

# EUR Interest Rate Swap Volatility Indices

Parameta Solutions EUR Interest Rate Swap Volatility (EUR IRSV) indices aim to provide market participants with a forward looking implied volatility measure for the EUR 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 \$490.6 trillion and accounted for 79.4% of global OTC derivatives notional outstanding at year-end 2022. Interest rate swaps notional outstanding hit \$405.5 trillion accounting for 82.7% of total IRD notional outstanding at year-end 2022.

## Index description

The Parameta Solutions EUR Interest Rate Swap Volatility (EUR IRSV) indices aim to provide market participants with a model-free measure of spot implied volatility in the Euro 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 24 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 EUR 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 EUR 1Y10Y volatility index



1. <https://www.isda.org/a/wdXgE/Key-Trends-in-the-Size-and-Composition-of-OTC-Derivatives-Markets-in-the-Second-Half-of-2022.pdf>

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



## Indices Available

EUR IRSV Indices	Swap Tenor (T in years)						
	01Y	02Y	05Y	10Y	20Y	30Y	
Option Expiry (E)	01M	01M01Y	01M02Y	01M05Y	01M10Y	01M20Y	01M30Y
	03M	03M01Y	03M02Y	03M05Y	03M10Y	03M20Y	03M30Y
	06M	06M01Y	06M02Y	06M05Y	06M10Y	06M20Y	06M30Y
	01Y	01Y01Y	01Y02Y	01Y05Y	01Y10Y	01Y20Y	01Y30Y
	02Y	02Y01Y	02Y02Y	02Y05Y	02Y10Y	02Y20Y	02Y30Y
	03Y	03Y01Y	03Y02Y	03Y05Y	03Y10Y	03Y20Y	03Y30Y
	05Y	05Y01Y	05Y02Y	05Y05Y	05Y10Y	05Y20Y	05Y30Y
	10Y	10Y01Y	10Y02Y	10Y05Y	10Y10Y	10Y20Y	10Y30Y

## 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 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 EUR IRSV indices is the ICAP EMEA Interest Rate Options Desk
- IRSV indices are published at or around 5PM UK time based on closing prices as at 4.15PM
- A business day for IRSV means a day on which banks are open in the UK and the ICAP Interest Rate Options Desk publishes prices
- The inception date for the majority of EUR IRSV indices is 03 Jan 2011

## Get in touch

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