

# Parameta Solutions Indices

## JPY Interest Rate Swap Volatility Indices

Parameta Solutions JPY Interest Rate Swap Volatility (JPY IRSV) indices aim to provide market participants with a forward looking implied volatility measure for the JPY interest rate swap markets.

### Background

Interest rate swaps are an important tool for fixed income market participants, chiefly as they reflect the market's expectation of future interest rates. They are used by corporate treasurers, speculators, investors, and banks in a variety of use cases in portfolio management, financing, risk management, and investment strategies. According to ISDA<sup>1</sup>, total notional outstanding for Interest Rate Derivatives (IRD) reached \$573.7 trillion and accounted for 80.3% of global OTC derivatives notional outstanding as of end-June 2023. Interest rate swaps notional outstanding hit \$465.9 trillion accounting for 81.2% of total IRD notional outstanding at end-June 2023.

### Index Description

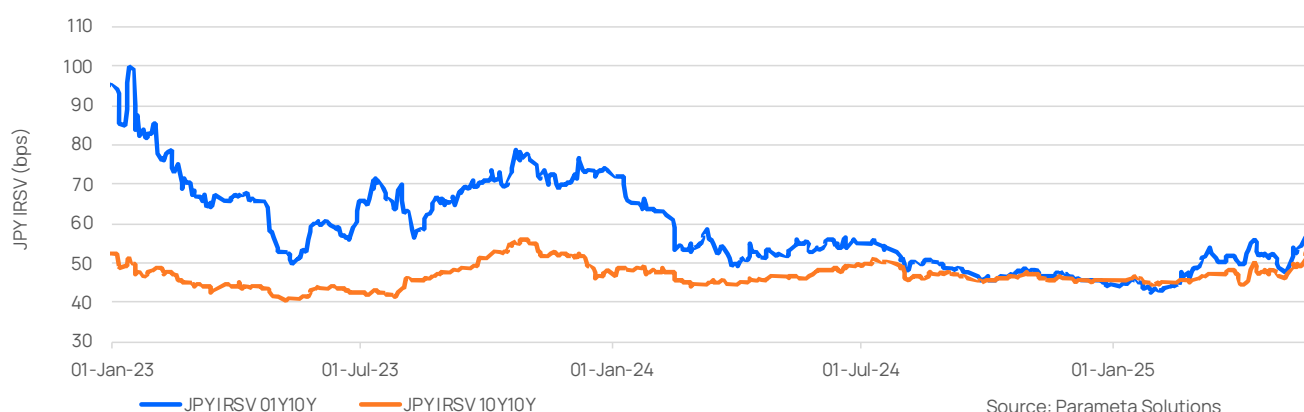
The Parameta Solutions JPY Interest Rate Swap Volatility (JPY IRSV) indices aim to provide market participants with a model-free measure of spot implied volatility in the Japanese Yen interest rate swap markets. Derived from interest rate swaption prices, an index is available for each of the 12 liquid option expiry, swap tenor combinations. Each index distils the information content of up to 9 different ATM and OTM payer and receiver strikes into a single measure of implied volatility for each option expiry/swap tenor combination.

Accurate volatility forecasts are important for investors, both when making investment decisions and when measuring investment risks. Simple volatility measures implied from at-the-money (ATM) option prices fail to capture all available information from option markets. To address this, recent research advocates deriving implied volatility in a model-free manner from both ATM and out-of-the-money (OTM) call and put options. A recent BIS working paper<sup>2</sup> found that predictions of interest rate swap volatility based on model-free implied volatility have superior predictive power over other commonly used volatility forecasting measures.

### Index Objective and Key Features

- Indices are available for 12 liquid option expiry, swap tenor combinations from the JPY interest rate option markets.
- The objective of each index is to provide an indication of the expected volatility of the index swap rate tenor over the index option expiry period.
- IRSV indices distil the information content of ATM and OTM interest rate swaptions into a single measure of implied volatility for each index.
- Model-free volatility estimates are widely accepted to have superior predictive power compared to other forecasting measures<sup>2</sup>.

### Recent History of JPY 1Y10Y and 10Y10Y Volatility Indices



<sup>1</sup> <https://www.isda.org/a/5ihgE/Key-Trends-in-the-Size-and-Composition-of-OTC-Derivatives-Markets-in-the-First-Half-of-2023.pdf>

<sup>2</sup> <https://www.bis.org/publ/work1068.pdf>

## Indices Available

The following indices are available directly from Parameta Solutions. Indices can also be viewed on Bloomberg using the tickers below or from page PMET.

Option Expiry	Swap Tenor	Ticker
03M	02Y	PSVRJ3KB
03M	10Y	PSVRJ3XB
01Y	01Y	PSVRJIIB
01Y	05Y	PSVRJIVB
01Y	10Y	PSVRJIXB
02Y	02Y	PSVRJKKB
02Y	10Y	PSVRJKXB
05Y	05Y	PSVRJVVB
05Y	10Y	PSVRJVXB
10Y	10Y	PSVRJXXB
10Y	20Y	PSVRJXUB
15Y	15Y	PSVRJTtB

## Calculation Methodology

The index calculation methodology is based on academic research<sup>3</sup> which provides a theoretical foundation for measuring interest rate swap volatility based on the model-free fair value of variance swap contracts for forward swap rates.

Each index is derived from the following inputs:

- Swaption ATM mid-price premium
- Swaption ATM normal volatility
- Swaption skew mid-price premia across the following payer and receiver strikes 200, 100, 50, 25 for the specified option expiry and swap tenor.

For more information on the calculation methodology please [contact us](#).

## Additional Information

- The price source for the JPY IRSV indices is the TP Japan Interest Rate Options Desk.
- JPY IRSV indices are published at or around 3.30PM JST time based on prices between 1PM and 3PM.
- A business day for IRSV means a day on which banks are open in the Japan and the TP Interest Rate Options Desk publishes prices.

<sup>3</sup> Mele, Antonio & Obayashi, Yoshiki. (2015). The Price of Fixed Income Market Volatility. 10.1007/978-3-319-26523-0\_3

## Get in touch

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