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# The LIBOR Fix

The current furor surrounding manipulation of money market rates contains all the meanings of the word “fix” and more

Depending on context, the word “fix” can mean “set” or “determine,” “manipulate” or “rig,” as well as “repair” or “correct.” “In a fix” means to be in difficulty. In colloquial use, a “fix” is a dose of an addictive substance that is habitually consumed. The current furore surrounding manipulation of money market rates contains all these meanings and more.

An objective mechanism is needed to set money market rates used in a variety of instruments. A number of traders at leading banks submitted false rates, seeking to manipulate the outcome. Banks are in a fix. If the current arrangements are unsatisfactory then it will be necessary to repair the mechanism.

## In a fix...

In June 2012, UK and American authorities fined UK's Barclays Bank £290 million (US\$450 million) for manipulating key money market benchmark rates, such as the London Interbank Offered Rate (LIBOR) and Euro Interbank Offered Rate (EuroIBOR). The settlement follows a lengthy investigation into fixing money market rates by regulators, underway for at least 2 years.

In 2011, Swiss bank UBS disclosed that as part of the investigation it had received demands for information on “whether there were improper attempts by UBS, either acting on its own or together with others, to manipulate LIBOR rates



at certain times.” The *Wall Street Journal* in May 2008 published a study suggesting that banks might have understated borrowing costs. An academic study published the same year found that LIBOR had remained low whilst bank risk was increasing. Individual banks’ rate quotes remained very close, surprising given divergences in perceived credit quality.

The exact circumstances remained unclear until the UK Financial Services Authority (FSA) released detailed evidence indicating that Barclays had manipulated rates. Barclays’ Chief Executive Officer (CEO) Robert E. Diamond Jr. and Chief Operating Officer Jerry del Missier were forced to resign. Barclays’ Chairman Marcus Agius resigned but agreed to remain temporarily to find a new CEO.

An unknown number of traders and inter-bank brokers have been dismissed, suspended, or put on leave by their employers as a con-

sequence of the investigations. Institutions affected allegedly include Deutsche Bank, JPMorgan Chase, Royal Bank of Scotland, UBS, and Citigroup.

## The fix...

LIBOR stands for the London Interbank Offered Rate. This originally reflected rates at which banks in the Euro-dollar market lent surplus liquidity to each other. As the market grew, an accepted pricing benchmark was required.

In the 1980s, the British Bankers’ Association (BBA) working with major global financial institutions and regulators, primarily the Bank of England (BoE), created the BBA rates. Initially, these were standard only for interest rate swaps (known as BBAIRS terms). Demand for a standard benchmark for instruments based on money market rates led to the creation of the BBA LIBOR fixings, which commenced officially around

January 1, 1986 following a trial period commencing in December 1984.

LIBOR is defined as: "The rate at which an individual Contributor Panel bank could borrow funds, were it to do so by asking for and then accepting inter-bank offers in reasonable market size, just prior to 11.00 London time." Each bank must submit a rate accurately reflecting its belief about its cost of funds, defined as unsecured interbank cash borrowings or funds raised through issuance of interbank Certificates of Deposit (CDs), in London as at the relevant time.

There are 150 different LIBOR rates published every day, covering 10 currencies (including US\$, C\$, A\$, NZ\$, Euro, £, yen, and Swiss franc) and 15 maturities (ranging from overnight rates to 12 months). There are between 8 and 20 banks on each currency panel. Each bank provides its quote. The top and bottom 25 percent are ignored and the remaining quotes are averaged (the interquartile mean) to arrive at the quoted LIBOR. The process is overseen by the BBA but daily calculations are undertaken by Thomson Reuters, which publishes the rate after 11:00 a.m. (generally around 11:45 a.m.) each trading day London time. The rates are a benchmark rather than a tradable rate. The actual rate at which specific banks will lend to one another varies. The rate also changes throughout the day.

LIBOR is used for loans, bonds (such as floating rate notes, FRNs), and derivative transactions. Derivatives that use LIBOR to determine payments include various futures and options contracts, forward rate agreements, interest rate and currency swaps, and various interest rate options. The exact volume of transactions using LIBOR is unknown, as most are over-the-counter (OTC) bilateral transactions. Estimates suggest that LIBOR is used to establish the interest costs of \$10 trillion of loans, \$350 trillion of OTC derivatives, and over \$400 trillion of Euro-dollar futures and option contracts traded on exchanges.

### First fix...

Pre-2007, Barclays manipulated rates in order to obtain financial benefits. Subsequently, during the global financial crisis (GFC), Barclays manipulated rates due to reputational concerns.

