the libor furore
demos finance

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EXECUTIVE SUMMARY

The resignation of the CEO and Chairman of Barclays in the space of two days has been high drama for the press and politicians. The political excitement has focused on who, if anyone, in the Bank of England, FSA and UK Government knew that banks might be misreporting the LIBOR rate, and why they chose to ignore the matter. The wider public has enjoyed seeing top bankers being humbled, even if no-one understands the technical details of the LIBOR rate-rigging scandal.

This political drama is unlikely to be over quickly. Ongoing regulatory investigations by the US and UK authorities will inevitably bring other banks into the frame. The Serious Fraud Office has launched a formal investigation. The Government reviews should throw up more revelations for the media. And the political intrigue – of who said what to whom, or who didn't understand what someone said – will no doubt continue.

The scandal centres on the attempts to manipulate the setting of some fundamental market benchmarks, LIBOR, the London Interbank Offered Rate, and EURIBOR, the Euro Interbank Offered Rate. These rates are by far the most prevalent benchmarks used to price a huge range of financial products, in particular interest rate swaps and derivatives. Interest rate derivatives had an estimated notional value of $554 trillion at the end of 2011, the great majority of which are linked to these rates.[1]

In its settlement with the UK and US authorities, Barclays was found guilty of two offences:[2]

- **Trying to change to overall benchmark rates to benefit derivatives traders.** From 2005 to 2009, and possibly earlier, Barclays' submissions to the British Bankers' Association, which creates the LIBOR and EURIBOR benchmark rates, were based not on an impartial view, but were regularly based on requests from derivatives swaps traders in Barclays and in other banks, who wanted to improve their trading positions by trying to manipulate the rates up or down.

- **Later, trying to hide Barclays' financial weakness from the market.** During the financial crisis from August 2007 to early 2009, Barclays lowered its numbers ('low-balling') submitted for the LIBOR calculation to avoid being perceived as a weak bank with liquidity problems. The regulatory authorities found that this was done with the intention of staying 'below the parapet', rather than to influence the overall LIBOR rate.

Providing misleading information which affects market prices contravened US laws and UK regulatory rules. This was hardly a one-off action, nor was it kept to one or two people. The US report highlights 'daily communications' between traders and the people responsible for submitting data to the BBA. Sometimes these requests were from traders in other institutions, particularly former Barclays traders who had moved elsewhere.

In some respects, elements of what has taken place are not new. On the offence of low-balling, it is at least understandable that Barclays wanted to obscure its position of weakness in the financial crisis, even if it was judged to be wrong. There is a legitimate debate to be had about the degree of transparency that is appropriate in a financial crisis. Who should know if a bank is having liquidity problems in a systemic crisis? At around the same time as the low-balling the authorities were providing undisclosed loans to RBS and HBOS, and the Northern Rock run started when emergency funding was revealed by the media.

And the attempts to manipulate LIBOR and EURIBOR to suit the positions of traders is also as old as markets themselves. For any investment bank with a trading floor, there is a perennial issue of how to control the traders – mostly from excessive risk-taking and legal wrongdoing. The informal way in which LIBOR was set – monitored by a private-sector trade body, the British Bankers' Association – arguably offered a temptation to traders to try to influence the rate. It is possible that, while the derivatives trading desk might have benefited from manipulating LIBOR, Barclays Group as a whole could even have suffered on occasions where the traders attempted to push LIBOR up.

The scale and scope of this scandal is astounding, and the seeming extent of collusion is new and worrying. This scandal raises some major questions for investment banks and financial markets. The conduct of investment banks, which sometimes allow the trading mentality to override legal and social rules, has been a wider issue since the financial crisis broke. Furthermore, the regulatory philosophy prevalent since the 1980s that market participants can best organise the structures and building blocks of secondary investment markets – all you need is *caveat emptor* – must be reconsidered.

