Introducing ESTER, the euro’s new reference rate

By Menno Altena and Oliver Warren
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Following the Libor scandal which came to prominence in 2012, interest rate benchmarks have been under significant scrutiny across global financial markets. This has led to various proposals for reforms or replacements of interest rate benchmarks that serve as a reference rate for standardized interest rate derivative contracts. One change of particular interest for European investors is the switch from Eonia, the euro’s current overnight reference rate, to the proposed ESTER (euro short-term rate).

The new reference rate will have several benefits from a financial stability perspective including being more representative of rates in the market, less susceptible to manipulation, as well as more stable. However, the difference between the two rates is not expected to be negligible. We discuss the implications as well as looking at how investors might seek to prepare for the introduction of ESTER.

The Libor scandal and benchmark reforms

Libor (the London Inter-Bank Offered Rate) is a set of 35 different benchmark interest rates covering several maturities and five major currencies – the US dollar, euro, British pound, Japanese yen and Swiss franc. It is intended to represent the interest rates at which large global banks can borrow from one another. Since 2014, Libor rates are calculated by the Intercontinental Exchange (ICE, a privately-owned exchange) on the basis of submissions from large global banks which sit on the Libor panel.

The Libor scandal came to prominence in 2012 following accusations that traders at banks on the panel were manipulating their submitted estimated rates to suit their own and others’ trading positions. Traders at several banks stood accused of fraud although there have subsequently been only a few convictions. A review of Libor was carried out by the UK government following the scandal. This has led to the recommendations to change the governance and to transfer the responsibility for calculating the Libor rates from the British Bankers’ Association to the Intercontinental Exchange. Responsibility for regulating Libor transferred to the UK’s financial regulator, the Financial Conduct Authority (FCA).

The FCA has indicated that from 2021 it no longer intends to oblige banks to submit quotes for the purpose of compiling Libor. Given the costs, and the legal and reputational risks they run in providing these quotes, this may well mean that many banks will no longer submit rates and Libor rates will cease to exist in their current form. Even if ICE continues to publish Libor rates on the basis of voluntarily submitted quotes, it is unlikely that Libor will be official and reliable enough to maintain its place as the reference rate for standardized interest rate derivative contracts. For this purpose, the new benchmarks which we discuss in this article are likely to form the reference rates for future contracts.

https://www.gov.uk/government/publications/the-wheatley-review
International reference rate reforms

A wider international review of benchmarks and their integrity was also carried out by the Financial Stability Board (FSB) at the request of the G20. The FSB published its recommendations on interest rate benchmarks in July 2014.\(^2\) On the basis of these recommendations, the relevant financial authorities are making several changes to interest rate benchmarks in their jurisdictions, not just Libor rates but also other interest rate benchmarks. Table 1 summarizes the main proposed changes across the five largest currency markets.

<table>
<thead>
<tr>
<th>Market</th>
<th>Current rate(^3)</th>
<th>Administrator</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>US dollar</td>
<td>USD Libor</td>
<td>ICE</td>
<td>Reformed and likely to be replaced by SOFR</td>
</tr>
<tr>
<td>Euro</td>
<td>EUR Libor</td>
<td>ICE</td>
<td>Reformed and likely to be replaced</td>
</tr>
<tr>
<td></td>
<td>Euribor</td>
<td>European Money Markets Institute (EMMI)</td>
<td>To be reformed by Q4 2019</td>
</tr>
<tr>
<td></td>
<td>Eonia</td>
<td>EMMI</td>
<td>ESTER proposed as replacement</td>
</tr>
<tr>
<td>UK pound</td>
<td>GBP Libor</td>
<td>ICE</td>
<td>Reformed and likely to be replaced by term</td>
</tr>
<tr>
<td></td>
<td>Sonia</td>
<td>Bank of England</td>
<td>To be reformed and term rates introduced</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>JPY Libor</td>
<td>ICE</td>
<td>Reformed and likely to be replaced by Tonar</td>
</tr>
<tr>
<td></td>
<td>Tibor</td>
<td>Japanese Bankers’ Association</td>
<td>Reformed in 2017</td>
</tr>
<tr>
<td>Swiss franc</td>
<td>CHF Libor</td>
<td>ICE</td>
<td>Potentially to be replaced by Saron</td>
</tr>
<tr>
<td></td>
<td>Tois</td>
<td>ACI Suisse</td>
<td>Replaced by Saron in 2017</td>
</tr>
</tbody>
</table>

Table 1: Key interest rate benchmarks and their replacements/reforms.