The pre-2007 episode relates primarily to

mismatches in banks' assets and liabilities.

For the most part, banks simultaneously borrow and lend money. In derivatives, they both receive and pay the same or similar rates. For example, a bank may have borrowed 1-month money to finance a loan where the rate is based on the 3-month rate. Derivative traders may receive 3-month LIBOR but pay 6-month LIBOR. Mismatches arise from timing differences; a bank may have a transaction pricing of 3-month LIBOR on one day offsetting a position pricing of 3-month LIBOR the next day or a few days later.

Mismatches may be deliberately created to increase profit. Mismatches also result from the natural flow of customer transactions.

Mismatches (known as reset risk) can be managed by entering into transactions such as reset swaps. A bank might pay 1-month LIBOR against

## Mismatches may be deliberately created to increase profit. Mismatches also result from the natural flow of customer transactions

receiving 3-month LIBOR. Hedges are expensive and not always readily available. The incentive to manipulate rates for profit arises from these mismatches. The evidence is consistent with this pattern of activities.

On September 13, 2006, a trader in New York writes: "Hi Guys, We got a big position in 3m libor for the next 3 days. Can we please keep the libor fixing at 5.39 for the next few days. It would really help. We do not want it to fix any higher than that. Tks a lot." On October 13, 2006, a senior Euro swaps trader states: "I have a huge fixing on Monday ... something like 30bn 1m fixing ... and I would like it to be very very very high ... Can you do something to help? I know a big clearer will be against us ... and don't want to lose money on that one." On October 26, 2006, an external trader makes a request for a lower 3-month US dollar LIBOR submission stated in an email to a trader at Barclays: "If it comes in unchanged I'm a dead man."

Traders sought to fix the rates set to increase the firm's profits and ultimately their own bonuses. Following the request of October 26, 2006, Barclays submitted a 3-month US dollar LIBOR quote that was half a basis point lower than that the day before. The external trader thanked the Barclays' trader: "Dude. I owe you big time! Come over one day after work and I'm opening a bottle of Bollinger."

### Second fix...

During the GFC, the FSA alleges that Barclays sought to manipulate LIBOR to minimize reputational concerns about its financial position.

Money market conditions were extremely difficult from late 2007 until early 2009, when massive central bank intervention alleviated funding pressures. There was little or no trading

in money markets, especially beyond 1 week. Individual bank funding activity and LIBOR quotes were intensely scrutinized. There was focus on any banks which were accessing emergency central bank funding, such as the BOE's emergency standby facility. During this period, a high LIBOR post was interpreted as a sign that a bank was struggling to raise deposits, leading to withdrawal of money market limits, exacerbating funding difficulties. Equity markets too reacted savagely, selling bank stocks at any sign of funding stress.

The uncertainty was evident in the excess reserve balances held by banks with central banks as institutions assumed the worst about their peers. It was also evident in the difference between 3-month dollar LIBOR and the overnight indexed swap rate, which is an indicator of banks' willingness to lend to each other. This spread peaked at a record 364 basis points on October 10, 2008, compared with an average of

Table 1(a): Effect of submission manipulation (assumes dispersion of 2 basis points).

Bank	Quote 1	Bank	Quote 2	Bank	Quote 3
1	1.0000%	5	1.0000%	1	1.0000%
2	0.9982%	1	1.0000%	2	0.9982%
3	0.9964%	2	0.9982%	3	0.9964%
4	0.9945%	3	0.9964%	4	0.9945%
5	0.9927%	4	0.9945%	6	0.9909%
6	0.9909%	6	0.9909%	7	0.9891%
7	0.9891%	7	0.9891%	8	0.9873%
8	0.9873%	8	0.9873%	9	0.9855%
9	0.9855%	9	0.9855%	10	0.9836%
10	0.9836%	10	0.9836%	11	0.9818%
11	0.9818%	11	0.9818%	12	0.9800%
12	0.9800%	12	0.9800%	5	0.9800%
LIBOR	0.9900%	LIBOR	0.9906%	LIBOR	0.9885%
Difference %		Difference	0.0006%	Difference	-0.0015%
Difference (\$/billion)		Difference (\$/billion)	\$ 6.061	Difference (\$/billion)	\$ 15.152

Table 1(b): Effect of submission manipulation (assumes dispersion of 0.5 basis points).