This paper aims to frame this wider debate by setting out the wider implications and questions raised by the LIBOR scandal. Some major points for reform are set out in this paper, as follows:

1. The process for setting LIBOR needs to be revised. The current process, established formally in 1986, harks back to an older era in the City of London when the setting of benchmarks could be trusted to a club of major banks, who would provide a standard as a public good, in part in return for reputational benefits from being in that club. If LIBOR is used in the future, the process needs to be formalised and based on actual transactions, rather than estimates from the major banks.

2. Alternatives to LIBOR as a basic market benchmark need to be pursued. Since 2008 when banks stopped being able to borrow unsecured funding, LIBOR has been meaningless anyway. If banks do not lend, LIBOR becomes, in the words of Mervyn King in 2008, 'the rate at which banks do not lend to each other.' Alternatives, such as the Sterling Overnight Interest Average (SONIA) or the Repo Overnight Index Average (RONIA), should be explored and encouraged by regulators, and not just left to the British Bankers' Association or trade bodies.

3. This emphasises the need for policymakers, institutional investors and regulators to press on with the reform agenda on investment banks. What happened at Barclays, and at

other banks, is a reflection of the problems in investment banks when traders are uncontrolled. The Goldman Sachs case in the US (with the infamous emails from Fabrice Tourre celebrating the fact that the investors would lose money) was another example of traders running riot and bringing the whole bank into trouble.

4. The LIBOR scandal also shows that for banks with a retail and investment arm, ring-fencing may not be enough to ensure that trading is split. In many cases, including this one, supposedly strict 'Chinese walls' have been shown in practice to be easily breached. At the very least, full implementation of the recommendations of the Vickers' Report seems right, although the government should reconsider whether a full split is required.

5. Changing the incentives for senior management is also a part of changing the culture of banks. These incentives should not just be financial. That Bob Diamond was ultimately required to take responsibility for the culture of the organisation which allowed this is helpful in improving the incentives for senior management. But shareholders and regulators will need to work to ensure that there is lasting change in the personal incentives of management to ensure that investment banks are better managed.

6. More generally, there are other informal rules and mechanisms in secondary financial markets where politicians and policymakers need to take a view on whether they should be more engaged to ensure that structures are transparent and robust. The UK structures of mortgage-backed securities or over-the-counter (OTC) derivatives are two examples that need examination. Other benchmarks set by major banks, such as the London Gold Fix, could potentially be open to manipulation. The regulatory philosophy of the Treasury, Bank of England and FSA which has held sway since the deregulation of the 1980s – that secondary markets will organise themselves – needs to change. *Caveat emptor* alone

> is not a sufficient organising philosophy for UK financial markets, and disclosure alone will not bring ideal outcomes.

The political drama is exciting, and more revelations on traders at other banks will no doubt emerge. But there are bigger challenges for politicians, regulators and those in the City, and addressing these problems will require a sustained programme of reform over the coming years. It remains to be seen whether the politicians will be able to carry that through, when the excitement dies down.

How much will this damage the reputation of the City of London as a financial centre? This was not just a Barclays problem: it seems likely that other banks globally were involved. New York traders were certainly involved, according to the judgments of the US authorities. The picture will be clearer when other settlements are made. Barclays have suffered reputationally from being the first bank to settle with the authorities, but they have receiving a discount for doing so, a 30 per cent reduction of the FSA penalty.

The impact on the City will depend on how regulators and policymakers in Whitehall, the Bank of England and Brussels, respond. Self-regulatory mechanisms of market-wide standards failed astonishingly in this instance. The challenge is there for the executives of major banks, their shareholders and other bodies in the City, to show how this can work much better. If they cannot, it seems inevitable that regulators will be given those roles instead.

INTRODUCTION

On June 27, Barclays Bank plc agreed to pay £290m to US and UK regulatory authorities to settle claims that it had tried to influence fundamental market-wide benchmark interest rate, in particular the LIBOR rate, to the benefit of Barclays' traders. Already the fall-out has led to the resignation of the CEO and Chairman of Barclays, leaving a major UK bank without leadership. A spat has emerged between the outgoing Bob Diamond and the public authorities.

