

# Interest Rate Swap Volatility Indices

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

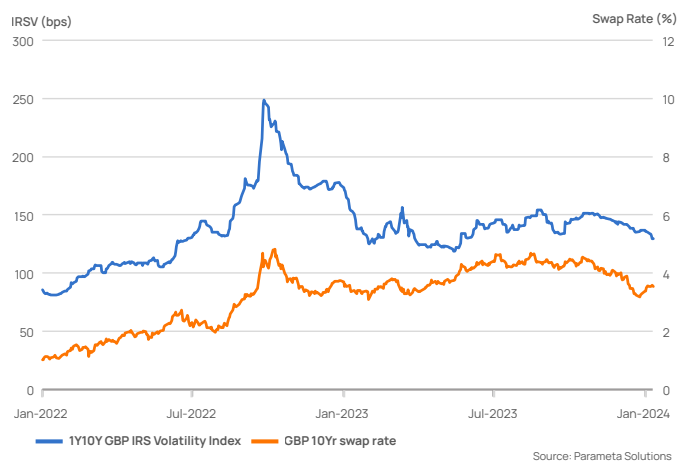
## Index description

The Parameta Solutions Interest Rate Swap Volatility (IRSV) indices aim to provide market participants with a model-free measure of spot implied volatility in the world's major interest rate swap markets. Derived from the interest rate swaption prices, the indices are available for some of the most liquid option expiry, swap tenor combinations from the EUR and GBP interest rate option markets. 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 vital 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

- The objective of each index is to provide an indication of the expected volatility of the index swap rate in the index currency over the index expiry period
- IRSV Indices are available for 1Y, 5Y and 10Y option expiries on 5Y and 10Y EUR and GBP swap rate tenors
- 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/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>



## Calculation Methodology

The index calculation methodology is based on Mele & Obayashi (2015)<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.

## Available indices

Index Name	Currency	Expiry	Swap Rate
Parameta Solutions 1Y5Y EUR IRS Volatility Index	EUR	1Y	5Y
Parameta Solutions 1Y10Y EUR IRS Volatility Index	EUR	1Y	10Y
Parameta Solutions 5Y5Y EUR IRS Volatility Index	EUR	5Y	5Y
Parameta Solutions 5Y10Y EUR IRS Volatility Index	EUR	5Y	10Y
Parameta Solutions 10Y5Y EUR IRS Volatility Index	EUR	10Y	5Y
Parameta Solutions 10Y10Y EUR IRS Volatility Index	EUR	10Y	10Y
Parameta Solutions 1Y5Y GBP IRS Volatility Index	GBP	1Y	5Y
Parameta Solutions 1Y10Y GBP IRS Volatility Index	GBP	1Y	10Y
Parameta Solutions 5Y5Y GBP IRS Volatility Index	GBP	5Y	5Y
Parameta Solutions 5Y10Y GBP IRS Volatility Index	GBP	5Y	10Y
Parameta Solutions 10Y5Y GBP IRS Volatility Index	GBP	10Y	5Y
Parameta Solutions 10Y10Y GBP IRS Volatility Index	GBP	10Y	10Y

## Additional Information

- The price source for the EUR and GBP 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 IRSV EUR and GBP indices is 02 Jan 2014

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

## Get in touch

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