Bank	Quote 1	Bank	Quote 2	Bank	Quote 3
1	1.0000%	5	1.0000%	1	1.0000%
2	0.9995%	1	1.0000%	2	0.9995%
3	0.9991%	2	0.9995%	3	0.9991%
4	0.9986%	3	0.9991%	4	0.9986%
5	0.9982%	4	0.9986%	6	0.9977%
6	0.9977%	6	0.9977%	7	0.9973%
7	0.9973%	7	0.9973%	8	0.9968%
8	0.9968%	8	0.9968%	9	0.9964%
9	0.9964%	9	0.9964%	10	0.9959%
10	0.9959%	10	0.9959%	11	0.9955%
11	0.9955%	11	0.9955%	12	0.9950%
12	0.9950%	12	0.9950%	5	0.9950%
LIBOR	0.9975%	LIBOR	0.9977%	LIBOR	0.9971%
Difference %		Difference	0.0002%	Difference	-0.0004%
Difference (\$/billion)		Difference (\$/billion)	\$ 1.515	Difference (\$/billion)	\$ 3.788

10 basis points in the period 2003–2008 and 45 basis points since 2008.

Banks also found it difficult to calculate rates accurately because of illiquid money markets. Submissions became a guess of the level if a market existed, based on discussion with other market participants and checking competitors’ previous submissions.

The FSA Report refers to media reports that Barclays had been posting high LIBOR rates and market concern about the bank. The BoE was also concerned, leading to a number of discussions between officials and Barclays’ management. BoE concern is understandable given the difficulties of other major UK banks, such as RBS and Lloyds/HBOS.

An October 2008 file note written by Barclays’ CEO Mr. Diamond (curiously, one of only three he ever wrote) states that BoE Deputy Governor Paul Tucker advised that the bank’s high LIBOR submissions were gaining the attention of “senior figures” in Whitehall. Mr. Diamond recorded that Tucker felt Barclays did not need to keep posting such high LIBOR fixings, intimating that “it did not always need to be the case that we (Barclays) appeared as high as we have recently.” Barclays would have been concerned that incorrect price signals could set off panic and massive funding pressures.

In a Bloomberg television interview in May 2008, Tim Bond, a former Barclays Capital executive, indicated that banks routinely misstated their borrowing costs in the BBA process to avoid the perception that they faced difficulty raising

funds during this period. This is consistent with a 2008 Bank for International Settlements (BIS) report which questioned the accuracy of LIBOR quotes, stating that they could be influenced by “strategic behavior” with banks “wary of revealing” information that could signal stress.

While the bank’s manipulation for the purposes of financial gain is indefensible, Barclays’ officials argue that during the crisis it acted with the explicit or implicit agreement of the BoE.

Damage...

While there is little doubt that incorrect rates were submitted, the effect is more difficult to establish. While a single high or low quote would be eliminated from the calculation, LIBOR could still be affected.

Collusion between the banks could affect the rate. The FSA Report suggests that Barclays worked with other banks. In court filings, Canada’s Competition Bureau disclosed that one bank had confessed to participating in a conspiracy to manipulate LIBOR to affect the price of derivatives globally, involving employees of HSBC, Deutsche Bank, JPMorgan, RBS, and Citigroup, as well as money market broker ICAP.

Even without collusion, small changes in submissions can affect the LIBOR set. Setting rates very low or very high may ensure that the bank’s submission is excluded, allowing another rate to be included in the calculation. If a bank sets rates very low then it ensures that lower rates are included in the calculation, decreasing the aver-

age. Similarly, setting rates higher pushes higher rates into the calculation, increasing the average.

The ability to manipulate rates depends on the number of banks on the panel and the dispersion of the original submissions. A small panel makes the rate easier to manipulate. Where the submissions are highly dispersed, it may be easier to influence the final outcome, even without collusion. The differences between rates around the cut-off point for inclusion are critical. It is helpful to know what individual submissions are, although the previous day’s quote may provide a reasonable proxy.

In the following example, assume quotes are as follows:

Quote 1 – original bank submissions.

Quote 2 – Bank 5 manipulates the quote by increasing its submission.

Quote 3 – Bank 5 manipulates the quote by decreasing its submission.

In all cases the top and bottom three quotes (25 percent each) are ignored, with the LIBOR rate being determined by the arithmetic average of the remaining six quotes. Differences are given as a percentage, and dollar amounts calculated for a full year assuming a principal of US\$1 billion.

In the first case shown in Table 1(a), a dispersion (range) of 2 basis points between the top and bottom quotes is assumed.

If the dispersion decreases (increases), the effect on LIBOR similarly decreases or increases. Table 1(b, c) assumes dispersion of 0.5 and 5 basis points, respectively.