The political and personal drama is likely to continue for some time. Further regulatory investigations will bring other banks into the frame. The Serious Fraud Office has launched an official investigation. There are questions about who in the Bank of England, FSA and UK Government knew about this matter, and if they did, why they chose to ignore it. Indeed, it is even possible that downward manipulation of the LIBOR rate was tacitly encouraged during the 2007-09 crisis. The Government has initiated two reviews – of LIBOR specifically, and on the culture of the City – which will report later in the year. Expect further revelations.

On one level, how LIBOR works and how traders managed to manipulate it is an arcane, technical discussion. The process for setting LIBOR is surprisingly informal. The 'official rate' is in fact merely an estimate. And as a practical matter, LIBOR has in effect been broken since 2008. The rate is supposed to be a measure of the lowest cost at which major banks could borrow from each other on an unsecured basis. However, major banks cannot borrow on an unsecured basis at all and have not been able to do so since the crisis.

So does LIBOR manipulation have wider implications for financial markets and the economy? Unfortunately, the answer is yes. There are many questions beyond simply rogue traders taking advantage of a badly-constructed measure.

One set of questions relates to what this failure implies for governance, regulation and public involvement in the City of

London. Can the City be trusted with self-regulation, and are the alternatives any better? Why did the public authorities ignore weaknesses in market benchmarks? And what other market institutions are out there which, when we prise off the lid, will turn out to be rotten in practice? The other set of questions relates to investment banking organisation, and why the culture and organisation in Barclays, and seemingly other investment banks, ever allowed this form of market manipulation. Is cheating the wider public inherent to investment bank trading? Did the Vickers report, and the government's response, go far enough on this? Or was it simply the case that LIBOR was a measure constructed in a way which was ripe for exploitation?

This briefing note aims frame this wider debate by setting out the wider implications and questions raised by the LIBOR scandal. The first part of the note gives background: what Barclays was found to have done wrong; the history of LIBOR, how it was used and set; and how LIBOR fell into disrepute in the 2008-09 crisis. The second part of the note explores how this might play out further, and the wider implications of the scandal, in particular with regard to what this means for regulation and the role of major banks in the UK.

PART 1: BACKGROUND

What did Barclays do?

In the final settlement with the UK and US authorities, Barclays was found guilty of two offences:

- Trying to change the overall benchmark rates to benefit derivatives traders. From 2005 to 2009, and possibly earlier, Barclays' submissions to the British Bankers' Association, which creates the LIBOR and EURIBOR benchmark rates, were based not on an impartial view, but were regularly based on requests from derivatives swaps traders in Barclays and in other banks, who wanted to improve their trading positions.

- Later, trying to hide Barclays' financial weakness from the market. During the financial crisis from August 2007 to early 2009, Barclays lowered its numbers submitted for the LIBOR to avoid being perceived as a weak bank with liquidity problems. The regulatory authorities found that this was done with the intention of staying 'below the parapet', rather than to influence the overall LIBOR rate. [3]

Providing misleading information which affects market prices contravenes US laws and UK regulatory rules. This was hardly a one-off action, nor was it kept to one or two people. The US report highlights 'daily communications' between traders and the people responsible for submitting data to the BBA. Sometimes these requests were from traders in other institutions, particularly former Barclays traders who had moved elsewhere.

What did this do? The offences had different intentions, and different impacts. On the first offence, this seems unequivocally to be an example of financial markets crime. It is likely that, on some occasions, the LIBOR or EURIBOR rates would have changed – even marginally – in favour of the traders (although this may not necessarily have benefited Barclays at the Group level). Certainly,

that was the intention. These benchmark rates are relied upon globally to price all kinds of financial products, including swaps transactions and futures contracts, as well as home mortgages and commercial and personal consumer loans. Interest rate derivatives comprised $554 trillion in notional value at the end of 2011.[4] Like many financial market crimes, the negative impacts of mispricing are small, but spread across the world. The benefits accrue to a few individuals.

