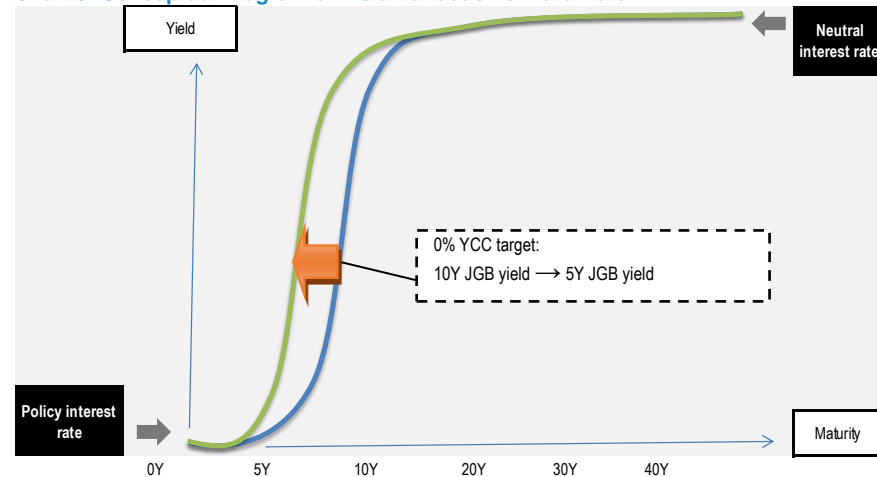
Source: Compiled by Daiwa Securities.  
Note: Data as of 10 Dec.

In the current JGB market, there are two different themes. One is the long-term theme of the “declining neutral interest rate.” As this phenomenon is reining in superlong yields in advanced nations, yield curves have been flattening globally. The other theme is the review of the monetary policy framework. While the IMF proposed shifting the 0% YCC target from the 10-year JGB yield to a shorter maturity to the BOJ, intermediate/long-term yields are facing upward pressure, although they had been strongly contained by the BOJ thus far.

Like this, as yield rises/declines have respective themes in the current bond market, it is difficult to interpret yield changes. In particular, when we face a cataclysmic event like the latter, observations based on daily changes are not enough to grasp the entire picture. We need to have a macroscopic viewpoint to understand the essence.

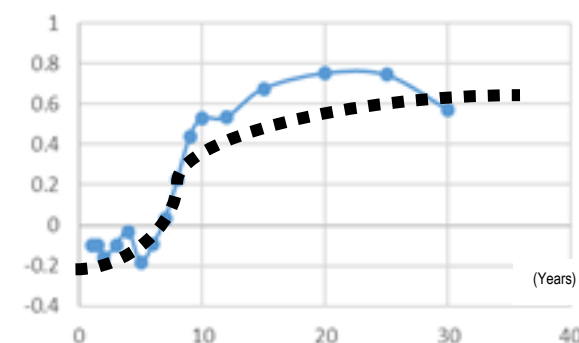
Regarding the yield curve, the starting point and terminal are stipulated by the policy interest rate and the neutral interest rate, respectively. In the starting point of the curve, the policy interest rate is reined in at a low level. However, as the maturity lengthens, the yield starts to rise toward the neutral interest rate at some point, and then converges to the neutral interest rate. Chart 3 shows the current situation by maturity.

**Chart 3: Conceptual Diagram of Instantaneous Forward Rate**



Source: Compiled by Daiwa Securities.

**Chart 4: JGB Instantaneous Forward Rate (%)**



Source: Bloomberg; compiled by Daiwa Securities.

Notes: 1) We plotted X-year forward 3M forward rates.

2) Data as of 9 Dec.

Chart 4 shows the instantaneous forward rate. Put simply, the rate shows the components of the observed rate at one specific point in time. If we observe the 1-year-forward 3-month yield and the 2-year-forward 3-month yield, we can find the approximate level of the instantaneous forward rate. Chart 4 shows the JGB instantaneous forward rate, which is obtained in such a way. Calculation of the weighted average of the instantaneous forward rate in the required period enables us to plot the level of the required yield curve.

That said, if we estimate the approximate yield level, it would be undesirable to make it more complicated than necessary. In this report, we examine yields up to 20 years in three parts: (1) the initial 5 years, (2) 5-year-forward 5 years, and (3) 10-year-forward 10 years, keeping in mind that the nature of yield changes lies in the change in the above-mentioned instantaneous forward rate. First, we confirm the current conditions of the three parts in Japan and the US, and then implement simple simulations.

#### [US conditions]

Regarding US Treasuries, the 5-year yield was 1.68%, the 5-year-forward 5-year yield was 2.01%, and the 10-year-forward 10-year yield was 2.56% as of yesterday. The 5-year-forward 5-year yield is equal to the figure calculated by prorating the current 5-year yield and neutral rate at a rate of about 6:4. This indicates that the yield is approaching the neutral interest rate at a slower pace than an even pro-rate basis. In addition, FOMC members are announcing longer-run projections for the federal funds rate (median as of Sep 2019 = 2.50%). As this is almost the same as the 10-year-forward 10-year yield, we can confirm the high possibility that the 10-year-forward 10-year yield is composed of the neutral interest rate.