**Table 1(c): Effect of submission manipulation (assumes dispersion of 5 basis points).**

Bank	Quote 1	Bank	Quote 2	Bank	Quote 3
1	1.0000%	5	1.0000%	1	1.0000%
2	0.9955%	1	1.0000%	2	0.9955%
3	0.9909%	2	0.9955%	3	0.9909%
4	0.9864%	3	0.9909%	4	0.9864%
5	0.9818%	4	0.9864%	6	0.9773%
6	0.9773%	6	0.9773%	7	0.9727%
7	0.9727%	7	0.9727%	8	0.9682%
8	0.9682%	8	0.9682%	9	0.9636%
9	0.9636%	9	0.9636%	10	0.9591%
10	0.9591%	10	0.9591%	11	0.9545%
11	0.9545%	11	0.9545%	12	0.9500%
12	0.9500%	12	0.9500%	5	0.9950%
LIBOR	0.9750%	LIBOR	0.9765%	LIBOR	0.9712%
Difference %		Difference	0.0015%	Difference	-0.0038%
Difference (\$/billion)		Difference (\$/billion)	\$ 15,152	Difference (\$/billion)	\$ 37,879

If there is a large difference (jump) between rates around the cut-off point for inclusion, then the effect on LIBOR is exacerbated. Table 1(d) assumes a dispersion of 2 basis points but a larger difference around the relevant points than the previous example.

Small changes have a material impact in dollar terms where large sums are affected. A 1 basis point change on US\$1 billion is equivalent to US\$100,000 per annum. Assuming a total of US\$800 trillion of affected transactions, the potential amount is US\$80 billion per annum or \$220 million per day. Actual damages would be significantly lower.

Rate fixes are for the shorter term, 1 or 3 months. Where they reflect a spread between say 1-month and 3-month rates, the amount involved would be smaller.

### Damaged...

LIBOR is not used for all financial transactions. It is primarily used in wholesale loan transactions and derivative transactions. Retail or small business loans are based on the bank's own base rate, reflecting its funding cost. Bank retail deposit rates are rarely based on LIBOR.

According to the US Office of the Comptroller of the Currency, the proportion of US mortgages priced directly off LIBOR is estimated at around 2 to 3 percent of all mortgages, about 900,000 loans totaling US\$275 billion. The proportion of UK mortgages priced off LIBOR is similar. In the USA the predominance of fixed-rate mortgages makes a money market benchmark like LIBOR irrelevant.

**Table 1(d): Effect of submission manipulation (assumes dispersion of 2 basis points but a larger difference around the relevant points).**

Bank	Quote 1	Bank	Quote 2	Bank	Quote 3
1	1.0000%	5	1.0000%	1	1.0000%
2	0.9982%	1	1.0000%	2	0.9982%
3	0.9980%	2	0.9982%	3	0.9980%
4	0.9930%	3	0.9980%	4	0.9930%
5	0.9927%	4	0.9930%	6	0.9920%
6	0.9920%	6	0.9920%	7	0.9893%
7	0.9893%	7	0.9893%	8	0.9873%
8	0.9873%	8	0.9873%	9	0.9855%
9	0.9855%	9	0.9855%	10	0.9818%
10	0.9818%	10	0.9818%	11	0.9818%
11	0.9818%	11	0.9818%	12	0.9800%
12	0.9800%	12	0.9800%	5	0.9800%
LIBOR	0.9900%	LIBOR	0.9908%	LIBOR	0.9881%
Difference %		Difference	0.0009%	Difference	-0.0018%
Difference (\$/billion)		Difference (\$/billion)	\$ 8,788	Difference (\$/billion)	\$ 18,212

BBA LIBOR is not used in some markets at all due to history or differences in market conventions, such as settlement protocols. Derivative and loan transactions in Australia are priced off the indigenous A\$ bank bill rate (BBSW). Transactions in the USA use a variety of rates, including the US Prime Rate or US Commercial Paper rates.

Manipulation could indirectly affect interest rates. Changes in a bank's wholesale funding might affect its lending and deposit rates. Retail mortgages and credit card loans are refinanced

There will also be differences between banks that contribute to the LIBOR fix and those that do not. End-users, corporate or retail borrowers, and investors would all be affected.

There are potentially wider issues. If submissions were manipulated leading to interest rates across the yield curve being higher or lower than they would otherwise be, it would affect a much wider range of financial transactions. This is because one of the basic elements of all finance is discounting future cash flows to the present day

If there is a large difference (jump) between rates around the cut-off point for inclusion, then the effect on LIBOR is exacerbated

through securitization transactions, which are linked to LIBOR.