The charge of hiding financial weakness in 2007-9 is arguably less problematic. During the crisis, the regulatory authorities themselves took actions to minimise or hide liquidity problems. Not identifying individual banks in a systemic liquidity crisis is textbook 'lender of last resort' action by the central bank. The Special Liquidity Scheme introduced in April 2008 was structured to keep the identities of individual borrowing banks secret. Indeed, it emerged a year later that RBS and HBOS received £62bn of undisclosed Bank of England loans in October 2008.[5] It is somewhat understandable that Barclays would have sought to hide its liquidity problems from the market during the crisis. Anyway, the FSA found that Barclays lowered its submission based on an internal misunderstanding of a discussion with the Bank of England.

So the manipulation of the rate for trading gain should be seen as having much more serious implications. But how could Barclays get away with this? To address this question, we need to explore the way in which LIBOR is set, and the related problem of self-governance in the City of London.

A brief history of LIBOR

A standardised London Inter-Bank Offered Rate (LIBOR) first emerged in the mid-1980s, as a key part of the huge infrastructure of global financing which became centred in the City of London from the 1960s to 1980s. Three developments in that period were of

particular importance. In the mid-1960s, entrepreneurial UK merchant banks such as Warburgs and the Bank of London and South America created markets for lending in foreign currencies, particularly US dollars, leading to the Eurobond and Eurodollar markets, centred in the City of London. Another factor leading to the need for a standardised interbank interest rate was the huge growth of global trading in the early 1980s which followed the ending of exchange controls in 1979-80 in the US, UK and Japan. Eurobond issues rose from 321 for $19.8bn in 1980 to 1,692 for $221.7 billion in 1989.[6]

A final important development was the invention and growing use of interest rate derivatives, driven in part by increased interest rate volatility following the deregulation of capital flows. It was estimated that interest rate swaps grew from almost nothing in the 1970s to $150bn in the US by 1985.[7] Interest rate derivatives needed a base loan rate for pricing calculations, and a standard rate facilitated pricing.

All these factors led to calls for a standardised interest rate for interbank lending, in particular to allow easier pricing of derivatives. In the early 1980s a trade body, the British Bankers' Association (BBA) took on the role, working with market participants and the Bank of England, of developing a standardised interest rate for different currencies and maturities.[8] Hence, in 1986, LIBOR was formally born.

The method hit upon by the BBA was simple enough. Each day, the BBA would ask a group of leading banks what they thought the rate they *could* borrow at was, and would then calculate an average which would be declared as the standard borrowing rate. The LIBOR rate was not based on actual transactions, but on banks' self-declared opinion of their cost of unsecured borrowing from each other. On that foundation was built an enormous edifice of financial products and derivatives with trillions of pounds of notional value. This mechanism was similar to other types of market benchmark at the time, where the major banks set the benchmark, essentially providing a public good. The London gold

fix, for example, has since 1919 been set on a daily basis by five banks in the City, led by Rothschilds.

How LIBOR is set, and how it was manipulated

This process is, somewhat surprisingly, more or less how LIBOR is calculated today. Every day, a panel of banks is asked this question:

At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?[9]

The banks give an estimate of the lowest perceived rate they could achieve for a loan. From these submissions, the top and bottom quartile are discarded, and the mean average is taken of the remaining figures. Manipulating is therefore hard for an individual bank, and it is only possible with collusion of several traders. Amazingly, however, this seems to be what has happened.

From at least 2005, Barclays traders combined with traders in other banks to manipulate the levels of LIBOR and EURIBOR. According to the settlement judgement, the wrongdoing involved multiple desks, traders, offices and currencies, across dollars, sterling, euro and yen. This behaviour spanned from at least 2005 through at least 2009, and at times occurred on an almost daily basis.

