

LIBOR 1986–2021: The Making and Unmaking of ‘the World’s Most Important Price’

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Abstract

Up until around 2008 and the subsequent revelation of systematic manipulation, the integrity and ‘facticity’ of the London Interbank Offered Rate (LIBOR) were rarely questioned. Academics treated LIBOR and the Eurodollar market *as if* they were synonyms. Central bankers conducted monetary policy *as if* the LIBOR was an objective reflection of the money market rate. Corporates and households entered into LIBOR-indexed financial contracts *as if* a money market was the underlying benchmark. This paper investigates how and why LIBOR managed to maintain its status as a term for the competitive money market colloquially, professionally and in the economic literature for so long. By adopting a theoretical framework drawing insights from both political economy and sociology, and applying it to the LIBOR-indexed derivatives market, it is shown how the benchmark’s appearance betrays its fundamental nature. This process benefits certain actors within the market: the banks. Importantly, however, it also reveals how LIBOR became, and remained, such an important benchmark, how it came to be perceived as an ‘objective fact’, and why the regulation that came into place was insufficient to sustain its future use.

Keywords: LIBOR; benchmark; price; derivatives; Eurodollar market; banks; financial regulation.

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This paper has benefitted greatly from discussions with Professor Costas Lapavistas (SOAS, University of London), Professor Yuval Millo (University of Leicester) and Professor Yanis Varoufakis (University of Texas, Austin), as well as participants at the Cass Business School for the ‘Constructing Financial Risk: Key Perspectives and Debates’ workshop, Cass Business School on 13 April 2015.

Introduction

On 27 July 2017, Andrew Bailey, Chief Executive of the UK Financial Conduct Authority surprisingly announced that the London Interbank Offered Rate (LIBOR) would cease to exist in 2021.³ Having become a regulated financial benchmark in the aftermath of the ‘LIBOR-scandal’ that erupted in 2012, the supervisor had come to the conclusion that ‘the underlying market that LIBOR seeks to measure – the market for unsecured term lending to banks – is no longer sufficiently active’ (FCA 2017). In essence, the regulator found that it was unsustainable to support the process of generating a price that simply was ‘made up’.

The making of LIBOR, sometimes coined ‘the world’s most important number’, provides a remarkable history lesson in contemporary finance (Finch and Vaughan 2017; Stenfors 2017). However, the gradual, and now final, ‘unmaking’ of it also provides crucial insights into how benchmarks could be conceptualised in economic and social theory. Indeed, prior to the LIBOR scandal, benchmarks in financial markets were seldom mentioned as more than footnotes in academic literature, or for that matter by the financial press or regulators – despite their prevalence and importance. In many ways, this is not surprising. After all, benchmarks are used as standardised indicators for measuring and analysing performance and predictions for the future of *something else*. Just as the consumer price index (CPI) is a measure of inflation in economics, the FTSE100 and S&P500 are useful benchmarks for studying the U.K. and U.S. stock markets in finance. ‘Inflation’ and ‘the U.S. stock market’ are common knowledge. Extremely few, however, know the precise composition or methodology underpinning the CPI or the S&P500.

The discovery that LIBOR, at times, had been subject to manipulation by banks immediately put the integrity of the arguably most important benchmark in economics and finance into question. LIBOR-indexed derivatives portfolios, and the desire to signal a relatively low funding cost to the rest of the market, appear to have given some banks sufficiently strong incentives to submit deceptive LIBOR quotes in order to reap monetary benefits from having the exclusive privilege to participate in the LIBOR fixing process (see, for instance, Financial Services Agency 2011; FSA 2012). Understandably, therefore, the benchmark literature has since almost become synonymous with market misconduct,

³ LIBOR’s replacement has, at the time of writing, not yet been agreed upon. Currently, observers appear to be in favour of overnight index swaps (OIS), echoing the analysis by Bryan and Rafferty (2016).

manipulation and regulation (e.g. Abrantes-Metz et al. 2012; Stenfors 2014ab; Ashton and Christophers 2015; Duffie and Stein 2015).

However, by being deeply rooted in the financial system as a whole, the relevance of LIBOR⁴ or its equivalent elsewhere (such as EURIBOR, TIBOR and so on) as an important ‘price’ outside the realm of the trading floors can hardly be understated. Benchmarks referencing interest rates affect not only central banks, banks and other financial institutions, but also corporates, investors and households. According to the Bank for International Settlements, the notional amount of outstanding over-the-counter (OTC) interest rate derivatives contracts amounted to 544 trillion U.S. dollars in June 2016 (BIS 2016a). Of these, it estimated that that between 60% and 90% are linked to the LIBOR, EURIBOR or TIBOR. For the vast exchange-traded futures and options market, the corresponding percentages lie between 90% and 100%, depending on the currency (FEMR 2014). However, LIBOR is not only used in derivatives, but also in mortgages, bonds, corporate and student loan contracts - as well as in valuation methods relating to accounting, tax, risk and monetary policy.

Acknowledging the importance of LIBOR (and the structure and events enabling the scandal to unfold), the subsequent benchmark reforms were thus underpinned by principles such as ‘professionalism’, ‘correctness’ and ‘formalisation’. Overall, the measures strived to eliminate, or at least greatly reduce, the incentives of benchmark manipulation. The reforms were neither intended to make the underlying market more transparent, nor to make LIBOR based upon market transactions. Instead, provisions such as the use of ‘expert judgment’ were supposed to address periods when the underlying market was not sufficiently active.

Ultimately, and paradoxically before the new European benchmark legislation was to fully apply from 1 January 2018 (ESMA 2017), LIBOR was found to be unsustainable as a benchmark due to a lack of activity in the underlying market. It would be tempting to attribute this realisation either to the greater scrutiny imposed upon banks, and dialogues with regulators, following the scandal or to the general demise of unsecured money markets following the credit crunch a decade ago.

However, such an approach would fail to address several important theoretical questions relating to why the integrity and ‘facticity’ of LIBOR remain intact from its inception in 1986 up until the financial crisis of 2007-08. As Stenfors (2014a, 392) points out,

⁴ Other LIBOR-equivalent benchmarks, such as the Euro Interbank Offered Rate (EURIBOR) and the Tokyo Interbank Offered Rate (TIBOR), have also come under regulatory scrutiny. In this paper, we generally refer to LIBOR as encompassing all ‘LIBOR-equivalent’ benchmarks.

‘academics treated the terms [LIBOR and money market] *as if* they were synonyms. Policymakers acted *as if* the LIBOR was an objective reflection of the money market rate. Corporates and households entered into LIBOR-indexed financial contacts *as if* the money market was the underlying benchmark’. Consequently, and regardless of what the future holds, questions remain how and why LIBOR achieved, and maintained for so long, its status as a term for the competitive Eurodollar market colloquially, professionally and in the economic literature. Or, if seen through the lens of the LIBOR scandal: how and why was deception seen as unthinkable for more than two decades, only to change so quickly once the scandal broke? Or, when looking towards 2021 and beyond: how and why were the regulatory reforms destined to fail?