Determining the affected parties is also complex. During the GFC, low rates benefitted borrowers but penalized depositors. Low LIBOR sets penalized payers of fixed rate in an interest rate swap but benefitted receivers.

In derivative transactions, there may have been transfers of value between banks. One swaps trader states that a large bank is on the other side of a fix with opposing financial interests. Individual desks or traders within a bank may have different interests in a particular LIBOR set.

using market rates. Incorrect rates would affect bonds, fixed-interest instruments, and all derivatives including those on unrelated asset classes such as currency, equities, commodities, etc. If causality is accepted then this would increase the potential liabilities significantly.

A perverse outcome is likely in litigation. As banks act as intermediaries in the main, there would be a transfer of wealth between parties. Losers will sue banks, who will be unable to recover their losses from the parties that may have benefitted.

Clients suing banks is now passé. The sight of





banks suing each other, seeking compensation, promises ribald entertainment. Goldman Sachs (who do not contribute to the fix) claiming that they were innocent victims and unsophisticated investors may provide a suitable coda to the episode.

### The long fix...

Lord Turner, the head of UK FSA, told a UK parliamentary committee that it hadn't occurred to him before 2009 that the rate was something that could be manipulated. However, anecdotal evidence suggests that LIBOR submissions may have been manipulated over a long period. Banks and

ful dismissal, trader Tan Chi Min alleged that he and colleagues were regularly consulted by senior managers and personnel responsible for setting the bank's yen LIBOR. The filing alleges that there was no regulation, policy, or guidelines for submissions. RBS's position is that Tan was dismissed for trying to manipulate the bank's rate setting to benefit his trading positions between 2007 and 2011.

Between 2007 and 2008, it appears that Barclays' compliance department did not act on three separate internal warnings about conflicts of interest and "patently false" rate submis-

the LIBOR is calculated. Internal New York Fed reports reveal concern about possible misreporting of LIBOR. None of these concerns were made public or steps taken to address the problem. Regulators, it seems, feared that the truth would destabilize already panicked markets.

### TBTF to TBTJ...

Large banks are too big to fail (TBTF), a concept now codified in bank regulations. It remains to be seen whether large banks and their employees are too big to jail (TBTJ). Authorities have settled cases of LIBOR manipulation, perhaps driven by a desire to avoid creating a banking panic in an environment where financial institutions are vulnerable. Barclays received immunity from prosecution in return for co-operating and settling the matter. UBS too has received limited immunity from Canadian and Swiss regulators in return for co-operation.

The UK FSA case was based on breaches of various parts of its Principles for Business code, specifically Principle 5 which requires a firm to observe proper standards of market conduct. The report concluded: "The definitions of LIBOR and EURIBOR require submissions from contributing banks based on their subjective judgement of borrowing or lending in the interbank market. The definitions do not allow for consideration of derivatives traders' positions or of concerns over the negative media perception of high LIBOR submissions." The US Department of Justice (DoJ) cited violations and misconducts, without specifying offenses.

The actions *prima facie* constitute manipulation and fraud, violating applicable securities laws. It may also breach anti-trust and criminal law. Evidence released shows possible criminal intent. Emails indicate awareness of the illegality: "don't talk about it too much"; "don't make any noise about it please"; "this can backfire against us." Individual traders and the bank which is responsible for its employees' actions would be liable.

Facing media attention and public fury, US and UK authorities are belatedly exploring possible criminal charges.

### Big fix...

Responsibilities for oversight of the LIBOR setting

## Determining the affected parties is also complex. During the GFC, low rates benefitted borrowers but penalized depositors. Low LIBOR sets penalized payers of fixed rate in an interest rate swap but benefitted receivers

regulators may have been aware of these practices for some time but did not take corrective action.

Barclays' senior management and board of directors have indicated that they became aware of the problem recently. Banks offer the same excuse as JP Morgan Junior in 1933: "Since we have not more power of knowing the future than any other men, we have made many mistakes (who has not during the past five years?), but our mistakes have been errors of judgment and not of principle."

The practice appears blatant and warnings were ignored. Canadian court documents indicate that a UBS employee contacted employees at other banks with a view to achieving a "certain movement" in yen LIBOR. The correspondence does not attempt to hide the actions from superiors or express concern about any breach of internal or regulatory rules.

In a Singapore lawsuit against RBS for wrong-

sions. In an opinion piece published in the UK's *Independent* on July 7, 2012, a former Barclays' employee alleged that problems with LIBOR fixings were escalated by several people up to their directors and further within the organization.