The US authorities' judgement goes into detail on the extent to which traders coordinated and colluded to manipulate LIBOR, and how the people working in Barclays who submitted the LIBOR estimates accommodated those effects. Multiple interest-rate swaps-traders, for example, located in Barclays' New York, London and Tokyo offices asked Barclays LIBOR submitters to make certain LIBOR submissions in order to affect the official BBA LIBOR fixings for certain tenors, thereby benefiting their respective derivatives trading positions and either increasing their profits or minimising their losses. The vast majority of these requests came from traders on Barclays' New York Interest Rate Swaps Desk located in New York and London and involved US Dollar LIBOR.

The swaps traders' requests, whether internal or external, typically concerned the one-month and three-month US Dollar LIBOR submissions. The traders' requests also included either a specific rate to be submitted or the direction, higher or lower, that they wanted Barclays' LIBOR submission to move. Sometimes, the traders asked the submitters to try to have Barclays excluded ('kicked out' or 'knocked out') from the LIBOR calculation by being in the top or bottom quartile, in an attempt to influence the official LIBOR fixing. Sometimes the requests covered several days or even weeks of submissions at a time.

The email communications were extensive, and show how the common the practice of trying to manipulate LIBOR must have been:

February 12, 2007:

Barclays' Senior Euro Swaps Trader agreed with traders at Banks A and B to have their respective one month Euribor submissions lowered.

Barclays' Senior Euro Swaps Trader submitted that request to the Barclays Senior Euribor Submitter, stating: 'hi [Senior Euribor Submitter]. Is it possible to have a low 1m fix today?'

Barclays' Senior Euribor Submitter replied: 'will do.'[10]

According to the US judgment, in one instance of coordination over a four-month period, the Barclays senior Euro swaps trader orchestrated an effort to align trading strategies among traders at multiple banks, with the goal of influencing the official European Banking Federation three-month Euribor fixing on the International Monetary Market on March 19, 2007, to profit from their futures trading positions.[11]

This scheme began at the latest in December 2006 and continued until the above IMM date. It involved multiple and successive requests over this period of time by the Barclays senior Euro swaps trader to Barclays' Euribor submitters and traders at other banks to lower the three-month Euribor submission on dates leading up to and including the above IMM date.

Some of the submitters for LIBOR acquiesced quickly with traders' demands. Emails responded to requests from traders with 'Always happy to help, leave it with me, Sir' and 'Done… for you big boy…'.

Reading these emails, and the judgements of the UK and US authorities, two points stand out. First, it is astonishing how widespread and common the attempts to manipulate LIBOR, EURIBOR and other rates were within Barclays. Second, other banks must have been involved. There are hints of other bank traders colluding, and the investigations for other banks are still underway. It seems highly likely that further revelations will come out soon.

With the 2007 crisis, LIBOR broke anyway

For the two decades up to 2007, the process of setting LIBOR seemed to work well. LIBOR tended to track the underlying interest rate set by the central bank. During the year before August 9, 2007, the 3-month US-dollar LIBOR spread above the target interest rate set by the US Federal Reserve averaged only 0.11 per cent. LIBOR was universally agreed to be a useful reflection of the general cost of borrowing for a major bank. From this, all other financial products could be priced.

In 2007, however, LIBOR suddenly moved out very far from the underlying bank base rate. On August 9, 2007, the major banks suddenly changed their view of the safety of lending to other major banks. LIBOR shot out to over 0.24 per cent above the base interest rate, a movement five times the standard deviation of previous years. In economists' jargon, credit risk or counterparty risk was now a factor in the LIBOR interest rate. The banks who gave their estimate of the rate no longer trusted that if they loaned unsecured money to another big bank they would certainly get it back.