#### [Japanese conditions]

Next, we check the current conditions of JGB yields. The 5-year yield is -0.1%, the 5-year-forward 5-year yield is 0.09%, and the 10-year-forward 10-year yield is 0.59%. Here, we assume that the 10-year-forward 10-year yield indicates roughly a neutral interest rate also in Japan, and therefore we adopt the neutral interest rate of 0.6% in our estimation.

When we examine the 10-year JGB yield level in the case of adopting the 0% target for the 5-year JGB yield, the level of the 5-year JGB yield is decided at around 0% in advance. Therefore, a major variable in estimating the 10-year JGB yield is the 5-year-forward 5-year yield. It is almost certain that the instantaneous forward rates in the 4- to 7-year zone will rise from the current levels in line with the shift of the 0% target to the 5-year JGB yield. How much the 5-year-forward 5-year JGB yield will rise from the current 0.09% will depend on the three points: (1) the initial 5-year yield level, (2) the neutral interest rate level, and (3) the convergence speed toward the neutral interest rate.

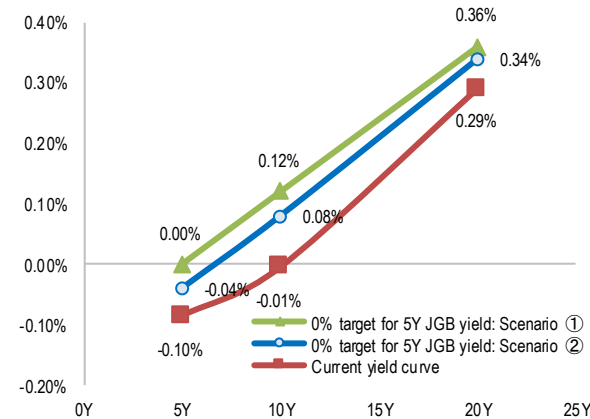
Here, we have an aggressive assumption that the 5-year-forward 5-year JGB yield will converge to the neutral interest rate at a same speed as that in the US. In this scenario (①), the 5-year-forward 5-year JGB yield is calculated at 0.24% (= 0% X 0.6 + 0.6% X 0.4). As the initial 5-year yield is at 0% and the 5-year-forward 5-year JGB yield is at 0.24%, the 10-year JGB yield is estimated at around 0.12%. Moreover, if we use 0.6% for the 10-year-forward 10-year yield, the 20-year JGB yield level is computed at 0.36%, resulting in the 10-year/20-year spread of 24bp.

**Chart 5: Yield Curve When Adopting 0% Target for 5-year JGB Yield (simulation)**

Neutral interest rate		Current (forward)		Current (yield curve)		Estimates (forward)		Estimates (yield curve)	
		5Y5Y	10Y10Y	5Y	10Y	5Y	10Y	20Y	10Y20Y Sprd
US	2.50%	US	2.01%	2.56%	US	1.68%	1.83%	2.20%	0.36%
Japan	0.60%	Japan	0.09%	0.59%	Japan	-0.09%	0.00%	0.29%	0.30%
Germany	0.45%	Germany	-0.01%	0.44%	Germany	-0.56%	-0.30%	0.01%	0.30%
		Estimates (forward)	5Y5Y	10Y10Y	Estimates (yield curve)	5Y	10Y	20Y	10Y20Y Sprd
0% target for 5Y JGB yield: Scenario ①		Japan	0.24%	0.60%	Japan	0.00%	0.12%	0.36%	0.24%
0% target for 5Y JGB yield: Scenario ②		Japan	0.20%	0.60%	Japan	-0.04%	0.08%	0.34%	0.26%

Realistically speaking, the possibility is high that the 5-year yield level will be slightly below zero and the aforementioned assumption is too aggressive (Japan has longer time frame until rate hikes). We thus have a more realistic scenario (②)—the initial 5-year yield of  $-0.04\%$  (level where BOJ conducted fixed-rate purchase ops) and the 5-year-forward 5-year JGB yield of  $0.20\%$  by assuming a somewhat slower convergence pace (toward neutral interest rate) than the US. These led to the results of the 10-year JGB yield of  $0.08\%$ , the 20-year JGB yield of  $0.34\%$ , and the 10-year/20-year spread of 26bp. The results of these two estimations and the current yield level are shown in Chart 6.

**Chart 6: Simulated JGB Yield Curve (in case of no change in neutral interest rate)**



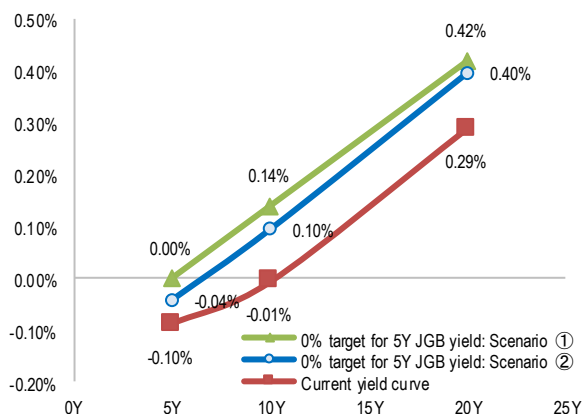
Source: Compiled by Daiwa Securities.

