



The case for reform of LIBOR

C.1 LIBOR is the most frequently utilised benchmark for interest rates globally, referenced in transactions with a notional outstanding value of at least \$300 trillion.

C.2 However, LIBOR has a number of significant weaknesses that have eroded its credibility as a benchmark:

- LIBOR is intended to be a representation of unsecured inter-bank term borrowing costs; as this segment of the market has significantly declined, submissions to LIBOR have become increasingly reliant on expert judgement rather than transaction data.
- Banks and individuals working for banks have an incentive to attempt to manipulate the submissions that compile the rate, either to signal their perceived institutional creditworthiness or to support trading positions.
- The mechanism by which LIBOR is administered leaves opportunity for contributors to attempt to manipulate submissions in line with these incentives; submissions are not always based on transactions and the process is self-policing.
- There are weaknesses in governance arrangements for the compilation process, and within contributing banks themselves. Stronger oversight, with greater independence and transparency is needed.

C.3 There are ongoing investigations by a number of global financial regulators and public authorities into alleged attempted manipulation of LIBOR. It is already clear that at least some serious misconduct has taken place relating to LIBOR submissions in recent years.

C.4 Retaining LIBOR unchanged in its current state is not a viable option, given the scale of identified weaknesses and the loss of credibility that it has suffered. Therefore, LIBOR has to be significantly strengthened to take account of these weaknesses, while, in parallel, alternative benchmarks that can take on some or all of the roles that LIBOR currently performs in the market should be identified and evaluated.

The development and use of LIBOR

C.5 LIBOR is an indication of the costs of unsecured borrowing in the London inter-bank markets. In essence it is a benchmark that gauges the interest rate, credit premium and liquidity premium that a leading bank would expect to be offered by another similar institution.

C.6 It was established in the 1980s in order to provide a fair and standardised interest rate benchmark for loans, thereby facilitating the growth of the syndicated loans market. Standardised inter-bank rates were attractive as a benchmark for investors and borrowers as they allowed the lending banks to pass on changes in the funding costs of an average bank over the course of the duration of the loan. The development of LIBOR was also driven, from an early stage, by the growth in new financial instruments such as forward rate agreements, which also required a standardised interest rate benchmark.

Box C.1: Definition of LIBOR

LIBOR is calculated by Thomson Reuters on behalf of the BBA. Contributing banks submit a response to the following question for each currency and tenor:

"At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?"

The highest and lowest submissions are discarded, with the remaining submissions averaged to create LIBOR for the given day. For some currencies, more outliers are discarded as there are a higher number of contributing banks.

C.7 Today, inter-bank benchmarks such as LIBOR and EURIBOR are used across the world for a range of financial products by a wide variety of financial market participants, for both hedging and speculative purposes. Table C.1 sets out some of the more common uses for LIBOR, along with an estimate of the notional value of financial products using LIBOR, which is estimated to be at least \$300 trillion. No comprehensive source of data on the use of LIBOR exists so this data is drawn from a number of different published sources and relies on a number of assumptions, none of which will be complete or exact. Table C.1 should therefore be treated as indicative rather than comprehensive. A number of other estimates of the value of contracts linked to LIBOR exist in the public domain, ranging from \$300 trillion up to \$800 trillion.

Table C.1: Use of LIBOR in Financial Contracts

Instrument/Application	Estimated value of contracts with LIBOR as benchmark
Syndicated Loans	~\$10 trillion ^(a)
Floating Rate Notes	~\$3 trillion ^(b)
Interest Rate Swaps	\$165 ^(c) – \$230 trillion ^(d)
Exchange-traded Interest Rate Futures and Options	\$30 trillion ^(d)
Forward Rate Agreements	\$25 ^(d) – \$30 trillion ^(e)
Total	~\$300 trillion

Note: Assumption that 50 per cent of contracts reference LIBOR; this list is not exhaustive.

Sources: (a) Oliver Wyman; (b) Dealogic; (c) DTCC; (d) Bank for International Settlements; (e) Trioptima

C.8 Although LIBOR is currently published for ten currencies and fifteen maturities, this was not always the case. LIBOR was originally published for just three currencies – Sterling, US Dollar and Japanese Yen – before growing to cover a total of 16 currencies prior to the introduction of the euro in 2000. Similarly, the number of maturities has increased over time from 12 to 15 – in 1998 the 1-week rate was added, and in 2001 the overnight and 2-week rates were added.

C.9 Although LIBOR is calculated in London, it is based on daily submissions from a number of international banks and is used as a benchmark globally. The increasing global integration of financial markets has meant that contracts have converged to a single internationally recognised benchmark, and LIBOR in particular has benefited from a combination of the rise of the euro markets and the convenient time-zone in which London sits. Additionally, as the prevalence of LIBOR-linked contracts increased, there were network effects that made it more attractive for other products to link to LIBOR: for example, adjustable rate mortgages in local markets moved from being linked to niche measures of cost of funds to the more widely recognised and more easily hedged LIBOR.

Developments in the inter-bank borrowing market

C.10 Inter-bank benchmarks, such as LIBOR and EURIBOR, are an indication derived from information and activity in the market for inter-bank borrowing costs. Therefore the functioning of these underlying markets will have a direct impact on the benchmarks, and consequently on all contracts referenced to them. Unsecured inter-bank markets for term borrowing have come under severe stress and banks have been relying on other sources of funding for a greater proportion of their funds, including secured borrowing, retail deposits and liquidity provided by central banks.