Authorities are at various stages in the reform process. Some changes have already been enacted, for example in the United States, the New York Federal Reserve began publishing SOFR as a long-term replacement for USD Libor in the second quarter of 2018. The Swiss National Bank also introduced Saron as a replacement for its previous overnight repo rate, Tois, in the last quarter of 2017.

All these reforms are going to have important implications for investors with contracts tied to the reformed or replaced interest rate benchmarks. Financial instruments that will be affected are derivatives (e.g. interest rate swaps, cross currency swaps), loans and cash pools. Interest rate swaps are often long-dated contracts which means they will not fall away quickly. What happens to these contracts will depend upon the alternative reference rates which are developed and whether authorities allow the old benchmark rates to continue to be produced for the purpose of

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\(^2\) [http://www.fsb.org/2014/07/r_140722/]
\(^3\) SOFR: Secured Overnight Financing Rate; Euribor: Euro Inter-Bank Offered Rate; Eonia: Euro Over-Night Index Average; ESTER: Euro Short-Term Rate; Sonia: Sterling Over-Night Index Average; Tibor: Tokyo Inter-Bank Offered Rate; Tonar: Tokyo Over-Night Average Rate; Saron: Swiss Average Rate Over-Night; Tois: Tomorrow/Overnight Interest Swaps. Note that Euribor and Tibor are both distinct rates from the euro and Japanese yen Libor rates.
legacy contracts. What seems certain is that new interest rate derivative contracts will be unlikely to be on the basis of Libor rates.

We now turn our focus to the eurozone where changes will particularly impact institutional investors using euro interest rate swaps and other derivatives to hedge their interest rate risk.

Changes in the eurozone
For the majority of eurozone interest rate swaps, a Euribor rate (the Euro Inter-Bank Offered Rate) is used as the variable interest rate. For valuing swaps (for both centrally cleared and non-centrally cleared interest rate swaps), a less risky, shorter-dated rate such as Eonia (the Euro Over-Night Index Average) is normally used to discount the projected swap cash flows. Eonia is also used as the reference rate for calculating the interest payable on cash posted as collateral (for swaps where cash collateral is required).

What are Euribor and Eonia?
As opposed to the United States and United Kingdom where Libor rates have been commonly used, the eurozone has its own interest rate suite, Euribor, which covers lending periods from 1 week to 12 months. Whilst euro Libor rates exist, they are not commonly used as the reference rates for euro interest rate derivatives. Euribor is based upon submissions from a panel of eurozone banks of the rates at which they would borrow from each other on unsecured terms.

Eonia is the current overnight interest rate index for the euro. It is computed as a weighted average of all overnight unsecured lending transactions in the interbank market, undertaken in the European Union and European Free Trade Association (EFTA) countries.

Eonia: The Euro Over-Night Index Average represents “the rates at which banks of sound financial standing in the European Union and European Free Trade Area (EFTA) lend funds in the overnight, interbank money markets in euro.” (Eonia Governance Framework document)

Euribor: The Euro Inter-Bank Offered Rate is “the rate at which Euro interbank term deposits are offered by one prime bank to another prime bank within the EMU zone” (EMMI website)

Both reference rates are administered by the European Money Markets Institute (EMMI), an international non-profit association, registered in Belgium, whose members are national banking associations in EU member states.¹

What is going to change?
Euribor and Eonia, in their current forms, both fail to meet the requirements for critical reference rates as set out in the EU’s new Benchmarks Regulation.² Euribor fails because it is not based upon actual rates transacted in the market

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¹ See the EMMI website for more details: https://www.emmi-benchmarks.eu/

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but on estimates provided by a list of approved banks. Eonia, whilst based upon actual transactions, has too few transactions and market participants contributing to its calculation which leads to increased concentration and volatility risk.

