

# Daiwa's View

## JGB yield curve when BOJ ends YCC policy

- End of YCC to broadly impact zones up to 10yr JGB yield

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### JGB yield curve when BOJ ends YCC policy

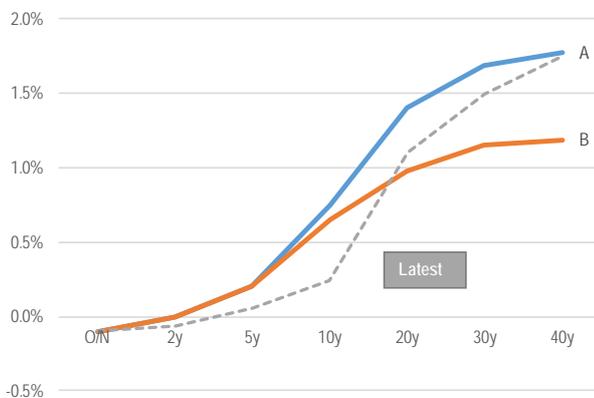
#### ◆ Conclusion

On the JGB market, super-long forward yields are currently rising above 2%, which is creating tension between the level for these super-long forward yields and the 0.25% upper bound of the BOJ's permissible trading range for the 10-year JGB yield. Under these conditions, speculation has emerged on the market that the BOJ may abruptly eliminate its yield curve control (YCC) policy or raise its 10-year JGB yield ceiling from the current 0.25% to realize a smoother shape for the JGB yield curve. Indeed, we have been receiving an increasing number of inquiries from market participants regarding the "likely JGB yield curve shape once the BOJ eliminates YCC."

Therefore, in this report we discuss the JGB yield curve in the event that the BOJ eliminates its YCC policy. (Note: This is not an argument about the likelihood of such a policy revision.) We will first state our conclusion. The impact on JGB yields in the event the BOJ abruptly eliminates its YCC policy at this juncture would be significant, with the 10-year JGB yield estimated to exceed 0.7%. Once YCC is abolished, there will be commensurate upward pressure on medium-term JGB yields, such as 5-year yield, which we assume could impede the effects of monetary easing.

In order to consider the yield curve once YCC is eliminated, we will need a model approach that goes back to the essence of the yield curve, rather than applying past correlations. By developing a discussion based on the framework (level, slope, etc.) of analytical methods, such as Nelson-Siegel, and principal component analysis, which describes the yield curve with a small number of latent variables, well-founded insight into what the JGB yield curve should look like once YCC is eliminated can be obtained.

JGB Yield Curve When BOJ Ends YCC Policy



Source: Bloomberg; compiled by Daiwa Securities.

JGB Yield Curve When BOJ Ends YCC Policy

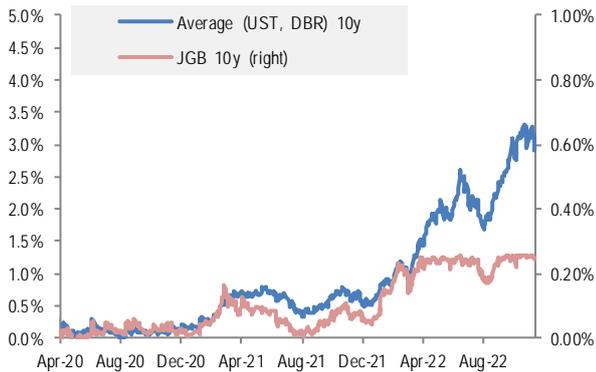
| (%)      | A                                  | B  | C               | A-C    | B-C    |
|----------|------------------------------------|--|-----------------|--------|--------|
| Scenario | End of YCC (current forward curve) | End of YCC + Mean reversion of US yields | Latest (15 Nov) | Change | Change |
| 0/N      | -0.10                              | -0.10                                    | -0.10           | 0.00   | 0.00   |
| 2y       | 0.00                               | 0.00                                     | -0.06           | 0.06   | 0.06   |
| 5y       | 0.20                               | 0.20                                     | 0.06            | 0.14   | 0.14   |
| 10y      | 0.75                               | 0.65                                     | 0.24            | 0.51   | 0.41   |
| 20y      | 1.40                               | 0.98                                     | 1.10            | 0.30   | -0.13  |
| 30y      | 1.68                               | 1.15                                     | 1.50            | 0.18   | -0.35  |
| 40y      | 1.78                               | 1.19                                     | 1.75            | 0.02   | -0.56  |

Source: Bloomberg; compiled by Daiwa Securities.

