

The Global Reference Rates Reform and Its Impact on The Bulgarian Banking Industry

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Abstract

This paper analyses the problems that market users face after the global scale reform of reference rates. The plan to replace the LIBOR with new deeply market-rooted reference rates urge both private and public sectors to unite efforts in finding sustainable and long-term decisions promoting financial stability. Some of the previously existing rates are substantially revised, others – phased out, and a third group – that of the nearly risk-free rates is in a stage of development and testing. It is too soon to measure the impact of those reforms adequately. However, a detailed discussion of the basic features of the reference rates helps to make some preliminary conclusions in the case of Bulgaria.

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INTRODUCTION

Since its creation in late 1960s, the London Interbank Offered Rate (LIBOR) became the most widely used on a global scale reference interest rate (Schrimpf and Sushko, 2019), covering an enormous range of financial products and uses like debt and cash instruments (mortgages, corporate loans, government bonds, credit cards, student loans, etc.) and derivatives (interest rate and currency swaps, etc.). Although there were some sporadic suggestions concerning its sustainability, it was not until June 2012 that the U.S and European regulators reported the details on the large-scale manipulation of the LIBOR officially. The scandal led to fines and reputational damage to the involved financial firms. More importantly, further maintenance of LIBOR became an insurmountable task despite the efforts to reform it and officials called for methodological changes and even for replacing it with new alternative benchmarks (see for example Bailey, 2017).

As a result of the common efforts of the national and international financial regulators, a new set of principles and rules for reference rates were adopted and decisions to reform or terminate the existence of those not meeting the standards were taken. The wide use of LIBOR makes the transition away from it rather difficult as newly created alternatives' development slowly gains momentum. However, the adoption of the EU Benchmark Regulation (BMR)¹ led to reforms of the locally produced and used national Interbank Offered and Interbank Bid (IBOR and IBID) benchmark rates all over Europe, and in the case of Bulgaria - to the discontinuation of their calculation due to "the lack of licensed or registered administrators from the EU or a third country, listed in a register maintained by the European Securities and Markets Authority" (BNB, 2017). This process inevitably is expected to have an important impact on the financial system.

The purpose of this study is to provide an overview of the concept of the reference interest rates, to discuss their characteristics from the perspective of their usage, and to identify the channels through which the adoption of alternative benchmarks might impact the banking system in the case of Bulgaria.

Reference Interest Rates

Reference interest rates are publicly accessible and regularly updated interest rates that proved to be a useful basis for a huge range of financial contracts. Their importance stems from their wide usage across the entire economic system. By reflecting the cost of borrowing money in different markets, they play a vital role in pricing a vast range of assets such as securities, projects, obligations, cash flows, and even firms, which makes them play a key role in the financial system and the economy overall.

The need for reference rates is entirely market-driven which explains the private interest and efforts in their creation. Historically, they are a result of an extended process of trial and error in search of a benchmark that lowers transaction costs, increases transparency, fosters competition, deepens the markets and provides a mechanism for hedging common risks (Duffie and Stein, 2015).

Interbank Offered Rates (IBORs), including the famous LIBOR, are a vivid example of reference rates that became by far the most important and widely used interest rates. IBORs are calculated daily as a trimmed average of interest rate quotations for offerings *to be charged on unsecured interbank loans* reported by a predetermined set of panel banks. The fact that they are *credit-sensitive forward-looking rates* with tenors ranging from overnight up to one year makes them particularly valuable in banks' asset-liability management. Known at the beginning of the period to

¹ Regulation (EU) 2016/1011 of the European Parliament and of the Council on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds, accessed online on 16.12.2019 at <https://eur-lex.europa.eu/eli/reg/2016/1011/oj>

which they apply, they embed market participants' expectations about future market interest rates, which enables the process of planning and hedging, and hence, explains why the family of IBORs is so large (see Table 1).