From 1 January 2020, changes to the existing rates or replacements will have to have been made in order to meet the Benchmarks Regulation. An European Central Bank (ECB) working group has been investigating the options. This working group announced on 13 September 2018 its recommendation to adopt the euro short-term rate (ESTER) as the new overnight reference interest rate in the euro area. They are now working on how to transition from Eonia to ESTER. In addition, they have also considered what adjustments are needed to Euribor in order to ensure that it will comply with the Benchmarks Regulation.

ESTER will begin to be published by October 2019 and, in the meantime, a pre-ESTER rate will be published so that market participants can become familiar with its characteristics. From 1 January 2020, Eonia will no longer be used as a reference rate nor be permitted to be used for the valuation of interest rate swaps (and other derivatives). It will however still be published.

**ESTER versus Eonia – what are the differences?**

Table 2 shows the differences between Eonia and ESTER.

<table>
<thead>
<tr>
<th>Comparison of Eonia and ESTER</th>
<th>Eonia</th>
<th>ESTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administered by</td>
<td>EMMI (ECB is calculation agent)</td>
<td>ECB</td>
</tr>
<tr>
<td>Methodology</td>
<td>Weighted average of voluntary bank rate submissions with 1 submission per bank.</td>
<td>Weighted average of transactions submitted with multiple submissions per bank.</td>
</tr>
<tr>
<td>Type of lending</td>
<td>Only inter-bank lending</td>
<td>Will include other bank lending such as money market funds, insurers and other financial corporations.</td>
</tr>
<tr>
<td>Unsecured or secured transactions</td>
<td>Unsecured, lending</td>
<td>Unsecured, borrowing</td>
</tr>
<tr>
<td>Number of banks/reporting agents</td>
<td>28</td>
<td>52</td>
</tr>
<tr>
<td>Average daily volume (^6)</td>
<td>€7.7 billion</td>
<td>€29.8 billion</td>
</tr>
</tbody>
</table>

Table 2: Comparison of Eonia and ESTER. Source: ECB and Aegon Asset Management.

The most important difference is that Eonia is based upon rates submitted by banks whilst ESTER will be based upon transaction-by-transaction data reported in accordance with the EU’s Money Market Statistical Reporting

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\(^6\) The working group on euro risk-free rates is an industry-led group established in 2018 by the ECB, the Financial Services and Markets Authority (FSMA), the European Securities and Markets Authority (ESMA) and the European Commission. Its main tasks are to identify and recommend alternative risk-free rates and transition paths. The working group is made up of 21 credit institutions as voting members, 5 institutions as non-voting members and 1 institution as an invitee.

\(^7\) As at November 2018.

\(^8\) 1 August 2016 to 15 January 2018.
In this way, the number of parties whose transaction data will be included in the calculation will rise considerably and the volume of transactions included will be around four times as large as for Eonia.

The pre-ESTER curve been made available by the ECB since April 2017. On average it has been around 9 basis points lower than Eonia. Figure 1 shows the level of the two and the spread between them. The lower volatility of the pre-ESTER curve is clear, particularly at the quarter and month-end periods when Eonia often exhibits sudden spikes. Apart from at these points, the spread between the two has remained relatively stable with the pre-ESTER between 8 and 10 basis points lower than Eonia for 91% of the time.

![Rate development of Pre-ESTER and Eonia](image)

Figure 1: Rate development of Pre-ESTER and Eonia. Source: ECB, 15 March 2017 to 30 October 2018.

What about Euribor?

For Eonia, the ECB has proposed a suitable replacement in consultation with market participants. For Euribor, the first step is to adjust the methodology so that it meets the requirements of the Benchmarks Regulation. The main problem is that Euribor is not based on transactions but on representative rates submitted by banks. That makes it far more susceptible to manipulation. The proposal is also to establish Euribor on the basis of market transactions. For periods when there are insufficient transactions, the calculated rate will rely partially on other techniques and, as a last fallback, rates can revert to being derived from submissions by banks.