We argue that to understand the making, and unmaking, of LIBOR, it is critical to understand the ways in which its appearance creates misconceptions about its fundamental or essential nature. To do this, we trace the changing historical and social conditions, which gave rise to its emergence and development. We make use of the following approach to reveal the underlying logic of these developments. Marx (1852) wrote: ‘Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past’. A study of the emergence and development of LIBOR clearly shows this pattern of agency within an inherited structure, which, in turn, alters the structure, leading to fresh incentives for agents. The structure within which agents act is, of course, a social construct, established through the widespread adoption of certain practices which once entrenched take on an objective appearance (and which Ilyenkov (2012) labelled an ‘ideal’). This apparently objective structure, such as the existence of the Eurodollar market, or LIBOR, interacts with the motivations of agents, here above all economic or profit motivations, to establish new practices, and hence structures for further practices.

Given a complex and multi-causal world, it would be impossible to predict how such behaviour could develop in the future. It would, for instance, have been impossible during the 1960s to extrapolate from the development of the Eurodollar market to the almost incomprehensibly large amount of outstanding LIBOR-indexed derivatives half a century later. Nevertheless, with the benefit of hindsight, we can develop a logical path from the emergence of the Eurodollar market to the LIBOR scandal and beyond by showing how new practices developed in these financial markets, which shaped future behaviour.

In doing so, we must take into account the power relations involved. Established practices, ideals, and social structures incorporate the power involved in the relations which underpin them (albeit that they do so via mediations which may sometimes produce unexpected outcomes). In the case of LIBOR, it is above all the largest banks that could and did act to make (and unmake) LIBOR. They did so primarily by trying to exploit profit-making opportunities that were thrown up along the way, from syndicated loans, to Eurodollar futures, to OTC swaps. Their pursuit of profit opportunities at each turn changed the shape of financial markets, throwing up new opportunities for the banks themselves, and below we move through analysis from one stage to another tracing this evolution. They do so above all with the transactions they undertake and their power to do so – by creating favourable conventions, by seeking to avoid regulation and transparency, by lobbying for status quo and by shaping perceptions held by others.

The LIBOR scandal has undoubtedly shaken the social structure of the LIBOR panel banks to its core. However, the widespread misconduct and the subsequent vast number of transcripts of evidence released by the regulators do not, in themselves, reveal the evolution of the “consensus of views held by the body of these individuals as to what is right, good, expedient [...]” (Veblen 1899, 90). In this study, we see that both markets and benchmarks emerge, shape agents’ actions and are in turn dramatically altered by new practices that develop. For example, we see the Eurodollar markets emerge, give rise to LIBOR and become eclipsed by it. However, in order to understand what we mean by categories such as ‘markets’ we need to understand who participates in them, and who took what actions (and with which motivations) to establish them. In the case of LIBOR, we can trace the motivations for banks to establish the Eurodollar market, why interest rate benchmarks emerged and why banks went on to develop those benchmarks at the centre of the derivatives markets which developed so rapidly from the late 1980s onwards.

This approach provides new insights into the rise, importance and seeming solidity of LIBOR. The method draws on Marxist political economy, particularly the idea of relations solidifying as objects, and of established practices becoming ‘ideals’ (Ilyenkov 2012). However, as Lindo (2017) points out, those examining derivatives with a broadly Marxist frame have generally examined their role in the broader developments of capitalism (e.g. LiPuma and Lee 2005; Bryan and Rafferty 2006; Wigan 2008, 2009) as have other heterodox economists, notably Toporowski. (2000). What is required in this paper, setting it apart from these studies, is a political economy of financial mechanisms, a look inside financial markets

and inside banks, and here we must draw on social science more generally and in particular the social studies of finance. Economic sociologists have undertaken close study of the relations in these markets and have a considerable advantage over the majority of economists in that the researchers have visited trading floors (e.g. Beunza and Stark 2004; Godechot 2008), interviewed traders and bankers (e.g. MacKenzie and Millo 2003) and base their findings on close study of the markets at work (e.g. Knorr-Cetina and Preda 2005), including examining benchmarks (MacKenzie 2008). To this, we add our combined experience of more than 25 years working in financial markets and in interest rate derivatives in particular. By marrying the conceptual framework of political economy with the detailed insights of social science and our own experience, we are able to offer fresh insights.

In sum, we investigate and demonstrate how the appearance of the benchmark differs from its fundamental nature. This process is shown to benefit certain actors within the market: the banks. Importantly, the process also reveals and answers our research question: namely how and why LIBOR became, and remained such an important benchmark and how it came to be perceived as an ‘objective fact’.

A Theory of Financial Benchmarks

The key empirical fact when investigating the rise of LIBOR is that its rise to prominence was via derivatives markets. It follows that theory which seeks to explain the rise of benchmarks must also pay attention to derivatives and the extraordinary changes they have undergone, and wrought, since the late 1980s.

According to the UK Financial Services and Markets Act 2000, as amended by the Financial Services Act 2012, a benchmark is defined as an ‘index, rate or price that is determined from time to time by reference to the state of the market; is made available to the public (whether free of charge or on payment); and is used for reference for purposes that include one or more of the following: i) determining the interest payable, or other sums due, under loan agreements or other contracts relating to investments; ii) determining the price at which investments may be bought or sold or the value of investments; iii) measuring the performance of investments’ (FEMR 2014, 4).

Although this definition might not be complete it is sufficient to indicate the key elements of the role benchmarks play in derivatives markets. First, the benchmark is *related to but separate and distinct from* the objects determining it. Second, it is a measurement and

as such *cannot be bought or sold*, it cannot be delivered in exchange for money; it can, however, determine sums due in other financial instruments. In derivatives markets, therefore, it acts as a ‘bridge’ between the underlying market and the derivative markets, both relating the derivative to the underlying, but critically, and this is the point most often missed by economic theories of derivatives, separating the derivative from the underlying.

Prior to the 1980s the best-known and most-traded derivatives markets were the agricultural commodities markets of North America, which were characterised by exchange-traded and physically-settled derivatives. Textbook accounts of derivatives often look back to these forms as typical and perhaps because of this they treat derivatives as a way of trading an underlying commodity. This approach has its roots in neoclassical economics and the allocational efficiency of complete markets, most famously laid out by Arrow & Debreu (1954). According to this theory, being able to transact in the future reduces uncertainty and thereby increases the utility of risk-averse derivatives users (Copeland and Weston 1988). Derivatives are explained as a cheaper form of the primitive securities that feature in standard accounts of efficient markets (Ross 1976). Thus, derivatives are treated as a way to trade an *underlying commodity*. In fact, neoclassical economic theory starts by assuming that selling commodities and selling via a derivative are synonymous. However, while the similarities between the two are important, it is the differences that reveal more about the nature of derivatives, and lead to our investigation into why the benchmark is completely ‘left out’ from the analysis.

First, if derivatives are synonymous with the underlying how can we explain their existence, let alone the incredible size of derivatives markets? Second, how can we explain what changed in the late 1980s and early 1990s which led to such incredible growth? Perhaps the major change is the advent of cash-settlement. During the expansion of trading since the 1980s the vast majority of derivatives trades are cash-settled, either because only cash settlement is permitted under the terms of the derivatives contract, or because contracts permitting physical settlement are overwhelmingly closed out or settled for cash prior to settlement. Theory, therefore, should approach cash-settlement as typical and physically settled as an earlier form that has been eclipsed. Cash-settled derivatives proceed *as if* an underlying commodity-like exchange occurs: they appear to represent the net cash payment that would occur *if* an underlying purchase and sale have been completed. As happens so often, though, appearance is the inverse of reality, for cash settlement specifically ensures that *no* underlying exchange occurs. Only cash is delivered, and no commodity, security or

any other asset is involved. One side of the bridge, therefore, is the relation and separation between derivative and benchmark.