Table 1. The family of IBORs

LIBOR	London Interbank Offered Rate	Reformed. To be discontinued at the end of 2021
EURIBOR	Euro Interbank Offered Rate	New hybrid methodology in accordance with BMR
HIBOR	Hong Kong Interbank Offered Rate	Revised methodology
SHIBOR	Shanghai Interbank Offered Rate	n.a.
TIBOR	Tokyo Interbank Offered Rate	Revised methodology
SIBOR	Singapore Interbank Offered Rate	New waterfall methodology
TELBOR	Tel Aviv Interbank Offered Rate	commitment to execute transactions in accordance with the quotes
STIBOR	Stockholm Interbank Offered Rate	Revised methodology
Indian MIBOR	Mumbai Interbank Offered Rate	Revised to actual traded rates (mid-2015)
Russian MIBOR	Moscow Interbank Offered Rate	Discontinued since 01.07.2016
SAIBOR	Saudi Arabian Interbank Offered Rate	Revised methodology
Pakistani KIBOR	Karachi Interbank Offered Rate	n.a.
Ukrainian KIBOR	Kiev Interbank Offer Rate	n.a.
BUBOR	Budapest Interbank Offered Rate	Reformed in accordance with BMR
WIBOR	Warsaw Interbank Offered Rate	Reformed in accordance with BMR, transition to a new waterfall methodology
PRIBOR	Prague Interbank Offered Rate	Reformed in accordance with BMR
ROBOR	Romanian Interbank Offered Rate	Reformed in accordance with BMR
HELIBOR	Helsinki Interbank Offered Rate	Discontinued since the euro adoption
SITIBOR	Slovenian Interbank Offered Rate	Discontinued since the euro adoption
BRIBOR	Bratislava Interbank Offered Rate	Discontinued since the euro adoption
VILIBOR	Vilnius Interbank Offered Rate	Discontinued since the euro adoption
RIGIBOR	Riga Interbank Offered Rate	Discontinued since the euro adoption
TALIBOR	Tallinn Interbank Offered Rate	Discontinued since the euro adoption
SOFIBOR	Sofia Interbank Offered Rate	Discontinued since 01.07.2018

Source: Central Banks' websites, reference rates' administrators' websites

Following the LIBOR-rigging scandal many IBORs undergo methodology revisions in compliance with the new international practice: (i) the trimming procedure is adjusted to improve the availability and reliability of price quotations, the latest being regularly checked against the actual transactions and published on an individual basis; (ii) the number of listed

tenors is reduced; (iii) the methodology and transparency of selecting market makers are warranted by the licensed administrators.

However, robustness and reliability of many of them remain under question due to another problem – the severe decline in interbank unsecured funding trading. Ten years after the global financial crisis those markets are

still thin with slim chances to recover because of the prolonged central banks' unconventional policies (especially in the eurozone) and the implementation of the post-crisis binding regulatory standards. Both higher capital and liquidity coverage ratio requirements make short-term lending costly. To address this problem, the international regulators issued guidance to expand the scope of transactions coverage from interbank to wholesale funding for banks.

Alternative Reference Rates

IBORs are interbank term interest rates but they are extensively used in derivatives markets. And from that perspective, overnight ones based on real transactions can be regarded as an alternative. While their variety is immense and history - quite long, their use is limited to only national level.

A widely referenced rate in the overnight index swap (OIS) is the Euro Overnight Index Average (EONIA), which until the end of

September 2019 are computed as a weighted average of overnight unsecured lending transactions provided by a panel of banks of sound financial standing in the EU and EFTA interbank market. Other examples are the Bank of England's SONIA, the Japanese TIBOR, the Suisse TOIS, etc. Some of them reflect unsecured funding, while others – secured. Besides, until recently, none of them complied with the internationally adopted rules and methodological framework.

Such framework of rules set in 2013 with the adoption of the IOSCO's nineteen principles for financial benchmarks (IOSCO, 2013) addresses the benchmark governance arrangements of the administrator, the quality of the benchmark and its underlying methodology, and the accountability of the administrator. As none of the existing benchmark rates fitted into the new criteria, they had to be substantially revised or in some cases even replaced by newly created transaction-based ones like SOFR and ESTER (see Table 2).

Table 2. Alternative Reference Rates for Major Currencies

Currency	Nearly risk-free rate	Nature	Administrator
USD	Secured Overnight Financing Rate (SOFR)	Secured	FRBNY
EUR	Euro Short-Term Rate (ESTER)	Unsecured	ECB
JPY	Tokyo Overnight Average (TONA)	Unsecured	Bank of Japan
GBP	Sterling Overnight Index Average (SONIA)	Unsecured	Bank of England
CHF	Swiss Average Overnight (SARON)	Secured	EUREX

Source: administrators' web sites

To increase the users' confidence in the reliability of interest rate benchmarks in 2014, the Financial Stability Board issued two important recommendations that shaped the benchmarks' reforms over the following years (FSB, 2014): (i) to strengthen existing reference rates based on unsecured bank funding costs (including IBORs) by underpinning them with transactions data; (ii) to develop alternative, overnight nearly risk-free reference rates (RFRs), regarded as a better indicator of the actual market stance and better-suited for the needs of the cash and derivatives markets; and (iii) to back up the existing contract robustness with appropriate fallback provisions.