Recent disclosures indicate that UK and US regulators knew that banks were posting artificial rates which did not correspond to the actual rates that the banks would pay to borrow. In April 2008, a Barclays' employee notified the Federal Reserve Bank of New York (New York Fed) that the bank was underestimating its borrowing costs. A transcript of the telephone call is revealing: "....we know that we're not posting um, an honest LIBOR ... we are doing it because um, if we didn't do it ... it draws, um, unwanted attention on ourselves."

On June 1, 2008, Timothy Geithner, then head of the New York Fed, emailed Mervyn King, Governor of the BoE, urging changes in the way

process are unclear. Barclays has criticized the BBA: “During this period, Barclays was consistently raising concerns with the BBA, questioning why other banks’ LIBOR submissions appeared to be so low compared to those of Barclays. Many of these concerns were based upon Barclays observations that other banks were making submissions which were lower than levels at which they appeared to be undertaking transactions. Subsequent research by the New York Federal Reserve staff members concluded that banks’ LIBOR quotes were systematically below their borrowing rates by 39 basis points after the Lehman bankruptcy.”

The BBA insists that its process is transparent and unambiguous. As all contributing banks are regulated, the BBA argues that regulators are responsible for individual banks’ behavior. The BBA knows each person responsible for submitting information and can demand to see the actual trades on which these figures are based. No evidence that this was done has been disclosed.

The UK FSA does not have a specific regime governing LIBOR submissions, relying on broad rules governing identification and prevention of conflicts of interest. Increased oversight and regulation of the rate-setting mechanism is proposed.

Proponents of “narrow” banking argue that the separation of commercial and investment banking would solve the problem. But interest rate benchmarks affect normal lending and deposit-taking activity as well as trading activity. Proponents of the Volcker Rule argue that preventing proprietary trading by banks would minimize the problem. In reality, manipulation was related not only to trading positions but also to general banking activity.

UK regulators seem resistant to more stringent regulations. BoE Governor Mervyn King noted: “The idea that one can base the future calculation of LIBOR on the idea that ‘my word is my LIBOR’ is now dead.” But the Governor cautioned that: “I think it’s very important that people don’t expect too much from regulation.”

UK authorities nostalgically hanker for an anachronistic time when most bankers in London were located in the Square Mile of the City and relied on mutual trust. According to folklore, nothing more than a central bank governor’s

**Table 2: CFTC Three Factor Approach to LIBOR Submissions**

The CTFC nominated the following a three factor approach:

1. Barclays’ Borrowing or Lending Transactions Observed by Barclays’ Submitters including:
  - 1.1. Barclays’ own transactions in the market
  - 1.2. Barclays’ transactions in other markets for unsecured funds, including, but not limited to, certificates of deposit and issuances of commercial paper
  - 1.3. Barclays’ transactions in various related markets, including, but not limited to, Overnight Index Swaps, foreign currency forwards, repurchase agreements, futures, and Fed Funds.
2. Third Party Transactions Observed by Barclays’ Submitters including:
  - 2.1. Transactions executed by third parties in the market
  - 2.2. Transactions executed by third parties in other markets for unsecured funds, including, but not limited to, certificates of deposit and issuances of commercial paper
  - 2.3. Transactions executed by third parties in various related markets, including, but not limited to, Overnight Index Swaps, foreign currency forwards, repurchase agreements, futures, and Fed Funds.
3. Third Party Offers Observed by Barclays’ Submitters including:
  - 3.1. Third party offers to Barclays in the market
  - 3.2. Third party offers in other markets for unsecured funds, including, but not limited to, certificates of deposit and issuances of commercial paper, provided to Barclays by interdealer brokers (e.g., voice brokers)
  - 3.3. Third party offers provided to Barclays in various related markets, including, but not limited to, Overnight Index Swaps, foreign currency forwards, repurchase agreements, and Fed Funds.

The CFTC guidelines also allow adjustment of LIBOR submissions having regard to the following factors:

1. Time: proximity in time to the Submission(s) increases the relevance of that Factor;
2. Market Events: Barclays may adjust its Submission(s) based upon market events,
3. Term Structure: if Barclays has data for any maturity/tenor described by a Factor, then Barclays may interpolate or extrapolate the remaining maturities/tenors from the available data;
4. Credit Standards: adjustments may be made to reflect Barclays’ credit standing and/or the credit spread between the market. Additionally, Barclays may take into account counterparties’ credit standings, access to funds, and borrowing or lending requirements, and third party offers considered in connection with the above Factors;
5. Non-representative Transactions: To the extent a transaction included among the Factors above significantly diverges in an objective manner from other transactions, and that divergence is not due to market events as addressed above, Barclays may exclude such transactions from its determination of its Submission(s).

raised eyebrows was necessary to prevent unsatisfactory conduct. The good old days were not what they seemed. In the 1980s, the head of a UK merchant bank told new employees that he didn’t know how they would get rich given that insider trading was being banned.