As the crisis has developed, many big banks have been entirely shut out of funding markets. Since 2008 when banks stopped being able to borrow unsecured funding, LIBOR has been meaningless anyway. Suspicions were voiced in the market in 2008 that several

banks were downplaying their LIBOR submissions to avoid the stigma of liquidity problems.[12] If banks do not lend, LIBOR becomes, in the words of Mervyn King in 2008, 'the rate at which banks do not lend to each other'. For some time, it has been known that LIBOR no longer provides a useful market rate. Yet no-one has had enough impetus to develop replacements. Perhaps this scandal will force this issue.

PART 2: THE IMPLICATIONS

Yet the scale and scope of this scandal is astounding, and the seeming extent of collusion is new and worrying. This scandal raises some major questions about investment banks and financial markets. The conduct of investment banks, which sometimes allow the trading mentality to override legal and social rules, has been a wider issue since the financial crisis broke. Furthermore, the regulatory philosophy prevalent since the 1980s that market participants can best organise the structures and building blocks of secondary investment markets – all you need is *caveat emptor* – must be reconsidered.

Some major points for reform are set out below, reiterating much of the material in the executive summary.

Restoring the integrity of LIBOR

The process for setting LIBOR needs to be revised. This has been known for several years. The current process, established formally in 1986, harks back to an older era in the City of London when the setting of benchmarks could be trusted to a club of major banks, who would provide a standard as a public good, in part in return for reputational benefits from being in that club. If LIBOR is used in the future, the process needs to be formalised and based on actual transactions, rather than estimates from the major banks.

Alternatives to LIBOR as a basic market benchmark need to be pursued. Since 2008 when banks stopped being able to borrow unsecured funding, LIBOR has been meaningless anyway. If banks do not lend, LIBOR becomes, in the words of Mervyn King in 2008, 'the rate at which banks do not lend to each other'. Alternatives the Sterling Overnight Interest Average (SONIA) or the Repo Overnight Index Average (RONIA) should be explored and encouraged by regulators, and not just left to the British Bankers' Association or trade bodies.

Reforming the incentives and management of investment banks

This emphasises the need for policymakers, shareholders (especially institutional investors) and regulators to press on with the reform agenda on investment banks. What happened at Barclays, and at other banks, is a reflection of the problems of what happens in investment banks when traders are uncontrolled. The Goldman Sachs case in the US (with the infamous emails from Fabrice Tourre celebrating the fact that the investors would lose money) was another example of traders running riot and bringing the whole bank into trouble.

Policymakers and shareholders need, however, to ensure that investment banks are far better managed and that the short-term traders do not dominate. For banks with a retail and investment arm, ring-fencing may not be enough to ensure that trading is split. At the very least, a full implementation of the Vickers' Report seems right, although the government should reconsider whether a full split is required.

One important issue raised by the Barclays case is the challenge of managing and monitoring the different functions within a complex organisation. In many cases, including this one, supposedly strict 'Chinese walls' have been shown in practice to be easily breached. Email traffic shows how traders in one area coerced or encouraged the LIBOR setters in another, to the evident discomfort of compliance once this surfaced.

It seems reasonable to assume that the emails were just one channel by which traders exerted their pressure. Physical separation of activities has little practical effect if staff can simply pick up the phone or use email or temporary instant messaging to contact those in other areas. However, the fact that the LIBOR setters needed information in order to generate their submitted rates meant that they had to be in contact with the bank's operational areas. They could hardly pluck a number out of the air. It is perhaps natural that the self-interested traders should seek to influence the setter's opinion. It is a measure of the weakness of the LIBOR system that a largely conceptual rate could be derived from a set of inputs from

across the bank. As argued elsewhere, were the rate to be derived from actual transactions, then the setter's job becomes much less open to manipulation, benign or otherwise.

Changing the incentives for senior management is also a part of changing the culture of banks. These incentives should not just be financial. That Bob Diamond was ultimately required to take responsibility for the culture of the organisation which allowed this to take place is helpful in improving the incentives for senior management. But shareholders and regulators will need to work to ensure that there is lasting change in the personal incentives of management to ensure that investment banks are better managed.