Turning to the other side of the bridge and the relation between the benchmark and the underlying, a fundamental issue with LIBOR is the discrepancy between what LIBOR is and what it has been perceived to be. It *is* a benchmark, but has been *perceived to be* the Eurodollar market, the international money market, the short-term interbank money market or an objective reflection thereof. Indeed, derivatives offer an insight into why the benchmark *cannot* be synonymous with the underlying market. By definition, a derivative instrument is not the same as the underlying asset, index or measurement – otherwise it would not warrant a different name. A derivative contract allows counterparties to transact *as if* they have bought or sold an underlying without actually having done so. Even in commodity derivatives (so often used in standard textbooks to explain derivatives) what is bought and sold is not the specific and produce of a particular farmer, but rather a standard quantity of a standard quality of a commodity, as MacKenzie (2006) shows. Should a farmer's produce not meet the quantity or quality requirements of the derivative, the selling farmer would need to source the relevant goods elsewhere for delivery into the derivative. Alternatively, when buying a derivative on the S&P500 the derivative trader is not interested in buying and selling 500 stocks. The benchmark abstracts from the particular of that which it represents, and the underlying to a derivative can, therefore, be seen as a 'homogeneous abstraction', with a degree of separation from the underlying. (Cronon 1991, 132, quoted in MacKenzie 2006, 14).

Arnoldi (2004, 24) states, 'When something comes to exist "in practice", but not in reality in the strict sense, it can be said to be *virtual*'. In this sense derivatives dealers (i.e. banks) must invest in the 'the material production of virtuality' (MacKenzie 2007); they must bring into being something to trade in practice but not in reality. Economic sociologists have explored the material ways in which the virtual nature of financial markets comes into being in general and how the virtual asset underlying the derivative is 'made' in particular. By investigating how the LIBOR was created by banks in order to be able to trade the two most common types of derivatives (Eurodollar futures and interest rate swaps), or variants of these, we can show how the derivative instrument becomes separated from the underlying itself, namely the lending and borrowing of money in the Eurodollar market.

In a Eurodollar futures contract, the *as if* underlying is a 3-month U.S. dollar deposit of one million. This means that the underlying price index is an interest rate corresponding to

such a deposit, in other words, the 3-month U.S. dollar LIBOR. The counterparties involved exchange the equivalent of the *change* in the rate of interest on a 3-month U.S. dollar deposit of one million. Although no actual deposit is made or required, for each contract they exchange *as if* they had the deposit. On an exchange where futures are traded (such as the Chicago Mercantile Exchange), margin procedures mean that the exchange steps between the two counterparties and payments are made every day to or from the exchange reflecting the movements in LIBOR. OTC derivative contracts, such as interest rate swaps and forward rate agreements, escaped exchanges with the claim to be bespoke contracts but have steadily standardised and the large majority are collateralised daily in a manner akin to margin calls at exchanges. An interest rate swap appears *as if* one party pays a fixed interest rate and the other party pays a floating rate. The underlying price index of the floating interest rate is generally LIBOR. The original conception of an interest rate swap, however, is of counterparties trading *as if* undertaking a string of forward-starting Eurodollar deposits.

For a lender, extending a loan has two principal disadvantages. First, there is a risk that the principal and interest will not be paid back (credit risk). Second, there is a need to fund such a loan (liquidity risk). These act as a restriction on the amount lent. Trading a derivative on the relevant interest rate *as if* the loan has been made also involves both funding/liquidity risk and credit risk - but greatly diminished compared to the loan itself as it is only on the change in value rather than the full notional amount. Furthermore, the infrastructure of the market, ranging from standardised ISDA (International Swaps and Derivatives Association) agreements to exchange margining, acts to reduce these costs. Derivatives, therefore, remove an implicit restriction in the underlying market and allow trading for price change on a greatly enlarged scale - both through larger contracts and more frequent transacting. Note, however, that if one wants to borrow or lend money, the derivative is not the logical place to do so. The derivative serves only to capture the price change *as if* lending occurred.

Herein lies the fundamental separation between trading the real underlying asset and trading with a derivative: in the former, an asset or commodity is exchanged for money, in the second the underlying is a measurement. It is impossible to actually exchange a measurement, it is only possible to trade derivatives on it. This has two important consequences. First, it makes derivatives useless for those that want to exchange the underlying but perfect for, and restricts users to, those that want to capture price changes in the underlying *benchmark* through buying and selling. Second, the fundamental separation

enables a vast expansion of the quantities that can be traded and of the things that can be traded, by removing the need to source and deliver the underlying asset, instead what is required for trading is an agreed upon measurement or benchmark. This is true whether the asset is an agricultural commodity or, as explored above, a Eurodollar deposit. The characteristic of derivatives that stems from this examination of the underlying price index is most evident in the most developed forms of derivatives, such as weather derivatives for which delivery of an underlying asset is simply impossible (there is no asset in this case). In other words, the outstanding amount of corn derivatives need not be related to the size of the global harvest, for example and nor does the amount of LIBOR-derivatives need to be related to the amount of total assets in the global banking system. This enables the LIBOR-derivatives market to eclipse the Eurodollar market, and for LIBOR to *replace* the latter as an objective fact and be put into wider use throughout the economy.

Making Markets

Having briefly discussed our method and some theoretical considerations of derivatives and benchmarks, this section begins the more detailed logical and historical investigation into the emergence of the underlying Eurodollar markets, the LIBOR benchmark, and the derivatives markets that made LIBOR so critical.

The Eurodollar Market: Made by Banks for Banks

The Eurodollar market played a central role in the forthcoming transformation and deregulation of finance (Lapavitsas 2009). Its actual birth is set in 1957, when banks created a market in Europe where U.S. dollar deposits were re-lent to European institutions instead of re-invested in the United States. Eurodollars hereby came to be defined as deposits denominated in U.S. dollars at banks outside the U.S. As these kinds of deposits later came to be denominated in other currencies, these Eurocurrencies in general (Eurodeutschmarks, Euroyen, Eurosterling and so on) came to represent borrowing and lending outside of the jurisdiction of the central bank issuing the denominated currency.

The Eurocurrency market grew fast, from around 14 billion U.S. dollars in 1964 to over 2,500 billion in 1988 (Sarver 1990), mirroring increasing international trade and investment after the Second World War. U.S. multinational corporations in Europe, in

particular, sought cheaper, alternative ways to fund their foreign expansion. There was demand for new funding alternatives, and compared to the U.S. domestic interest rate markets, Eurodollars offered tighter bid-offer spreads and generally lower rates as a result of less regulation, lower administrative costs, larger economies of scale and less credit risk. The new market was also boosted by structural economic factors, such as the U.S. balance of payments deficit after the Marshall Plan and a growing pool of U.S. dollars abroad as central banks had accumulated large currency reserves during and after the Bretton Woods framework. Overall, the Eurodollar market proved to be of a special character; it became systematic; had a clear purpose; and also, after some resistance, became approved by the authorities. Fundamentally, it resulted in a growing and lasting organised international money market.