A battle between major financial centers underlies the regulatory debate. In the 2000s, London became the world’s dominant finance hub. Non-intrusive, market-responsive “light touch” regulation was a factor in its success. Damage to London’s reputation and stricter regulation would allow New York and Euro-

pean centers to regain competitive ground. US authorities hinted that they forced reluctant UK regulators to act and are at the forefront of driving reform. European Union banking and anti-trust regulators have launched major investigations which may affect London’s competitive advantage.

### Fixing the fix...

Amusingly, a recent BBA review proposed no changes to the rate-setting methodology, merely proposing a code of conduct and greater scrutiny of LIBOR’s correlation with other financial data



over time. A “shocked” BBA is now reviewing the process.

Given the large volume of transactions linked to the benchmark, it is essential that changes do not disrupt the operation of the market. Changes that affect legacy contracts may create significant legal problems.

There is agreement that the rates should be based on actual transactions rather than theoretical estimates. There should be independent oversight of the process. Banks should be required to segregate the function for fixing rates from other activity to prevent conflicts of interest. Rate submissions should be documented to provide transparency and an adequate audit trail. The US CFTC (Commodity Futures Trading Commission) suggested a possible approach in its enforcement order imposed on Barclays (see Table 2).

## Oversight and governance of LIBOR is to be transferred from the BBA to an independent body, supervised by the FSA

The process is detailed and prescriptive. The fact that it is binding on Barclays means effectively that it is likely to be the basis of changes in the existing methodology. Consistent with cross-border turf battles and ambitions, the CFTC may have succeeded in usurping control over a London institution.

### Separating the Wheatley from the Chaff...

In September 2012, UK authorities published their reform proposals following a review led by Martin Wheatley, Managing Director, FSA, and CEO Designate, FCA (“the Wheatley Review”).

The Wheatley Review concluded that LIBOR can be fixed, rejecting calls for complete replacement on the grounds that the system was not beyond repair, the absence of a clear cut alternative, and also the problems of transition to any new rate. A central concern was that LIBOR is used in a vast number of financial transactions and is deeply entrenched as a reference rate in financial markets.

But the Review acknowledges fundamental flaws in the current system, including the inability in the system to manage conflicts of interest.

The primary recommendations of Wheatley Review cover regulation, governance, and the mechanics of the rate. It proposes a new regulatory structure for LIBOR, including criminal sanctions for those who attempt to manipulate it. Oversight and governance of LIBOR is to be transferred from the BBA to an independent body, supervised by the FSA. A range of technical changes to make the system work better are recommended, including streamlining a lot of the currencies and maturities currently used.

The report emphasises that there must be a link between transactions and submissions, something advocated by many stakeholders as a way of enhancing credibility.

The technical recommendations include the removal of some currencies (Australian, Canadian and New Zealand dollars, as well as Swedish krona and Danish krone) and tenors (four, five, seven, eight, ten, and eleven months). This is designed to concentrate LIBOR fixes on the more liquid segments of the market to strengthen the link between submissions and observable transactions.

The Wheatley Review concluded that publication of individual submissions by banks – a measure that was originally intended to enhance transparency – paradoxically facilitated manipulation. The review recommended that publication of individual submission is delayed by at least three months on a rolling basis, with the information remaining available to the oversight committee, the new rate administrator, and the FSA.

The Wheatley Review believes that a system of collective responsibility is required to allow the system to function. It recommends that relevant banks who do not currently submit should be encouraged to participate as widely as possible in

the LIBOR compilation process, even, if necessary, through new powers of regulatory compulsion.

The Review also recommends investigation of alternatives to LIBOR for certain applications. This is to be coordinated by the Financial Stability Board (FSB), working in conjunction with International Organization of Securities Commissions (IOSCO), the European Commission and other interested international institutions such as the Bank of International Settlements.

But the changes pose different problems.

While basing LIBOR on actual transactions is desirable, the theoretical benefits may be difficult to achieve in practice due to the shrinking size of the market and reduced activity levels. As Sean Keane, a former head of Money Market Trading at Credit Suisse, wryly observed: “... over the last 4 years there have been fewer actual transactions in the unsecured cash market than there have been discussions about how to reform LIBOR.” Where trading is disrupted as in 2007/2008, it is unclear how an accurate submission can be determined.