C.11 This has been driven by several factors:

- There has been a significant increase in perceived risk of counterparty default (i.e. credit risk), particularly in the aftermath of the collapse of Lehman Brothers. The spread between inter-bank term interest rates and projected overnight cash rates (derived from OIS) increased sharply around this time, although has since fallen (Chart C.1). Further, regulatory capital charges arising from this increase in counterparty risk have reduced the demand for unsecured funding.
- The introduction of liquidity coverage ratios – in the UK and in Basel III – have modified the demand and supply of inter-bank funding, as banks transition to more longer maturity funding and more secured funding sources.
- There was, and continues to be, a significant increase in liquidity available to banks as a consequence of the exceptional measures taken by major central banks during and after the crisis.

Chart C.1: 3-month LIBOR-OIS Spread

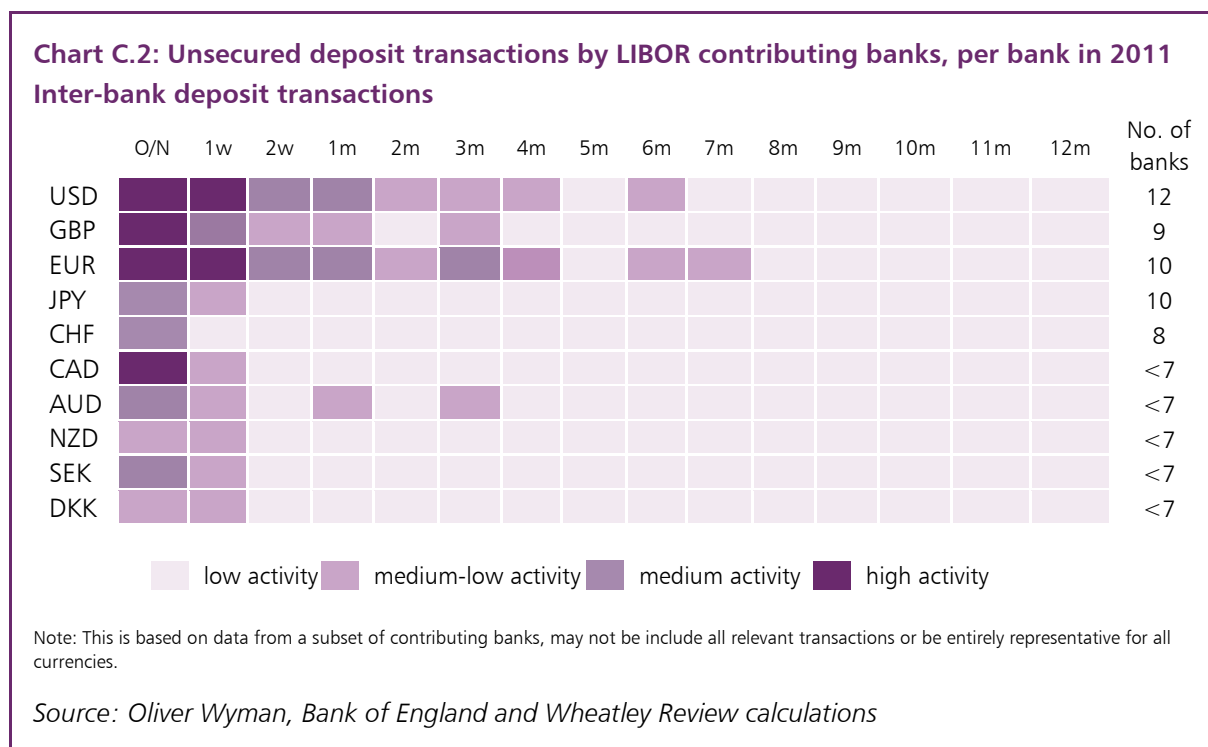


Source: Bloomberg

C.12 The long-term impact of these factors will vary. The increase in perceived counterparty credit risk may be cyclical, although its effect on the inter-bank market may last for longer. The effect of central bank operations has reduced the reliance of banks on private credit facilities.

However, the changing regulatory requirements concerning capital and liquidity – both in the UK, and anticipated at an international level – reflect a permanent structural change, and so might have a permanent effect on the volume of lending in the inter-bank market, and particularly on inter-bank unsecured lending at longer maturities.

C.13 Under the current definition of LIBOR a lower volume of trades is not necessarily a problem since there is no mechanical link from transactions to the LIBOR calculation. However it might make the expert judgement required to determine the appropriate rate submission more difficult. The problem of limited transactions is not uniform. While there is still some inter-bank lending, for many currencies and maturities trading remains very thin (see Chart C.2).



C.14 Overall, the limited number of transactions means that there are some problems inherent in a widely used benchmark that is nominally derived from unsecured inter-bank term lending. First, determining an appropriate rate for all required points is difficult. Second, a relatively small and illiquid market is used as the basis for determining rates in global loan and derivative contracts that have a nominal outstanding value that is several multiples of the value of the underlying inter-bank transactions.