The first Eurodollar trade seems to have been triggered by fears of sovereign and political risk, as the international political climate that existed during the Cold War began to intensify towards the late 1950s (Higonnet 1985). However, an important driver of the Eurodollar market was *regulation*, or more specifically: the banks' determination to avoid it (U.S. markets, in particular, were heavily regulated at the time). The subsequent 'competitive deregulation' process on both sides of the Atlantic is well covered in the literature. In neoclassical economic theory, the Eurodollar market has since generally been seen as an example of how well the market works when free from government regulation (Porter 2005). In a free, global market economy, which is seen to be more efficient than a regulated one, innovations such as the Eurodollar market that competitively aims to exploit inefficiencies (through, for instance, regulatory arbitrage) are normal developments. It is also economically beneficial, and governments thus have the opportunity to speed up the process through deregulation and thereby further facilitate innovation and the globalisation of finance.

Within International Political Economy (Helleiner 1994; Strange 1986, 1996), however, the Eurodollar market has often been used as an analogy to depict the increasing powers of the self-regulated international financial market vis-à-vis states during the recent decades. Empirical evidence demonstrating the spread of 'Casino Capitalism' is usually found in the seemingly liquid and efficient foreign exchange, money and derivatives markets.

Neo-Gramscians (Cox 1987; Gill and Law 1989), on the other hand, tend to focus on internationally mobile financial capital. Financial capital, it is argued, can react to government policies or expected policies much more rapidly than productive capital, thereby forcing governments to adopt certain policies that are suitable for finance. Within this

framework, capital strives for the best conditions to survive and prosper, and nation-states compete to attract capital. Consequently, there is a dialectic relationship between the nature and scope of markets on one hand, and the forms of state intervention and regulation on the other. The rapidly growing and globally more integrated capital markets, the birth of the Eurodollar market, along with technology and communications, led to international mobile capital gaining more structural power.

Explanations for the birth and rapid growth of the Eurodollar market can be found in a range of macroeconomic, political and regulatory factors. However, despite the fact that the Eurodollar market continued to grow, the role of it gradually tended to become ignored, or at least downplayed. Instead, focus is put on the processes of liberalisation, deregulation, globalisation and financialisation from the 1980s in order to explain the development of the financial derivatives market and the rise of finance more generally (see, for instance, Epstein 2005; Orhangazi 2008).

We argue that this approach leads to a false precision, as the Eurodollar market *preceded* the subsequent financialisation process and was pivotal in *prompting* the deregulation process. By emphasising the importance of Eurodollar market as a key historical event, important actors emerge that would otherwise easily be overlooked: the banks. As MacKenzie (2007) states, markets do not simply evolve. Markets are invented and made. The Eurodollar market did not emerge automatically and autonomously within the existing money market. It was *made* by banks.

LIBOR: Made by Banks for Banks

The rate at which Eurodollars (or Eurocurrencies) were trading became known as the Eurodollar rate. This Eurodollar rate was not ‘official’, but for syndicated loans an average was instead taken from three reference banks at 11 a.m. two days before the rollover date. With time members of large loan syndicates became increasingly insistent that the reference bank chosen be representative in borrowing strength to the various bank syndicate members. Also, the syndicates sometimes tried to retain the right to name substitute reference banks if the requisite majority of syndicate members felt that the original reference bank had lower borrowing costs than would be representative for the syndicate as a whole (Sarver 1990). As a result, in 1984, U.K. banks asked the British Bankers Association (BBA) to develop a calculation method (or ‘fixing mechanism’) that could be used as an impartial basis for

calculating interest on syndicated loans. This led to the creation of ‘BBAIRS’, the BBA Interest Rate Settlement in 1985, which in 1986 became LIBOR. Thus, LIBOR did not evolve automatically from the Eurodollar market. It was made by banks.

Originally designed using the tradable Eurocurrency market as a template, LIBOR bears a close *resemblance* to a market. The LIBOR panel banks are in effect a list of the largest banks in the world that are competing fiercely against each other. However, LIBOR was never an outcome of a market-determined process. Instead, individual banks are asked, without being able to see each other’s quotes, to submit their rates according to the following criteria: ‘At what rate could you borrow funds, where you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11 am?’ (IBA 2014, 12). The submitted quotes from the individual panel banks are then collected by an independent calculation agent and ‘trimmed’, whereby a proportion of the highest and lowest quotes is omitted. Finally, the average is calculated and made public (BBA 2012). Thus, the submitted quotes are not binding, tradable prices. Instead, LIBOR (and its equivalents elsewhere) can be seen as benchmarks for where the selected panel banks argue the money market is. More specifically, each individually submitted quote is supposed to represent where the LIBOR-bank *claims* to be able to borrow funds (ibid), where the CIBOR⁵-bank *argues* it would be prepared to lend funds (Finansraadet 2011), or where the EURIBOR-bank *estimates others* to be able to do so (EBF 2012a).

The LIBOR panel compositions have slowly changed over time, mainly as a result of bank mergers, and now generally include large universal banks that are highly active - and normally market-makers - in the money, foreign exchange and derivatives markets. Likewise, despite the differences in size (ranging from just five members in the STIBOR⁶ panel to 43 in the EURIBOR panel) they have also tended to increasingly include international banks that are not under the direct jurisdiction of the central bank issuing the underlying currency for that particular benchmark. In other words, they are either typical too-big-to-fail banks for the domestic banking system, or ‘global systematically important banks’ – with, for instance, 14 out of the 18 U.S. dollar LIBOR panel members belonging to the latter group (BBA 2013; FSB 2011). Formal ‘membership’ in a LIBOR panel has always been very difficult to obtain, as the formal selection criteria per definition not only exclude non-bank financial institutions, but implicitly also the vast majority of smaller and medium-size banks. Most institutions are

⁵ Copenhagen Interbank Offered Rate

⁶ Stockholm Interbank Offered Rate

already disqualified upon application by requirements such as branch presence, market making ability, sizeable trading activity and reputation (BBA 2013; EBF 2012b; FNO 2011; JBA 2012).

As discussed in the previous section, the Eurodollar market prompted regulatory arbitrage between different jurisdictions, which resulted in a competitive deregulation process among states. Likewise, LIBOR (with its roots in the Eurodollar market) managed to escape the confinements of particular regulatory jurisdictions. Thus, up until 2013⁷, the benchmark was unregulated. However, it was not self-regulated by the ‘wider market’ either. Rather, it was governed by the groups of LIBOR panel banks themselves, and generally overseen by a bank lobby organisation (such as the British Bankers Association). Therefore, LIBOR was ‘protected’ by the LIBOR panels themselves, or associations working for these. It should not come as a surprise that the lobby organisations often acted as defendants on behalf of the banks regarding the integrity of the LIBOR fixing mechanism, despite pressure from other market participants (see, for instance, ACI 2008ab).

The fundamental institutions, such as the definition, the fixing mechanism or the panel bank compositions of the LIBOR benchmarks remained remarkably unchanged, despite far-reaching changes in financial markets more generally from the 1980s. This *status quo* (in other words maintaining control over the underlying benchmark, whilst keeping its integrity intact) undoubtedly suited banks’ interests.

The Eurocurrency market had, by definition, an international component and therefore a natural link to foreign exchange through the covered interest rate parity⁸. As the market grew, so did the foreign exchange market closely linked to it. Spin-offs, such as Eurodollar certificates of deposit, Eurobonds and syndicated Eurocredit markets enabled the international banking community to extend credits beyond the prudential and legal lending limits of individual banks. In this context, the Eurodollar market played a central role in the transformation of the money and credit markets and the international financial system and as a whole. Syndicated loans, as mentioned previously, *justified* the need for an ‘objective’ reflection of the Eurodollar market. The cash-settled derivatives market, however, *required* a benchmark (in this case LIBOR). However, it is impossible to actually exchange LIBOR. It is only possible to trade derivatives on it.