In 2019, an assessment will be made as to whether these reforms comply with the Benchmarks Regulation. According to estimates of EMMI, the newly proposed Euribor curve is slightly lower than the current curve. In this early stage of the Euribor reform it is unclear what this means for existing contracts which use Euribor as the short term floating rate (restructuring of contracts, adjustments or no change).

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10 Consultation paper on a hybrid methodology for Euribor (17 October 2018).
What is the impact for investors?

ESTER will replace Eonia as the market standard rate for valuing euro interest rate swaps. ESTER is calculated more transparently, is easier to understand and is based upon greater transaction volumes than Eonia. Depending on how the changeover is implemented, this will introduce a valuation risk, as swaps are currently valued using the Eonia curve. Eonia rates are currently higher than pre-ESTER rates (and have been since pre-ESTER was introduced) so a valuation difference will be expected once valuation moves from Eonia to ESTER. A distinction needs to be made for bilaterally agreed swaps (between two parties) and centrally cleared swaps.

For centrally cleared swaps, contracts are very standardized. There are no agreements with individual counterparties and the Central Counter Party (CCP) is the counterparty to all the swaps traded. Because CCPs rely on standardization to be able to offer liquidity and scale, they are likely to adopt the new interest rates in a standardized manner. The expectation is therefore that CCPs will all adopt quite similar approaches and that investors do not face specific counterparty risks for CCPs.

For bilateral swaps, investors will run more valuation risk. The transition to using new discount rates will influence the swap pricing in the upcoming period. This risk exists because there will be more uncertainty over the time frame under which ESTER will be introduced, uncertainty about what individual counterparties will do regarding their swap pricing, and uncertainty about how they will treat existing contracts.

As well as introducing valuation risk for interest rate swaps, it may be that the introduction of ESTER will influence the valuation of pension liabilities in the long term. In September 2018, DNB indicated that pension commitments should be valued using the risk-free interest rate term structure. In the long term, depending upon how the market develops, ESTER may come to be considered the new risk-free interest rate, replacing Euribor which is currently used as the basis for valuing pension fund liabilities. Because it is lower than Eonia, the value of pension obligations would therefore increase. This is, however, a long-term impact, and will very much depend on the adoption by market participants of ESTER.

How can investors prepare themselves?

The new reference rates will specifically influence the valuation of investors’ interest rate swaps. Investors with swap portfolios will therefore need to assess how the switch from Eonia to ESTER may affect the value of their portfolio. Where bilaterally agreed swaps are used, it may also be useful to assess the extent of the additional risk resulting from the uncertainty about how individual counterparties may implement the changes. It may also be an opportune moment to consider whether the pros and cons of using centrally cleared swaps over bilaterally agreed swaps. In any case, it may be a good idea to consider re-striking swaps so the effect of the change in discounting rate is minimized.
Conclusions

Following the Libor scandal which came to prominence in 2012, interest rate benchmarks have been under significant scrutiny across global financial markets. Local and wider international reviews of benchmarks and their integrity has led to various proposals for reforms or replacements of interest rate benchmarks. This is going to have important implications for investors with contracts tied to the reformed or replaced interest rate benchmarks, such as interest rate swaps, cross currency swaps, loans and cash pools.

ESTER will replace Eonia as the market standard rate for valuing euro interest rate swaps. The reasons for this change are that ESTER is calculated more transparently, is easier to understand and is based upon greater transaction volumes than Eonia. The new reference rate will have several benefits from a financial stability perspective including being more representative of rates in the market, less susceptible to manipulation, as well as more stable.

Depending on how the changeover is implemented, this will introduce a valuation risk, as swaps are currently valued using the Eonia curve. ESTER will begin to be published by October 2019 and, in the meantime, a pre-ESTER rate will be published so that market participants can become familiar with its characteristics. Investors can therefore assess how the switch from Eonia to ESTER may affect the value of their portfolio. Where bilaterally agreed swaps are used, it may also be useful to assess the extent of the additional risk resulting from the uncertainty about how individual counterparties may implement the changes. This can be an opportune moment to consider the pros and cons of using centrally cleared swaps over bilaterally agreed swaps. In any case, it may be a good idea to consider re-striking swaps so the effect of the change in discounting rate is minimized.
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