The European reforms

Following the above recommendations, many of the existing IBORs become subject of revision. In Europe, the authorities voted for a multi-rate approach with the efforts concentrated on preserving and strengthening the EURIBOR and EONIA, while linking the later with the recently launched near-risk free rate – the ESTER.

EURIBOR is the only IBOR that underwent a dramatical change, as the new one is different both in value and dynamics.

According to its revised definition, EURIBOR nowadays represents² the rate at which credit institutions could obtain wholesale funds in euro in the EU and EFTA countries in the unsecured money market (see EMMI, 2019a). The scope of the market broadens from bank-to-bank to wholesale cash-only funding, and the panel of credit institutions includes only active participants in the euro money markets. What's more, EURIBOR's administrator EMMI has recently developed a new hybrid methodology. It follows a hierarchical three-level approach of determining each tenor of the benchmark to guarantee that it is anchored in transactions to the extent possible.

The second major reform concerns EONIA, which is widely used as a reference rate in financial instruments and contracts, and as a discounting curve for collateralised euro cash flows³. Although it might be regarded as complementary and serving as a backstop to EONIA, the new European near risk-free rate ESTER is designed to become an even stronger benchmark rate because it reflects the de facto wholesale euro overnight borrowing costs of euro area banks⁴. While the secured money market may have provided a broader base for its calculation, ESTER is developed as an unsecured rate for two basic reasons. First, it should share similar features with EONIA. And second, the unique characteristics of the European repo market regarding the collateral used complicate its calculation. As of 2 October 2019, the ECB started publishing ESTER, and the EONIA methodology had been „recalibrated“, literally transforming it into a fundamentally different benchmark. From that moment on until 3 January 2022 (when EONIA's publication will be discontinued) the Euro

Overnight Index Average is to be calculated as ESTER plus a fixed spread of 8.5 basis points.

Transition to ESTER-based calculation of EONIA raises several questions about the sustainability of the gap when the environment changes, about the reduced volatility, and its different reaction to market developments. Of course, they should all be taken into consideration by the benchmark rate users in their pricing, capital and hedging models.

True LIBOR alternatives

The shift away from LIBOR is already happening as many participants in forward and derivatives markets switch towards RFRs. Meanwhile, the transition in loan markets is still at its early stage. Some of the loan market financial instruments like floating-rate debt securities have already demonstrated an ability to transition to overnight RFRs. And others, like corporate loans, syndicated loans and retail loans, still use IBORs as a reference rate. The reason: they need a forward-looking term rate.

It's not an impossible task to develop new forward-looking term rates from the RFRs (term RFRs) as they can be based upon contracts traded on derivatives markets linked to relevant overnight RFRs (such as OIS and futures markets) or created from transactions in other markets (such as those for cash products or foreign exchange swaps)⁵.

However, there is a catch – the chicken-egg problem of robustness. The IOSCO principles (IOSCO, 2013) embed the so-called concept of “proportionality”, according to which the more widely a reference rate is used, the more robust it needs to be. And this robustness of a forward-looking term RFRs can be provided only when they are derived on well-functioning, continuous and deep in liquidity markets, which might not be the case.

Despite the controversy mentioned above, some attempts to develop forward-looking term SONIA and forward-looking term SOFR reference rates are already underway. Even

² The new methodology obtained authorisation on 28.11.2019.

³ For a complete list of the products based on EONIA see Section 4.1 “EONIA use in products” of the Report on the transition from EONIA to ESTER (ECB, 2018).

⁴ ESTER is calculated using overnight unsecured fixed rate deposit transactions over 1 million euros.

⁵ FSB (2018). Interest rate benchmark reform – overnight risk-free rates and term rates.

though their indicative values are published for consultation purposes, the de facto move toward futures-implied term rates is not expected to happen until daily RFRs futures volume and liquidity build enough. Also, evolving market structures during the process of transition might present further technical challenges.

As for the European efforts, the authorities recognise that for the time being creating longer-term reference rates based on (tradable) ESTER OIS quotes is not yet feasible due to insufficient volume of transactions needed to construct purely transaction-based longer-tenor reference rates. So as may be expected, the markets will continue to stick to EURIBOR until the underlying markets accumulate enough liquidity (EMMI, 2019b).