⁷ FSA (2013)

⁸ The covered interest parity states that interest rate differentials between two currencies should be perfectly reflected in the foreign exchange swap price - otherwise arbitrage would be possible. LIBOR tends to be used for to represent the corresponding interest rates.

LIBOR Takes Centre Stage: the Making of Derivatives Markets and the Eclipse of Eurodollars

As seen above, banks *made* the Eurodollar market and subsequently *made* LIBOR. Faced with this and the regulatory situation that existed, banks went on to *make* LIBOR-indexed derivatives. They make these markets both by providing liquidity but also the infrastructure of the markets - from legal documentation to payment and settlement systems (Lindo 2013). One way in which this is made clear is by examining how the Bank for International Settlements measures the size of OTC derivative markets: the bank (comprising central banks and regulators) polls around 250 banks and asks them to whom and how much their OTC derivative exposure is. In other words, they make the strong assumption that all OTC derivatives have a bank as one of the counterparts. OTC derivatives are thus revealed as a banking instrument as much as loans and deposits are (with important differences as well of course). The corresponding figures for exchange-traded derivatives (ETD) are not available because at the end of every trading day the exchange steps between the original counterparts to each ETD so that they both end up facing the exchange, and are displayed this way in official statistics. Nevertheless, an examination of the governance, members and major participants on exchanges suggests banks play a similar role, i.e. as derivative market maker providing liquidity. Much the same has occurred with Central Counterparties (CCPs), which have grown in importance since 2008: banks have retained their market making (liquidity) role, but have passed responsibility for infrastructure provision to CCPs who end stepping between and facing both original counterparties to each transaction.

As explained previously, cash-settled derivatives remove the need to source and deliver the underlying. This fundamental separation enables the derivatives market to expand beyond the limits of the underlying market. With regards to LIBOR, this process can be seen as having taken place through four phases - overlapping, but each strengthening the appearance that the benchmark represents a tradable market.

The Growth of the LIBOR-Indexed Derivatives Market

The Chicago Mercantile Exchange launched the world's first cash-settled futures contract in 1981, which quickly became the most actively traded short-term interest rate contract

globally (CME 2006). Since January 1997, it has been indexed to LIBOR yet still bearing the name Eurodollar future (perhaps reminding us of its roots). By 2011, the value of Eurodollar futures contracts reached 564 trillion U.S. dollars, and by then several other competing exchanges (such as LIFFE and TIFFE) had offered similar contracts in other currencies.

Despite the success story of exchange-traded LIBOR-based derivatives, it was the over-the-counter derivatives market that truly changed the market place. This was the largely unregulated market for bespoke interest rate and foreign exchange derivatives that mainly took place between banks: currency swaps, interest rate swaps, cross-currency basis swaps, forward rate agreements, swaptions and so on. Like the futures contracts, they started to appear in the early 1980s and, like exchange-traded futures contracts they too were mostly based on the LIBOR. Hence, similar benchmarks came to be ‘invented’ in other financial centres: HELIBOR in Helsinki, REIBOR in Reykjavik, TIBOR in Tokyo, STIBOR, NIBOR, CIBOR and so on. The Bank for International Settlements estimates that the interest rate swap market grew from having a daily turnover of 63 billion U.S. dollars in 1995 to 1.9 trillion U.S. dollars in 2016 (BIS 1986, 2016b).

Thus, although the Eurodollar market could be seen to have achieved deregulation and global market integration by the mid-1980s, it continued to play a crucial role by paving the way for the benchmark by which the vast majority of derivatives were been fixed and settled. As market volumes grew, market participants sought ever-greater legal certainty for existing contracts, citing systemic risk (should the contracts be deemed illegal). Greater legal certainty, however, only served to increase the amount of OTC-derivatives trading. Moreover, as explored above, the very nature of a derivative is a standardised instrument. The derivative is precisely *not* the specific particular exchange of a commodity or promise to pay for money, but is rather a transaction on the price for a standardised quantity and quality of the underlying. Consequently, as OTC volumes grew, contracts typically became increasingly standardised.

The Growth of Banks’ LIBOR Exposure

The second phase began to occur already during the 1980s, when the global economic situation and accompanying financial market regulatory changes transformed the character of the financial markets. Despite the Eurodollar market still growing, these changes led to a reduction in its *relative* importance as a funding source or investment outlet for the banks.

Instead, Eurodollars gradually turned into the prime tool to speculate on short-term interest rates in an increasing range of currencies. This was an area where banks, naturally, had a superior competitive, informational and economic advantage. As banks were able to take on more risk, the Eurodollar market was an ideal instrument for taking directional short-term interest rate risk. Further, the abolishment of capital controls made it possible for any bank to be involved in the Eurodollar market by constructing ‘synthetic’ Eurodollars through the covered interest parity. As foreign exchange swaps involved the simultaneous lending of one currency versus the borrowing of another with the same counterparty, they had the benefit of reducing credit risk, ultimately making them considerably more liquid than their underlying Eurocurrencies.

As Camacho and Nieto (2009) argue, actual Eurodollars as a proportion of total credit creation began to diminish in the 1980s. However, LIBOR-derivatives, as a proportion of banks’ total *exposure* to LIBOR, increased and began to all but completely replace the Eurocurrency market as a vehicle for hedging, speculating and leveraging. In sum, derivatives enabled banks to expose themselves to LIBOR in large notional terms without little real or physical exposure to the underlying Eurodollar market.

The Disappearance of the Underlying

The third phase involved a gradual reduction, and even disappearance, of the underlying Eurodollar market. Similar to the development with regards to the foreign exchange swap market, the LIBOR derivatives market outgrew the Eurodollar market. The 1988 Basel Accord that was put in place focused on settlement and credit risk as bank assets were classified according to pre-set brackets ranging from zero to 100%, and banks were required to hold capital equal to 8% of the risk-weighted assets. However, whereas the Basel rules put new constraints on banks, they simultaneously opened doors. Excessive on-balance sheet asset usage (such as Eurodollar deposits) was penalised, at the same time as off-balance sheet product trading (e.g. LIBOR-derivatives) was rewarded.

