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Part Two in the *LIBOR Uncertainty* Series

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How FinTech Could Reboot LIBOR

by Stephen A. Rutenberg and Fiammetta S. Piazza

Part One of this two part E-alert looked at the challenges facing London Inter-Bank Offered Rate (LIBOR) LIBOR and how the syndicated loan market is dealing with the potential non-availability of these rates. Part two considers if blockchain technology and a 'LIBOR currency' could boost submission incentives and make process more secure.

Most discussions surrounding LIBOR involve ways to replace it using a similar polling mechanism. However, utilising recent advancements in the field of financial technology, including blockchain technology, might offer innovative ways to improve or replace the benchmark.

Financial technology may be able to solve the three main problems of LIBOR as it now exists: manipulability, opacity, and a lack of incentives for data providers. Currently, no such solution has been proposed, but it is worth considering some ideas involving randomisation, encryption, the use of blockchain, and even the issuance of a LIBOR currency.

It is important to note that implementation of financial technology is not an alternative to reforming or creating a substitute LIBOR. On the contrary, those solutions would ensure that the chosen rate and the process behind its calculation cannot be manipulated, are transparent, and incentivise the submission of data.

Randomising Samples with Encrypted Data

As mentioned above, a key problem with the current LIBOR system is its manipulability. Randomisation of the data provided by the LIBOR panels should offer a fairly simple solution to the risk of rates manipulation.

Such risks would be vastly decreased if, of all reported rates, only a random subset were used to calculate the applicable LIBOR rate provided to the public. This would reduce the incentives for manipulation by lowering, and perhaps eliminating, the power any such altered rate data supplied would have on the final calculation of the applicable LIBOR rate. Although today the top

Authors:

Stephen A. Rutenberg
Shareholder
212.413.2843
srutenberg@polsinelli.com

Fiammetta S. Piazza
Associate
310.556.6720
fpiazza@polsinelli.com

Additional Contacts:

Kraig M. Kohring
Real Estate and Financial Services Department Chair
816.360.4163
kkohring@polsinelli.com

Richard B. Levin
FinTech Practice Group Chair
303.583.8261
rlevin@polsinelli.com

Jason Kaplan
Shareholder
312.873.3627
jkaplan@polsinelli.com

and bottom 25% of all replies are already rejected, allowing for the randomisation of all answers with a set percentage removed would probably lead to less manipulable replies.

The idea of randomising LIBOR data is not new – it was discussed in the 2013 Wheatley Review of LIBOR. However, the review's findings raised significant concerns that "given the small number of contributors to LIBOR, and the relative dispersion of submissions arising from heterogeneity of credit risk within the contributor panels, using a random submission could lead to increased volatility of the final benchmark."

In addition, if banks know that the information will be not only randomised but encrypted, more may be willing to provide a quote, as the process would ensure anonymity both towards consumers and competing banking institutions.

The concerns raised by the Wheatley Review related to randomisation may be mitigated by requiring that, in addition to providing the suggested rate, each bank also provides data on who it obtained this rate from. Such background information would allow LIBOR data to be better analysed as well being more reliable. Although providing background data is not a new idea, previously banks were unable and unwilling to provide such data due to privacy concerns. Encryption technology is rapidly being developed to allow for the selective decryption of particular data without revealing information that would identify the reporting parties. The party compiling the LIBOR rate, or possibly the market as a whole, could review some of the information contained in the data without being given access to any information that would be private or otherwise used to identify any of the parties to a transaction.

This type of encryption is being explored in a variety of industries as a way of sharing data. In addition to the technical hurdles of such encryption, which are being rapidly overcome, the legality of releasing encrypted data will need to be addressed by reforms to data privacy laws. This is one of the many situations where the laws are still catching up with the technology.

Blockchain Technology

Another significant issue related to LIBOR is the lack of transparency with respect to the collection of rate data. Blockchain technology originally developed for cryptocurrencies may offer a possible solution to this problem.

One of the pivotal characteristics of such technology is that it allows for the storage of immutable data. Blockchain or distributed ledger technology is a key component of a number of cryptocurrencies. The ledger records all transactions occurring in the system, and the fact that it is distributed means it is not hosted on a single set of computers but exists in the cloud.