Of course, if the neutral interest rate level changes, the results of these estimations would also change. At the end of this report, we thus conduct similar calculations in the case of a change in the neutral interest rate.

Under the assumption that the neutral interest rate (10-year-forward 10-year yield) will rise to  $0.7\%$ , we estimate the yields by using the aforementioned method. In the case of scenario ②, the results are the 10-year JGB yield at  $0.10\%$ , the 20-year JGB yield at  $0.40\%$ , and the 10-year/20-year spread at 30bp, which is the same as the current level.

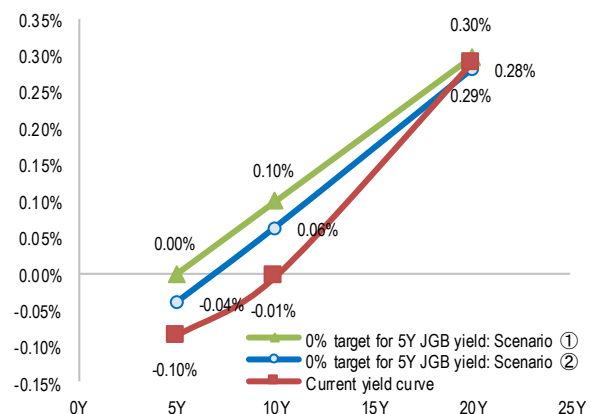
Meanwhile, when we similarly estimate the yields under the assumption that the neutral interest rate (10-year-forward 10-year yield) will drop to  $0.5\%$ , the results in scenario ② are the 10-year JGB yield at  $0.06\%$ , the 20-year JGB yield at  $0.28\%$ , and the 10-year/20-year spread at 22bp. One point to note is that, in the case of a decline in the neutral interest rate, the absolute level of the 20-year JGB yield does not rise even adopting the  $0\%$  target for 5-year JGB yield.

**Chart 7: Simulated JGB Yield Curve (scenario of rise in neutral interest rate)**



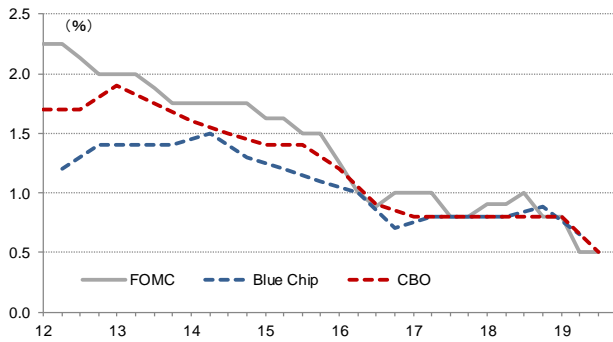
Source: Bloomberg; compiled by Daiwa Securities.

**Chart 8: Simulated JGB Yield Curve (scenario of decline in neutral interest rate)**

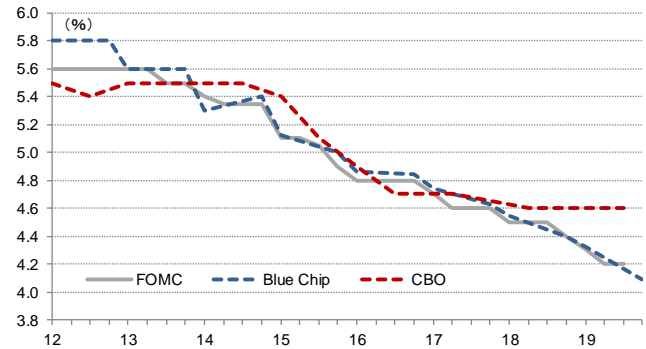


Source: Bloomberg; compiled by Daiwa Securities.

A current global theme is the decline in the neutral interest rate due to the change in the natural rate of interest and the natural rate of unemployment. It is thus highly possible that a neutral interest rate will follow the “decline” scenario in the long term. If so, the current levels of superlong yields are already providing a buying opportunity, although a policy change is expected. In short, the two themes of (1) a rise in intermediate/long-term yields due to a policy change and (2) a decline in superlong yields owing to lower neutral interest rate could result in the flattening of the yield curve. Promising positions to monetize these themes are the 5- to 7-year steepener and the 10- to 20-year flattener, in our view.

**Chart 9: Natural Rate of Interest ( $r^*$ )**


Source: Fed, CBO, Blue Chip; compiled by Daiwa Securities.

**Chart 10: Natural Rate of Unemployment ( $u^*$ )**


Source: Fed, CBO, Blue Chip; compiled by Daiwa Securities.

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