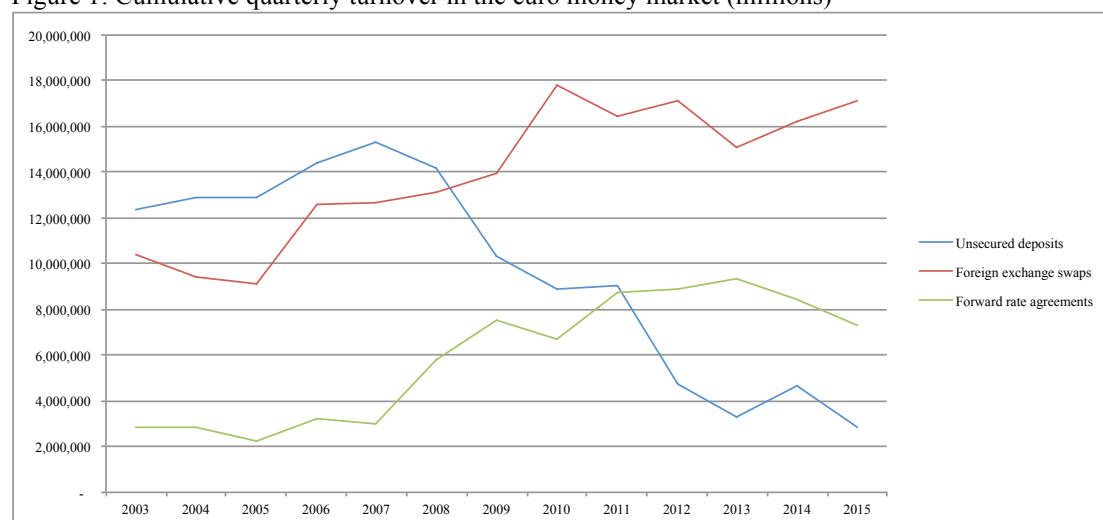
Whereas the more liquid (and less credit intense) foreign exchange market had managed to reduce some of the ‘necessities’ of the Eurocurrency market, the LIBOR derivatives market (which was even less credit intense) and new sources of funding (such as through securitisation) made the term money market all but unnecessary. This transformed

the ‘actual’ interbank money market more into a platform of rather ‘boring’ routine bank operations, rather than any ‘casino’.

Maturities became, on balance, much shorter, as trading in-and-out was a highly capital intense activity. Trading in very short-term money market maturities (1-day, 1-week, etc.), however, had little to do with interest rate expectations and credit and more to do with daily funding and liquidity requirements to square up the bank balances. LIBOR, as a reflection of the term money market, therefore became even less linked to a market that was actually trading.

Data from, for instance, the European Central Bank illustrates this phenomenon. As can be seen from Figure 1, the unsecured money market has shrunk dramatically since the advent of the financial crisis of 2007–08, whereas the foreign exchange swap market has grown.

Figure 1: Cumulative quarterly turnover in the euro money market (millions)

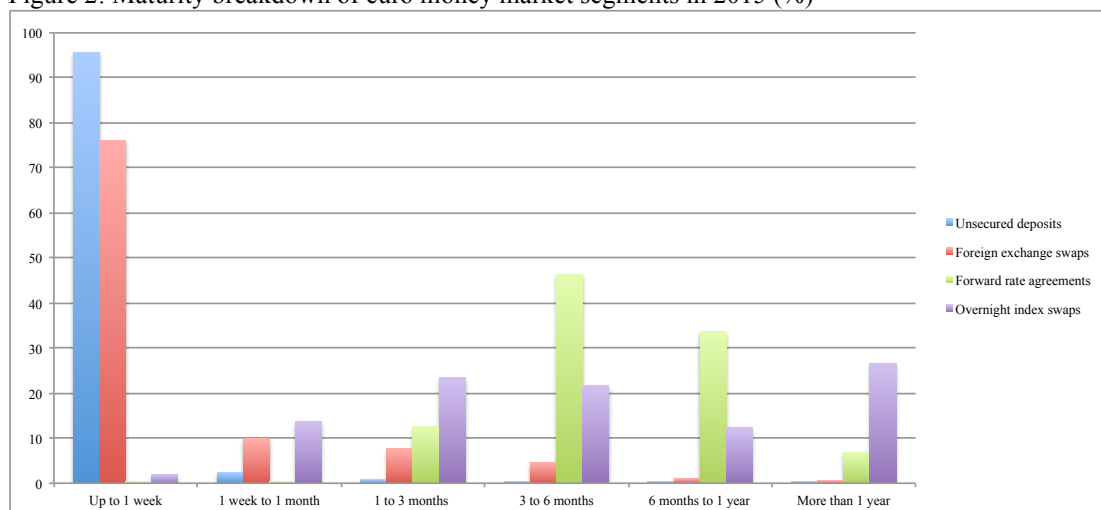


Sources: European Central Bank and authors’ calculations. Note: Second quarter every year.

However, even though the traditional money market still ‘exists’, Figure 2 shows that the vast majority of unsecured lending is extremely short (less than one week). Rarely any trading takes place in 3-month or 6-month maturities, to which most LIBOR- or EURIBOR-derivatives are indexed⁹.

⁹ See Table 1 in FSB 2014 for the maturity concentration of LIBOR, EURIBOR and TIBOR.

Figure 2: Maturity breakdown of euro money market segments in 2015 (%)



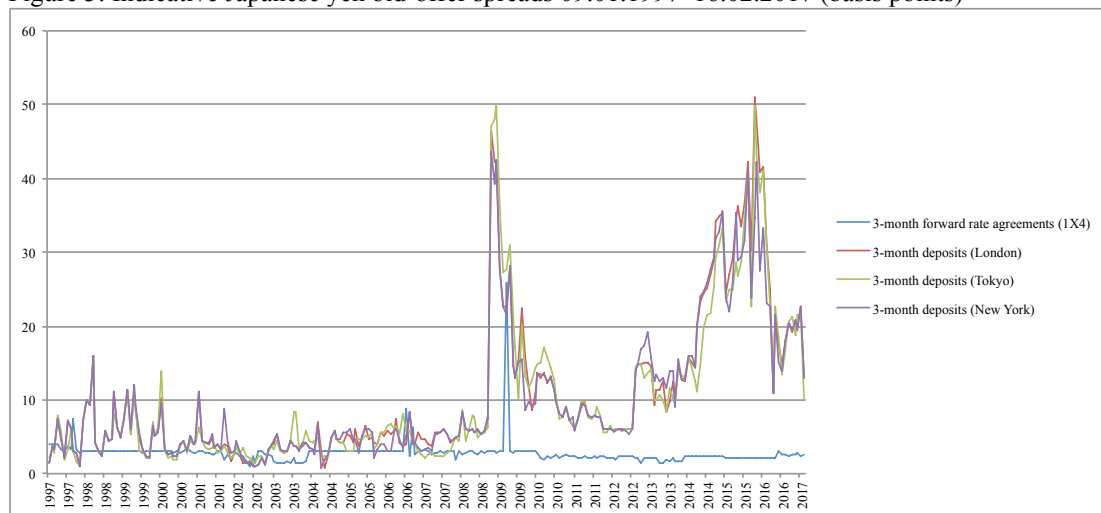
Sources: European Central Bank and authors' calculations.

The Eclipse

The fourth, and perhaps most abstract, phase took place when the benchmark needed to become anchored to something else, most conveniently to its *own* derivative - rather than the underlying market it is supposed to reflect.

The liquidity of LIBOR-derivatives increased as they became more suitable for trading 'needs' than the underlying Eurocurrencies were. Importantly, superior market liquidity gave them an advantage over the underlying asset (the term money market) in the price determination process. There are several ways to estimate and measure market liquidity. However, the most readily observable and by far most widely used proxy is the difference between the bid and offer price at any moment in time (the bid-offer spread). A tight bid-offer spread indicates that a trading position can be turned around relatively cheaply. Figure 3 illustrates this by depicting indicative bid-offer spreads for 3-month interbank deposits in Tokyo, London and New York, as well as 1X4 Japanese yen forward rate agreements (referencing 3-month Japanese yen LIBOR in 1 months time). As can be seen, using this price-based measure, the liquidity of the derivatives market surpassed that of the cash market years before the advent of the financial crisis of 2007–08.