The ledger is broken into blocks of transactions, with each new block linked to the previous one, hence the term 'blockchain'. Having access to the most recent block allows one to follow the chain backward to observe every transaction in the chain. Each transaction is therefore permanently recorded in the blockchain and encrypted as an immutable record.

Were the reported rates to be stored on a blockchain, the collected data could not be manipulated after reporting. While the intentional corruption of data has not yet been a specific concern with regard to LIBOR, it is increasingly being been raised in other contexts, such as in the new Fundamental Review of the Trading Book, where there are concerns about the governance of submitted data. Data integrity hacks are also mentioned as the next big threat in data security.
If, as we suggest above, reporting parties are asked for encrypted background data for each LIBOR submission, it is worth considering storing the results of LIBOR or a potential new equivalent rate on a blockchain. This would ensure that both the content and the time of submission of the inputted information cannot be changed.

Blockchain Syndicated Loans

There are also opportunities to use blockchains for syndicated loans, particularly given the manual paper settlement of most transactions and the extended time for closing. At least two companies – Synaps Loans 7, which has successfully tested a blockchain loan product, and Finastra – are actively working to place either part or all of the lending process on a blockchain. IHS Markit, whose ClearPar platform currently handles most transactions in the loan market, also plans to enter the blockchain arena.

Once any of these products are commercialised on a large scale, it will open up numerous other opportunities to collect LIBOR

information from parties to loans. In theory, we could move from a LIBOR-based system of loan pricing to one run on a blockchain where each lender electronically agrees to a maximum interest rate that they are willing to pay.

Eventually, smart contracts – self-executing contracts based on negotiated triggering conditions – may be able to set the applicable rates for an entire market or the interest rate on a specific loan through the selective review of counterparty or market data without any central involvement.

Issuance of a 'LIBOR Currency'

The third key problem related to the current LIBOR system is that little incentive exists for a bank to reply to the poll, or to give an honest answer. Blockchain technology may offer an innovative solution that incentivises banks to supply LIBOR data.

At the core of some blockchain technology is a process called proof-of-work, which rewards individual computers on a network (a "node") for verifying the validity of transactions. This type of verification by multiple third parties allows blockchains to work without a central intermediary. Recently, a number of networks have been issuing their own so-called 'currency' for special blockchain uses, often with the currency given as a reward.

It is therefore possible that a consortium of financial market participants, or even a regulatory agency, could create a form of LIBOR currency that would be awarded to parties for the answers they provide with regard to LIBOR polling. For example, such a reward might be granted to either the first entity to reply to the poll and submit its data, or to the one whose answer most closely matches the issued rate. The latter idea should encourage replies that match actual costs of capital though efforts may have to be taken to ensure that replies are not fraudulently submitted. For example, reporting banks may be required to submit documentation justifying the report rate.

Such rewards would incentivise parties to provide accurate data. And since the LIBOR currency would not be sold for money and no funds would be raised, this could avoid the concerns being raised about whether the currency is a security for regulatory purposes.
The question then becomes why anyone would want the LIBOR currency. The mechanics of a LIBOR blockchain will need to be worked out by the industry and regulators. One approach might be for regulators or industry organisations to require banks to earn a certain amount of the currency as part of their required capitalisation.

It is even conceivable that the LIBOR currency could become the ideal cryptocurrency as it would be a more reliable store of value than existing cryptocurrencies, while retaining the advantages, such as decentralisation and limited ability for governmental manipulation, that cryptocurrencies have over fiat currencies.

A LIBOR-based cryptocurrency could have the strength of being powered by trillions of dollars of financial transactions without the burden of central control. Although many details, such as limiting the supply of currency issued, would need to be worked out, such a LIBOR currency could be the next generation of cryptocurrency.

Conclusion

While originally designed as the backbone of cryptocurrencies, blockchain technology presents an interesting option for the development of a new reference rate. Even though reform or substitution of LIBOR with a new rate are the most-discussed alternatives in the market, financial technology-based solutions such as those analysed above could solve LIBOR's problems of manipulability, opacity and lack of incentive.

Stephen Rutenberg is a shareholder and member of the FinTech and Regulation Practice at law firm Polsinelli in New York. Fiammetta Piazza is an associate in Polsinelli's Los Angeles office.

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