As differences in bank credit ratings and quality increases result in greater variations in borrowing costs, LIBOR rates will become variable and less meaningful. Instruments suggested by the CFTC to calibrate submissions in the absence of money market transactions ignore the creditworthiness of the bank. These include OIS, futures contracts, and collateralized currency transactions or repos.

Membership of a LIBOR fixing panel, once considered prestigious, may no longer be attractive. Constant regulatory and public scrutiny as well as risk of criminal and civil prosecution outweighs the benefits. If banks become reluctant to participate in the process then the importance and acceptance of the benchmark will decrease.

For loans and deposits, banks may move to internal rates, which reflect their cost of borrowing. The biggest effect will be on derivatives transactions. Created in simpler times, LIBOR was designed for pricing loans and deposits. Over time, derivatives based on LIBOR have become dominant. Perversely, the cash market on which LIBOR is based now supports a vastly larger derivatives market. Curiously, generations of quantitative experts have built elegant models based on

advanced mathematical techniques to price complex derivative instruments on a deeply flawed and easily manipulated base.

Christoph Rieger, head of Fixed Income Strategy at Germany's Commerzbank, told a reporter: "LIBOR is not a market interest rate. The spot fixings are at best bank guesses of a hypothetical interbank borrowing rate. For that reason, this will always be subject to controversy." Given this fact, a UK member of parliament, Steve Baker, asked the obvious question: "Members are increasingly wondering how such a large industry has been allowed to grow up on such a finger-in-the-wind number."

### In the fix...

Barclays faces further prosecutions, including possible criminal charges. There are (up to) 20 other banks under investigation. Civil suits, including class actions brought on behalf of affected parties, are likely. Assuming rates were set too low, investors whose returns were reduced may seek redress. Parties to derivative transactions where payments increased as a result of low LIBOR levels may seek to recover losses.

Many American corporations and municipalities entered into interest rate swaps where low rates would have resulted in significant losses. The International Monetary Fund estimates the amount lost by municipalities at US\$250 billion to US\$500 billion in 2010. If successful action is brought under US anti-trust regulation, then banks may be liable for punitive triple damages.

Investment bank Morgan Stanley estimates that losses to banks could total (up to) US\$22 billion in regulatory penalties and damages to investors and counterparties, equivalent to around 4 to 13 percent of banks' 2012 earnings per share and 0.5 percent of book value. In reality, it is difficult to accurately quantify potential losses.

Other rates and prices set by banks will come under scrutiny. The US DOJ is prosecuting US energy trading companies for allegedly submitting false trade data to Platts and other publishers of price indices used to price and settle natural gas transactions.

There is now significant uncertainty about potential litigation and unquantifiable losses faced by banks. Already facing weak earnings,

asset quality problems, higher funding costs, and increased regulations, banks are likely to remain under severe pressure.

### Fixing banality...

Described by Lord Mandelson as "the unacceptable face of banking," Mr. Diamond is an ideal villain. The fall of a brash American not noted for humility provides a suitable narrative arc. His statement to the UK House of Commons Treasury Committee that the "period of remorse and apology for banks... needs to be over" now smacks of hubris.

Betrayal and fractured friendships are evident. Mr. Del Missier, one of Mr. Diamond's trusted lieutenants, insists that he acted on instructions from his CEO sanctioned by the BoE in ordering staff to submit false rates. Deputy Governor Paul Tucker and FSA Head Lord Turner are using the occasion to avoid collateral damage and burnish reputations in their rivalry for the high office of BoE governor. Suggestions of senior government

actions may not be present.

But like Al Capone who was ultimately convicted of tax offences, banks may yet find that the LIBOR fix forces significant changes to banking regulation and practice. In an age of supercomputers and complex financial instruments, it would be a delicious irony if banks were to be undone by something as banal as an ancient rate-setting process.

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## But like Al Capone who was ultimately convicted of tax offences, banks may yet find that the LIBOR fix forces significant changes to banking regulation and practice

officials and ministerial involvement add political intrigue. The contest between great nations seeking to dominate global finance provides a suitable background.

But the LIBOR fix may be a simple example of "beezele." Coined by economist John Kenneth Galbraith, the term describes the fraud or embezzlement that occurs in booms as sharp people take advantage of the favorable conditions and abundance of money.

Like mis-selling of complex products and the inability to manage risk, the manipulation of LIBOR re-emphasizes the deep-seated problems of large banks and global finance. A review of the role of finance in modern economies and societies is overdue. Unfortunately, recent history suggests the political will for the necessary corrective

### About the Author

Satyajit Das is a former banker and the author of *Extreme Money and Traders, Guns, & Money*.