The Bulgarian reference rates

IBOR-type rates share two features which makes them quite successful and extremely valued in the banking community. First, based on unsecured funding, they comprise a risk-free component and a credit risk premium, accounting for the perceived common credit risk of the contributing banks. Banks prefer to link their loan contracts to unsecured reference rates because they provide them with a proxy hedge against funding cost risks by transferring the common bank funding cost risk onto their clients. And as Nelson (2019, p.3) points out, having loan interest rates tied to a bank-credit-risk-sensitive benchmark “provides valuable insurance for banks against stressful times”⁶. Second, IBORs are forward-looking term rates and using them helps the process of planning through embedding market participants’ expectations about future market interest rates.

The Bulgarian IBOR-like rate SOFIBID shares the same positive and negative characteristics with the rest of the IBORs, as they are based on similar methodologies (see Table 2). It is launched in early-2003 and quickly

becomes an important benchmark used in lev-denominated floating-rate loans until its cessation in mid-2018. Euro-denominated loans, which over the period represent about one third to one half of the total outstanding amount of the loans, refer to another very important benchmark for the local banking system - the EURIBOR.

Table 3. Historical reference interbank market interest rates in Bulgaria⁷

SOFIBID (Sofia Interbank Bid Rate) - since 17 February 2003 till 29 June 2018

An average of the bid quotes for unsecured BGN deposits offered in the interbank market provided by a representative panel of banks; maturities from overnight up to one year; contributor banks are licensed by the BNB with total assets not less than BGN 200 million, are active participants in the BGN money market, and handle good volumes of BGN-interest-rate related instruments, even in turbulent market conditions

SOFIBOR (Sofia Interbank Offered Rate) - since 17 February 2003 till 29 June 2018

An average of the ask quotes for unsecured BGN deposits offered in the interbank market data providers: the same representative panel of banks used as in SOFIBID; maturities from overnight up to one year;

LEONIA (Lev Overnight Index Average) – since 1 December 2004 till 30 June 2017

A weighted average of the interest rates on all concluded unsecured overnight lending transactions in Bulgarian levs; data providers: the same representative panel of banks used as in SOFIBOR

LEONIA Plus (Lev Overnight Index Average Plus) – since July 1st, 2018

A weighted average of the interest rates on all

⁶ This measure of common bank risk becomes very volatile in times of stress when the perceived creditworthiness of counterparties changes abruptly.

⁷ All current and historical rules, procedures and methodologies for the preparation of the reference rates are published at the BNB’s web site at <http://www.bnb.bg/AboutUs/AULegalFramework/AUNationalLegalFramework/AULFRulesAndProcedures/index.htm?toLang= EN>

concluded unsecured overnight lending transactions in Bulgarian lev; data providers are all banks licensed by the BNB and branches of foreign banks in Bulgaria participating in the interbank lev money market; computed and published daily

Source: BNB.

It is interesting to check whether the dynamics of both rates are similar since the Bulgarian currency board automatically links the local monetary stance to the euro area policy. In Figure 1, the two benchmarks are plotted

together with their spread. At first sight, the two curves look alike which suggests that there should be some spillover effects through the monetary transmission mechanism. The spread depicts the higher credit risk and the much tighter liquidity conditions faced by the local credit institutions during and immediately after the global financial crisis. The story looks similar when another set of reference rates is plotted together – the local interbank overnight rate in lev LEONIA against the European EONIA (see Figure 2).