Figure 3: Indicative Japanese yen bid-offer spreads 09.01.1997–16.02.2017 (basis points)



Sources: Bloomberg and authors' calculations. Notes: monthly 20-day moving averages.

Hence, the LIBOR-rate for longer maturities (such as 6-months and 1-year) became less driven by actual Eurocurrency trading in those maturities, and instead reflected observed prevailing yield curves implied from the prices of a range of LIBOR-based derivatives (such as Eurodollar futures or forward rate agreements). Likewise, the underlying interest rates in the pricing of foreign exchange forward premia gradually started to lose their link to the real and physically tradable interest rate differential, and instead increasingly became functions using LIBOR-derivatives for specific currency pairs. Consequently, money market traders began more to look towards the LIBOR-indexed derivatives markets, rather than the money market itself, both in terms of risk-taking as well as for indications of the future direction of LIBOR. This trend appears to have consistently followed the growth of the LIBOR-based derivatives market. The separation between LIBOR-based derivatives and Eurodollar markets increased and LIBOR became increasingly self-referential.

Thus, even though the notional amounts of LIBOR-based derivatives have increased dramatically during the recent decades, the relevance of the Eurodollar market moved in completely the opposite direction. Although the underlying (LIBOR) was never a market *per se*, its relative significance gradually increased. The astonishingly large turnover of derivatives referencing LIBOR sustained the illusion that the underlying index indeed reflected a large, liquid and efficient Eurodollar market. More specifically, it served as 'evidence' that LIBOR was indeed an outcome of a market-determined (and hence objective) process. Perhaps a no better illustration of the faith in the LIBOR-equivalent benchmarks can be found than in EURIBOR, which was first published on 30 December 1998 – 2 days *prior* to the euro *ex nihilo* became legal tender on 1 January 1999. This enabled a EURIBOR

derivatives market to emerge before physical transactions possibly could be made, as the currency did not yet exist.

LIBOR as an ‘objective fact’

In the previous sections, we demonstrated how the separation leads to a perception that LIBOR is a market-determined benchmark, even though the mechanism is no such thing. We also showed how, propelled by the sheer volume of derivatives trading, the underlying benchmark gradually takes on an objectivity that enables the derivatives market to eclipse the Eurodollar market. This enables LIBOR to *replace* the Eurodollar market as an objective fact. Together, these consequences allow LIBOR to cement itself as an objective fact far beyond the specialist derivatives market.

First, it permits banks to put the benchmark into use in other areas of the economy. LIBOR becomes not only the benchmark of choice for a variety of derivatives contracts, but the underlying benchmark for seemingly unrelated agreements such as residential mortgages, credit card debt and student loans. The Eurodollar market was never an investment outlet or a place to raise funds for households or university students. However, having become directly exposed to the movement of the LIBOR rate through these agreements, it becomes a focal point that is easily followed in the daily press opting to publish it as any other important number, such as the local weather or the closing level of the stock market index.

Second, given its importance in finance and economics, LIBOR also becomes frequently quoted (and misquoted as a ‘market in itself’) in scholarly and professional literature. The use of the derivatives benchmark, rather than the actual underlying market, in academic textbooks, journal articles and financial press further cements the facticity which had been developed through banks’ trading practices.

However, the third and arguably most powerful justification for its use occurs when it becomes accepted and adopted by the state. The interbank money market rate is important in central banking as it acts as the ‘symbol’ of the first step of the monetary transmission mechanism, measuring how policy rate changes ultimately impact lending and borrowing in the real economy. LIBOR has not only increasingly replaced the actual market as this symbol - it has become a policy tool *in itself*. For instance, since January 2000, the Swiss National Bank uses a ‘target band’ for the 3-month Swiss Franc LIBOR as the central bank’s key monetary policy instrument (SNB 2015). As Stenfors (2014b) points out, the central bank of

Norway has gone a step further, by publicly announcing its projected monetary policy rate (the folio rate) and also the future 3-month Norwegian krone risk premia – based upon the 3-month Norwegian Interbank Offered Rate (NIBOR). This might seem like a paradox, considering that the Eurodollar market was created in order to *avoid* the jurisdiction of the central banks. However, if the central bank, as an annex to the state, accepts the benchmark as ‘objective’, it becomes difficult to argue otherwise.

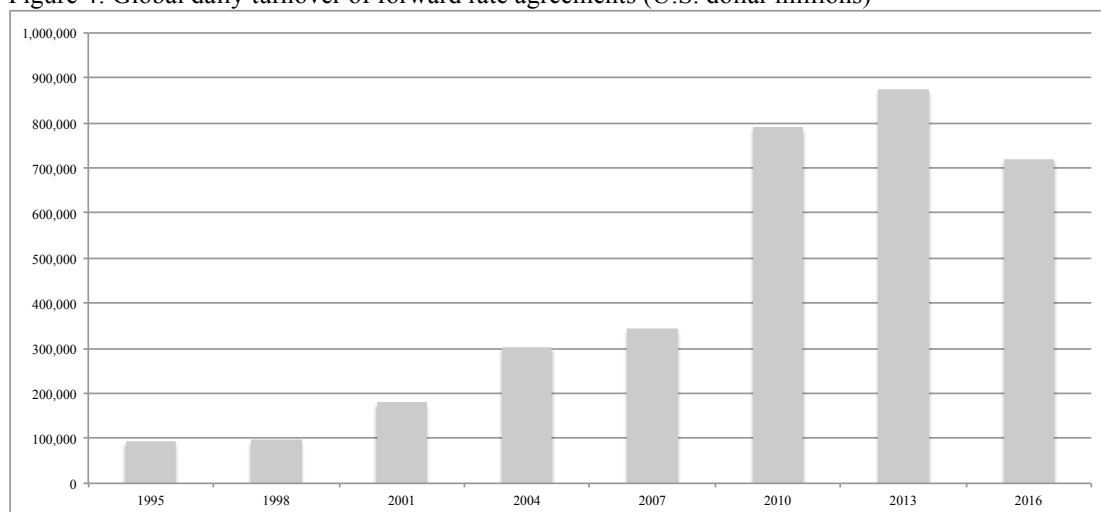
As has been widely documented, the advent of the global financial crisis caused a complete freeze in the international interbank money markets. This, in itself, did not pose an immediate threat to the usage of LIBOR. On the contrary, the crisis catapulted the perception of the benchmark from something rather ‘boring’ into an important instrument for the financial system as a whole. The former British Bankers Association Chief Executive Angela Knight captured this in a speech on 18 December 2008:

‘Since the credit crunch began, it has become clearer to all of us that LIBOR, not the Bank of England base rate, is what really governs saving and borrowing rates in the high street. It has always been relied on by the market as a reliable benchmark which is also the most transparent. It is appropriate in this global downturn to ensure the continued robustness of this pillar of our financial architecture.’ (BBA 2008)

As money market risk premia surged in virtually all developed countries, central banks introduced a wide range of extraordinary measures to alleviate the stress in the banking systems. The common expression for this risk premium was the LIBOR-OIS¹⁰ spread, widely perceived to be based upon actual market transactions and thus objective (see, for instance, Bank of England 2007; McAndrews, Sarkar and Wang 2008; Sultanaeva and Strömquist 2009). Thus, LIBOR continued to be used not only when the interbank money market ceased to exist; it continued to be used even though ‘everyone knew’ the interbank money market no longer functioned. In fact, the absence of an underlying market did nothing to halt the growth of the derivatives market referring to it. As Figure 4 shows, the daily turnover in the global LIBOR-indexed forward rate agreement market was, in fact, *boosted* by the financial crisis of 2007-08.