Addressing other market mechanisms needing more formal, transparent structures

More generally, there are other informal rules and mechanisms in secondary financial markets where politicians and policymakers need to take a view on whether they need to be more engaged to ensure that structures are transparent and robust. The UK structures of mortgage-backed securities or over-the-counter (OTC) derivatives are two examples that require examination. Other benchmarks set by major banks, such as the London Gold Fix, could potentially be open to manipulation. The regulatory philosophy of the Treasury, Bank of England and FSA which has held sway since the 1980s deregulation – that secondary markets will organise themselves – needs to change. Caveat emptor alone is not a sufficient organising philosophy for UK financial markets, and disclosure alone will not bring ideal outcomes.

CONCLUSION

The political drama is exciting, and more revelations about traders at other banks will no doubt emerge. But there are bigger challenges for politicians, regulators and those in the City, and addressing these problems will require a sustained programme of reform over the coming years. It remains to be seen whether the politicians will be able to carry that through, when the excitement dies down.

How much will this damage the reputation of City of London as a financial centre? This was not just a Barclays problem: it seems likely that other banks globally were involved. New York traders were certainly involved, according the judgements by the US authorities. The picture will be clearer when other settlements are made. Barclays have suffered reputationally from being the first bank to settle with the authorities, but have receiving a discount for doing so, a 30 per cent reduction of the FSA penalty.

The impact on the City will depend on how regulators and policymakers in Whitehall, the Bank of England and Brussels, respond. Self-regulatory mechanisms of market-wide standards failed astonishingly in this instance. The challenge is there for the executives of major banks, their shareholders and other bodies in the City, to show how this can work much better. If they cannot, it seems inevitable that regulators will be given those roles instead.

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NOTES

[1] This includes products such as swaps and Forward Rate Agreements, Bank for International
[2] Financial Services Authority, “Final Notice to Barclays Bank Plc”, FSA Reference Number: 122702, 27 June 2012. U.S Commodity Futures Trading Commission, “Order, in the matter of Barclays PLC, Barclays Bank PLC (Barclays Bank) and Barclays Capital Inc.”, June 27, 2012.
[3] Financial Services Authority, “Final Notice to Barclays Bank Plc”, FSA Reference Number: 122702, 27 June 2012. U.S Commodity Futures Trading Commission, “Order, in the matter of Barclays PLC, Barclays Bank PLC (Barclays Bank) and Barclays Capital Inc.”, June 27, 2012.
[4] This includes products such as swaps and Forward Rate Agreements, Bank for International Settlements data, December 2011.
[5] *The Financial Times,* 24 November 2009.
[6] Ranald Michie, The Global Securities Market: A History, 2006
[7] “An Economic Analysis of Interest Rate Swaps”, James Bicksler and Andrew H. Chen, *The Journal of Finance*, Vol. 41, No. 3, 1985.
[8] The Bank of International Settlements Annual Report first refers to LIBOR in its 1983 Annual Report, so market practice was already developing a standard rate by then.
[9] The current definition was adopted as the standard after a review in 1998. Up until this point, submissions from panel members were based upon the following: “At what rate do you think interbank term deposits will be offered by one prime bank to another prime bank for a reasonable market size today at 11am?” The new definition enables accountability for the rates. See the official website from the British Bankers’ Association for LIBOR, www.bbalibor.com.
[10] U.S Commodity Futures Trading Commission, “Order, in the matter of Barclays PLC, Barclays Bank PLC (Barclays Bank) and Barclays Capital Inc.”, June 27, 2012.
[11] IMM dates are standard quarterly settlement dates in March, June, September and December. Many derivatives contracts are settled or reset on these dates, including various Euribor futures contracts.
[12] See, for example, *The Wall Street Journal,* April 18th, 2008.