◆ Simple (inadequate) considerations based on beta, swap yields

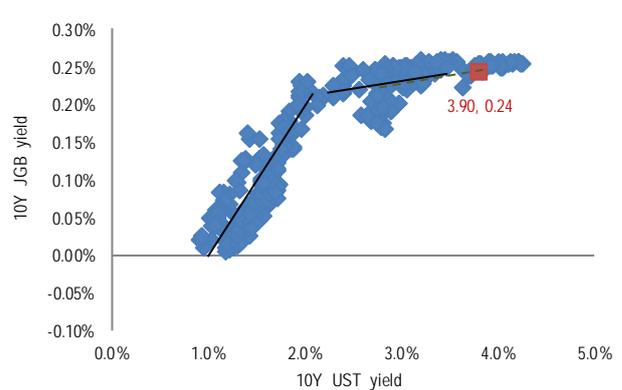
The simplest way to envision the 10-year JGB yield level once YCC is eliminated would be to infer the level based on the correlation (beta) between past 10-year JGB yields and overseas government bond yields, or the correlation between past yen swap yields and overseas bond yields. For example, looking at European/US 10-year government bond yields and the 10-year JGB yield since the pandemic (see chart below), we can envision a 10-year JGB yield of just under 0.6% based on the current levels for the overseas government bond yields. Also, the relationships of (1) 10-year US Treasury yield at 1% is nearly equal to 10-year JGB yield at 0% and (2)  $\beta = 0.2$ , bring to mind an image of “10-year US Treasury yield at 4% → 10-year JGB yield at around 0.6%.” Furthermore, the relationship between the 10-year swap yield (0.57%) and the swap spread during normal times also easily brings to mind roughly similar levels.

10Y JGB Yield, Average for 10Y US and German Yields



Source: Bloomberg; compiled by Daiwa Securities.

FYR: Scatter Chart of 10Y JGB Yield and UST Yield

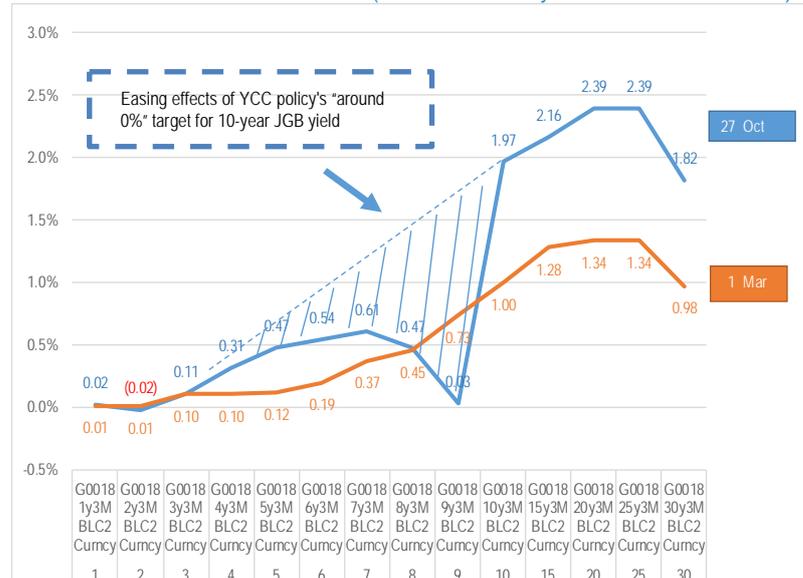


Source: Bloomberg; compiled by Daiwa Securities.

◆ Modeling consideration using instantaneous forward rates

However, the above approach is frankly incomplete as it lacks insight into the essential effect that the YCC policy's “around 0%” target for 10-year JGB yield has on the overall yield curve. In this report we also looked at the instantaneous forward rate approach for the sake of more fundamental considerations. For example, if we look at the following instantaneous forward rate as of 27 October, the effects of YCC easing can be seen extending over a wide range of maturities up to the 10-year yield (shaded area in chart below). Accordingly, we can probably assume that elimination of YCC would broadly impact the yield curve zone up to the 10-year maturity.

