

# USD Interest Rate Swap Volatility Indices

Parameta Solutions USD Interest Rate Swap Volatility (USD IRSV) indices aim to provide market participants with a forward looking implied volatility measure for the USD 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 USD Interest Rate Swap Volatility (EUR IRSV) indices aim to provide market participants with a model-free measure of spot implied volatility in the U.S. interest rate swap markets. Derived from interest rate swaption prices, an index is available for each of the 48 most liquid option expiry, swap tenor combinations. Each index distills the information content of up to 18 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 48 of the most liquid option expiry, swap tenor combinations from the USD 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 distill 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 1Y10Y volatility indices



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

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



## Indices Available

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

USD IRSV Indices	Swap Tenor						
	01Y	02Y	05Y	10Y	20Y	30Y	
Option Expiry	01M	PSVRD1IB	PSVRD1KB	PSVRD1VB	PSVRD1XB	PSVRD1UB	PSVRD1YB
	03M	PSVRD3IB	PSVRD3KB	PSVRD3VB	PSVRD3XB	PSVRD3UB	PSVRD3YB
	06M	PSVRD6IB	PSVRD6KB	PSVRD6VB	PSVRD6XB	PSVRD6UB	PSVRD6YB
	01Y	PSVRD1IB	PSVRD1KB	PSVRD1VB	PSVRD1XB	PSVRD1UB	PSVRD1YB
	02Y	PSVRD2IB	PSVRD2KB	PSVRD2VB	PSVRD2XB	PSVRD2UB	PSVRD2YB
	03Y	PSVRD3IB	PSVRD3KB	PSVRD3VB	PSVRD3XB	PSVRD3UB	PSVRD3YB
	05Y	PSVRD5IB	PSVRD5KB	PSVRD5VB	PSVRD5XB	PSVRD5UB	PSVRD5YB
	10Y	PSVRD10IB	PSVRD10KB	PSVRD10VB	PSVRD10XB	PSVRD10UB	PSVRD10YB

## Calculation Methodology

The index calculation methodology is based on published 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 1000, 500, 400, 300, 200, 150, 100, 75, 50, 25, 12.5 for the specified option expiry and swap tenor.

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

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

## Additional Information

- The price source for the USD IRSV indices is the ICAP US Interest Rate Options Desk
- USD IRSV indices are published at or around 5PM EST time based on closing prices as at 4.15PM
- A business day for IRSV means a day on which banks are open in the US and the ICAP Interest Rate Options Desk publishes prices
- The inception date for the majority of USD IRSV indices is 03 Jan 2017

## Get in touch

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