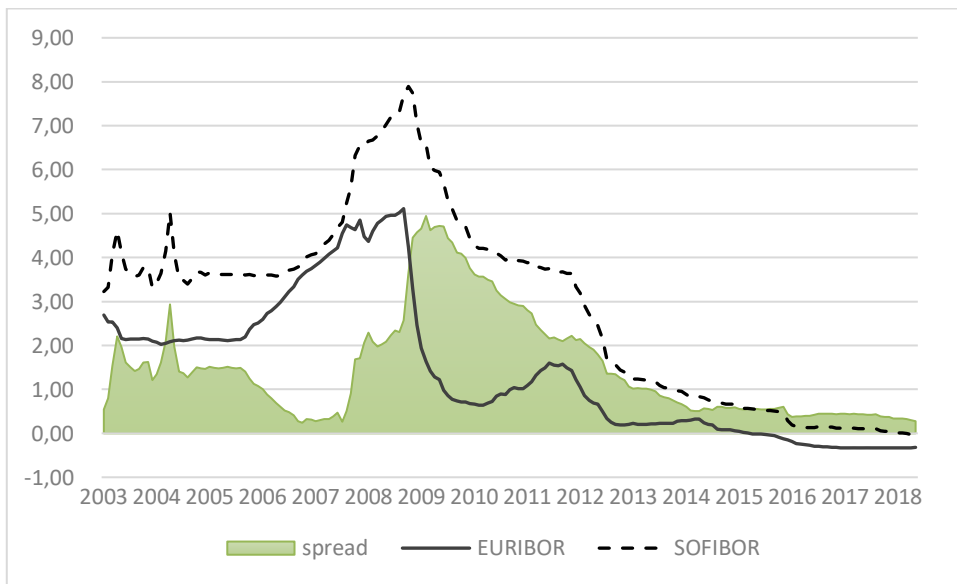


Figure 1. SOFIBOR versus EURIBOR dynamics (3m)

Source: BNB, ECB.

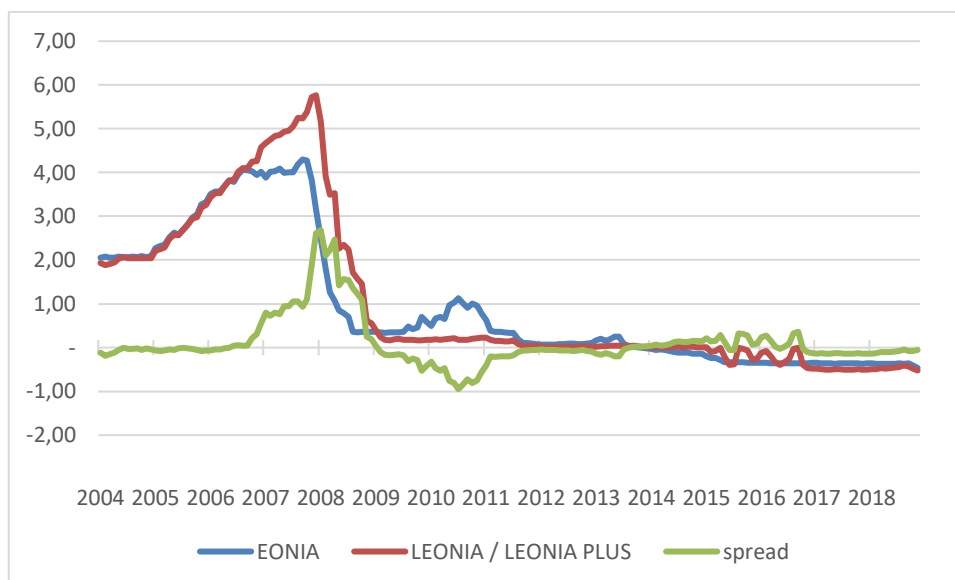


Figure 2. LEONIA/LEONIA PLUS versus EONIA dynamics

Source: BNB, ECB.

Until its official demise, the SOFIBOR was widely used to determine the interest due under loan agreements. It served well its function as it provided the borrowers with a transparent approach in determining the cost of service. Credit institutions were given the liberty in choosing an appropriate market-based reference rate to replace the SOFIBOR in the loan contracts, as long as the final rate does not generate any additional cost for their clients. Most of the banks stepped on the monthly weighted average interest rate on deposit outstanding amounts with a maturity of up to 2 years, as some of them rescale the result to account for the minimum required reserves costs.

This new type of methodology of setting reference rate differs in many ways from the previous ones. First, the rates are no longer forward-looking but instead – backwards-looking ones. Second, the freedom for the banks to choose their indicator decreases the transparency for the clients substantially. Third, one might wonder whether these new reference rates would adequately reflect the true marginal costs of funding for the banks, which doubtfully is the case. And finally, when banks are unable to hedge their funding costs, the probability of

transferring the burden onto their clients increases.

CONCLUSION

The plan to replace the IBORs with new deeply market-rooted reference rates unlocks a global reform. Some of the previously existing reference rates are substantially revised and others - phased out, a third group – that of the nearly risk-free rates is in a stage of development and testing. It is too soon to measure the impact of those reforms adequately. However, based on a detailed discussion of the basic features of the reference rates, some preliminary conclusions are made in the case of Bulgaria. Further accumulation of data would provide adequate testing of their relevance.

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