¹⁰ The LIBOR-OIS spread has widely been used as a ‘barometer of fears of bank insolvency’ (Thornton 2009).

Figure 4: Global daily turnover of forward rate agreements (U.S. dollar millions)



Source: Bank for International Settlements. Note: April every year.

Concluding Discussion

In this paper, we asked how and why LIBOR became and remained such an important benchmark, and how it came to be perceived as an ‘objective fact’. In answering this question, we offer a fresh insight into the nature of LIBOR and, by extension, of financial benchmarks more generally. Tracing the historical emergence and development of LIBOR, we focus on its nature as a social construct which evolves and whose laws of motion can be discerned by showing how motivations and power to act establish practices, which transform the environment and with it the motivations and power of actors. Within this broad political economy framework, we draw upon the detailed observations of the social studies of finance and our cumulative experience of 25 years working in banks dealing with interest rate derivatives.

We have stressed how banks make derivatives markets and explored how they make the thing to be traded – namely the underlying price index. We have shown how the construction of LIBOR, as the pre-eminent derivatives benchmark, allowed separation from the Eurodollar market from which it emerged. This separation allowed derivatives trading to take place – trading to capture price changes *as if* trading the underlying but without the necessity of having to do so. The resulting enormous quantity of trading established LIBOR as an objective fact – not only enabling it to eclipse the Eurodollar market serving as its template, but to become a ‘price’ in a number of markets and practices seemingly unrelated to

the Eurodollar market. LIBOR appeared as an objective price, which, importantly, served to delay the discovery that it was susceptible to manipulation (see Stenfors 2014b).

Since the uncovering of widespread and systematic manipulation by LIBOR panel banks, the ‘LIBOR scandal’ has come to be portrayed as an extraordinary example of deception, manifested by the behaviour of a relatively small number of individuals during a few years of LIBOR’s lifetime. Such a depiction rests upon a fundamental misunderstanding of financial benchmarks in general, and LIBOR in particular. LIBOR was always susceptible to manipulation. Since its inception, the LIBOR mechanism was a fundamentally anti-competitive process that benefitted from deception and secrecy. Moreover, by actively avoiding regulation and lobbying to maintain status quo, LIBOR panel banks could exercise significant power within this structure by ‘being able to gain by rewriting the rules of the game’ (Cohen 1977, 54-56). Most importantly, however, LIBOR benefitted by appearing *as if* it represented a competitive market generating a competitive ‘price’. Thus, along the lines of Lukes (1974), banks ultimately benefitted from shaping perceptions and preferences, which enabled a conflict with those affected by it to arise in the first place. Consequently, the LIBOR structure should not be seen as a self-created and self-governed platform where banks (or individuals working for these) were able to ‘cheat the system’. Rather, the practices, which the scandal revealed, should be seen as logical and consistent with the evolution of LIBOR.

It could be argued that the reaction by policymakers and regulators to the LIBOR scandal poses a question of our analysis above as it sought to make the LIBOR fixing ‘official’. This, however, only goes to confirm our logic. While separation from the underlying market is essential to allow *as if* trading, the underlying must still be regarded as trustworthy by the users. The reaction by regulators and policymakers following the scandal was precisely that: to seek to establish some kind of ‘correctness’ in the LIBOR process – particularly by targeting the behaviour of the LIBOR-banks (and individuals working for these), but also by trying to fine-tune what LIBOR ought to represent. Reforms brought ‘formalisation and professionalism’ into the LIBOR-rate setting process (IBA 2014, 3). For instance, in the UK, the regulation and supervision of the benchmark were shifted from the bank lobby (the British Bankers Association) and the LIBOR-panel banks themselves to the financial regulator (the Financial Conduct Authority). Benchmark-manipulation was also made a criminal offence, and a specific Code of Conduct (‘the LIBOR Code’) set out practice standards that LIBOR panel banks were expected to follow. All in all, these set of measures

strived to eliminate, or at least greatly reduce, the incentives of LIBOR-manipulation by banks. Reforms were also aimed at making LIBOR more ‘market-like’. No change was made with regards to the definition of what the LIBOR *was*. Instead, a large number of currencies and maturities (where the underlying Eurocurrency market was negligible) were removed from the LIBOR fixing mechanism altogether (HM Treasury 2012). Furthermore, acknowledging that the underlying market for the remaining LIBORs might, at times, be illiquid or even non-existent, provisions were made allowing LIBOR-banks to use their ‘expert judgement’ when submitting quotes during periods of ‘market turmoil and inactivity when inter-bank offers are absent’ (IBA 2014, 12). In this case, non-Eurocurrency markets were only allowed, but explicitly recommended, to form the basis for judgement. These other markets included foreign exchange swaps and derivatives markets such as overnight index swaps and interest rate futures (e.g. Eurodollar futures) and options (e.g. options on Eurodollar futures) – echoing our previous analysis regarding the ‘eclipse’ (IBA 2014, 23-24). LIBOR was, in effect, supposed to be made ‘trustworthy’ for end-users.

As Stiglitz and Greenwald (2003, 26) argue, ‘interest rates are not like conventional prices and the capital market is not like an auction market’. Prices and benchmarks related to borrowing and lending are ultimately dependent on trust and relationships. However, as MacKenzie (2007) claims, the benchmark also must retain an element of *facticity*. Because the only payments are between the derivative counterparties and are based upon the movements in the underlying benchmark, it needs to appear objective to both parties, e.g. it cannot be one over which one party can exert control.¹¹ As long as the use was largely constrained to banks in the interbank interest rate swap market the informal rules of the previous LIBOR arrangements were sufficient. The circle of trust between the relatively few (LIBOR) banks could support such informal arrangements. However, once the use became more widespread these informal rules were insufficient. The financial crisis of 2007-08 came to act as a trigger to reveal the LIBOR scandal, and how the rules had come to lag behind the widespread use of the benchmark. Making the rules formal and seemingly separate from

¹¹ Lynch (2011) describes derivatives as aleatory contracts. An aleatory contract is a ‘contract in which one party’s duty of performance depends on some uncertain event, e.g. a wagering contract, a contract of insurance’ (Richards and Curzon 2011) or more simply as ‘a wagering contract’ (Osborn and Woodley 2005). Lynch stresses that in derivatives and in aleatory contracts, duty of performance depends on an uncertain event external to the counterparts and not on their performance.

banks furthered established the ‘thing-like’ like character of the LIBOR as a price, and encouraged its further use. While this was conveyed by regulators and policymakers as making the market ‘safer’, it in no way challenged the use of LIBOR-derivatives or of LIBOR itself. It only encouraged it.

An alternative policy than reinforcing LIBOR’s facticity, LIBOR derivatives markets, and the spread of LIBOR throughout the economy did exist. Analysis has shown that markets and benchmarks are made, in this case by banks seeking profits in the circumstances transmitted from the past (and often made by themselves). If they could be made, then they could also be ‘un-made’. As acknowledged by the Financial Conduct Authority (2017), ‘LIBOR [was] sustained by the use of “expert judgement” by the panel banks to form many of their submissions.’ The unmaking of LIBOR ultimately did not depend so much on the lack of trading activity in the underlying market, as in the erosion of power and trust in those making it.

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