Instantaneous Forward JGB Yields (3-month forward yields used as substitutes)



Source: Bloomberg; compiled by Daiwa Securities.

Looking at the instantaneous forward rates as of 1 March in the chart on the previous page, we see that the long-term component was 1~1.5%, the short-term component was 0%, and the slope was generally around 20bp, indicating that the instantaneous forward rate begins to rise from around roughly the 6~7-year zone. Meanwhile, as of 27 October, the long-term component was 2~2.5%, distortion of the slope was suppressed, and the yield curve started to rise from around the 4-year maturity. Here, the following three changes were identified: (1) long-term component (level) change (1~1.5% → 2~2.5%), (2) slope change, and (3) shorter duration for yield rise starting point ( $\tau$  in Nelson-Siegel model).

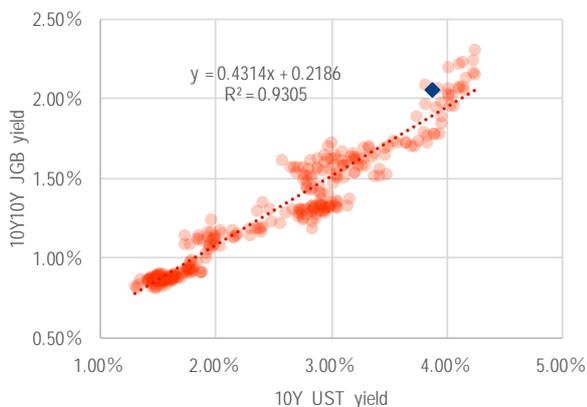
The point that grabbed our attention the most was that the slope of the instantaneous forward rate as of 27 October, which should have been steeper earlier, was clearly suppressed from the 4-year up to the 10-year zone, but then rises sharply from the 10-year zone to the phase endpoint. This reflects the fact that the 10-year JGB yield is stuck at 0.25%, while the 10-year US Treasury yield jumped to around 4% on 27 October. Meanwhile, the slope was generally in its natural shape as of 1 March as the 10-year JGB yield was 0.17%, well below the 0.25% ceiling.

These observations suggest that the impact of the BOJ's 0.25% cap on the 10-year JGB yield within its YCC policy can be primarily seen as a distortion of the instantaneous forward rate slope. In that case, if the BOJ had abruptly eliminated YCC as of 27 October, we could assume that the "slope" would have regained its normal shape, freeing the shaded area in the chart on the previous page and contributing to the yield curve. If we make estimations that include that effect assuming the instantaneous forward rates as of 27 October, we could estimate the 5-year JGB yield at around 0.2%, the 10-year JGB yield at roughly 0.75%, and the 20-year JGB yield at around 1.4%, which we would view as meaningful increases.

◆ Rising super-long forward yields: "home-made" or "originating from overseas yields"?  
 However, the results of the above estimations rely heavily on the 27 October rise for super long forward yields to 2~2.5%. For that reason, an important consideration is whether the current rise in super-long forward yields beyond 2% is a sustainable phenomenon stemming from Japanese fundamentals. Naturally, if the long-term component declines, the results of the estimations regarding the yield curve level at the time of YCC elimination will also change dramatically.

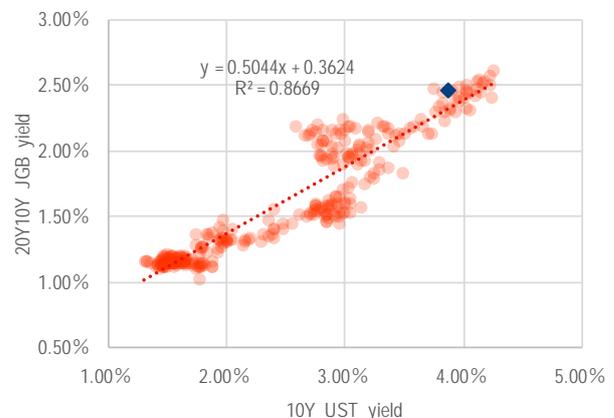
If we create a scatter chart to consider this point, we can see a clear correlation between the JGB forward yields (here we use the 10-year forward 10-year yield and 20-year forward 10-year yield) and the US long-term Treasury yields. This suggests that, at least at this stage, the rise for super-long forward yields to a level above 2% may be only a temporary change stemming from higher overseas yields.

10Y-forward 10Y JGB Yield, 10Y UST Yield



Source: Bloomberg; compiled by Daiwa Securities.

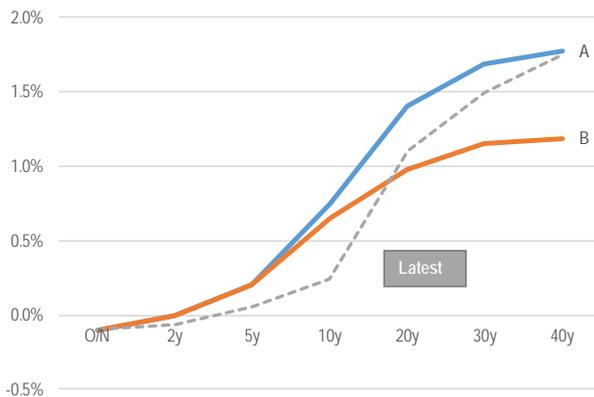
20Y-forward 10Y JGB Yield, 10Y UST Yield



Source: Bloomberg; compiled by Daiwa Securities.

If so, once the FRB starts the normalization process (from monetary tightening to easing) and once US Treasury yields decline, the super-long forward JGB yield would most likely move lower. Assuming a neutral regression for the 10-year US Treasury yield using the previous scatter chart, a decline to 1~1.5% (roughly the same level as 1 Mar) as the level of the super-long forward yield is likely to be assumed. Meanwhile, once the BOJ implements a monetary easing exit strategy, the point at which yields start to rise would be at a shorter maturity compared to that on 1 March (shortening of  $\tau$ ). If we assume a JGB yield curve after the elimination of the YCC under the image of these super-long forward yields and  $\tau$ , we could expect a 5-year yield of just under 0.2%, a 10-year yield of 0.65%, and a 20-year yield of about 0.98%.

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Source: Bloomberg; compiled by Daiwa Securities.

Comparing the results of two calculations, the estimates differ by roughly 10bp for the 10-year JGB yield and about 50bp for the 20-year JGB yield. The results of these estimates suggest that changes in the level of the super-long forward yields are more important than BOJ policy revisions for the super-long JGB yields. On the other hand, they also suggest that policy revisions will have reasonably larger impacts on medium-term and long-term JGB yields, regardless of the levels for super-long forward yields.

A shift (pivot) to an exit strategy could create discontinuous upward pressure on yields for those zones significantly impacted by monetary easing effects. The negative impacts from an abrupt elimination of YCC would be immeasurable. If the BOJ were to actually carry out any policy revisions, their approach would need to involve a gradual shift in the yield band (i.e., revision to 10-year JGB yield ceiling) in order to avoid abrupt changes to financial conditions.

Currently, even if the upward pressure on super-long forward yields originates from “overseas yields,” a switch to “home-made” upward pressure is not theoretically impossible. If the YCC policy exhibits “[procyclicality](#)” (economic cycle amplification effect) and the resulting virtuous cycle of home-made wage and price growth is realized, there could be a shift to home-made upward pressure on super-long forward yields. Perhaps this is the BOJ's current orientation. Meanwhile, in the event that the source of upward pressure on yields likely exceeding the upper bound of the permissible trading range set by YCC is merely linked to a one-off rise in US Treasury yields stemming from the Fed's exceptional tightening process (not equal to home-made upward yield pressure), we could assume that the stronger the market pressure, the greater the attention given to financial conditions and the stronger the warning against premature action. Presumably, the BOJ is currently at that stage. However, if a virtuous cycle is realized through the YCC's economic cycle amplification effect and prospects for Japan's underlying inflation rate rising to 2% emerge, the BOJ would be happy to proceed with policy revisions, with or without pressure from the market.

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