

Report on the administration and management of Euribor



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1. Introduction

1. A joint EBA-ESMA team conducted a review of the Euribor setting process in October-November 2012. This included meetings with Euribor-EBF and Thomson Reuters and assessment of documents. The objective of the review was to gain an in-depth understanding of the Euribor setting process and the policies governing it. The review complements the current legal investigations related to Euribor conducted by competent authorities within the EU and therefore is without prejudice to the possible findings of such investigations. The Boards of Supervisors of both the EBA and ESMA have agreed to a set of recommendations related to Euribor. These recommendations focus on the immediate steps necessary to address what the Boards deemed to be potential weaknesses and insufficiencies. This report describes the Euribor setting process and the weaknesses and insufficiencies identified during the review.

2. Euribor-EBF Organisation

2. Euribor-EBF is a sister association of the European Banking Federation (EBF). Euribor-EBF is an international non-profit association under Belgian law and it was founded 1999. Its members are national banking association of the EEA countries and Switzerland (excluding Hungary, Latvia, Lithuania, Romania, and Slovakia).
3. Euribor-EBF is the administrator of the Euribor benchmarks and is responsible for the development and support of benchmark rates it governs (EURIBOR, EONIA, EUREPO, EONIA SWAP INDEX). In addition Euribor-EBF supports other practical initiatives which foster the integration of the European financial market such as, but not limited to, the improvement of the liquidity, safety and transparency of the short-term commercial paper markets by means of a harmonised framework for a short-term European paper "STEP".

2.1 Euribor-EBF Secretariat

4. Euribor-EBF Secretariat has currently three full time members of staff.
5. The Secretariat initially consisted of only one person and a very limited budget. The EBF provided administrative support for Euribor until 2009. The resources have increased since 2009 and now there are three staff members and the budget expanded to EUR 400 000. The budget is financed inter alia by the STEP programme and from licensing real-time Euribor rates. National associations do not any longer contribute to the budget since 2011. Euribor-EBF still faces resource constraints and plans to recruit one additional staff member in 2013 to run the daily process and analysing the submissions.
6. Euribor-EBF is currently in the process of setting itself up as an independent association which would be a member of the EBF. Euribor-EBF sees independence from the EBF as an important step in the process to avoid influence, and even indirect influence, from banks. The General Assembly approved these plans in its meeting on 16 September 2011.

7. Euribor-EBF has set up several working groups to focus on specific tasks. Members of these ad hoc working groups are invited by the Euribor-EBF staff in accordance with their relevant expertise to discuss specific issues. One recent example of such a group is USD Euribor which was created within 6 months. An example of a less successful working group is the task force created in May 2008 to analyse the Euribor definition and more specifically the definition of a prime bank. The definition is still under discussion. Working groups are not part of the formal Euribor-EBF structures.

2.2 General Assembly

8. The General Assembly is the same as for the EBF (27 national associations) and meets once or twice a year. The General Assembly approves Euribor-EBF's budget, nominations to the Steering Committee and the Board of Directors, and other fundamental/strategic issues based on the recommendations of the Steering Committee (e.g. the revised Code of Conduct).

9. The General Assembly has also discussed relevant issues such as the EU Commission investigations, the Libor crisis, the USD Euribor project etc.

10. In autumn 2012, Euribor-EBF commissioned its auditor to carry out a review of the current governance arrangements. The result of the review was that the General Assembly was assessed as being necessary to ensure the support and representation of the EU banking sector but its dependency on the industry ought to be reduced. One of the main recommendations made by the auditor was to streamline the tasks and responsibilities of the General Assembly to governance issues such as the budget, Board and Steering Committee nominations and to other issues not directly related to the Euribor process.

2.3 Board of Directors

11. The Board of Directors consists of at least three members from the national associations. The Board has not been involved directly in the governance process. The Board members recently changed and the approach is to bring in a wide base of experience/knowledge, even if the members are not practitioners. The Board approves the strategy and meets regularly twice a year.

12. In September 2012, the Board discussed media management during the Libor/Euribor crisis, crisis management actions (such as whether any legal action could be taken against some banks, and issuing a Euribor FAQ), and reinforcement measures on Euribor governance (e.g. a self-certification form, and internal/external audits in the panel banks).

2.4 Code of Conduct

13. The Euribor Code of Conduct is the most important document in defining the rate-setting process and the roles and responsibilities of all stakeholders. The Code provides the definition of Euribor, sets out criteria for the panel of banks (contributing firms), the composition and tasks of the Steering Committee and obligations of the panel banks. The Code was created in 1997 and updated in July 2012.

2.5 Steering Committee (SC)

14. The Steering Committee (SC) is responsible for the governance of the rate-setting process and its tasks are described in the Code of Conduct, which is published on Euribor-EBF's website, together with the minutes of the SC meetings.

Membership

15. The Euribor Code of Conduct defines the SC membership in Article 5:

The Steering Committee will consist of 10 members, 7 from the Euribor® EBF side, 3 from the Euribor® ACI side. The members must be experienced market practitioners, i.e. people who are directly involved in market operations (money markets, FX markets, interest rate derivatives) or who bear direct responsibility in their bank for it. The Chief Executive of the European Banking Federation will be a permanent member of the Steering Committee under the Euribor® EBF quota. The other members have a mandate of 2 years. This mandate is renewable. All the members must be independent and not subject to instructions from the companies or organisations to which they belong.

The members of the Steering Committee shall be directly appointed and revoked by the General Assemblies of Euribor® EBF and Euribor® ACI under the rules laid down in their respective Articles of Association. Each association appoints and revokes the members of its side independently. In case a member is revoked, or stops being a member for any other reason before the expiry of his mandate, he or she may be replaced by another member from the same association.

A member who does not attend more than three consecutive physical meetings shall be replaced.

16. According to the Code of Conduct, the members must be independent and they must be experienced market practitioners, i.e. people who are directly involved in market operations (money markets, FX markets, interest rate derivatives) or who bear direct responsibility in their bank for these operations.

17. SC members are required to be market practitioners which potentially gives rise to conflicts of interests, especially since some of the members are from the panel banks and may be involved in the submission process directly. The requirement does not distinguish between market practitioners in money market desks (i.e. Treasurers using the Euribor for short-term funding and lending purposes) and in derivatives desks (traders using Euribor as a benchmark for derivatives contracts), and these desks may have different perspectives on Euribor (i.e. Euribor as being representing the interbank market for treasurers and Euribor as a reliable benchmark for derivatives). According to Euribor-EBF, unlike Libor, Euribor has been designed as a reference for treasurers and not for derivatives traders, which is not fully in line with the requirement concerning SC members.

18. The EBA and ESMA staff has not investigated in depth the SC members' responsibilities in the panel banks, although they had not seen any evidence that Euribor-EBF is ensuring the independence of the SC members. The EBA and ESMA staff has also not seen any evidence that any SC member would have been replaced due to non-attendance. Although a non-attendance

rule was introduced to the Code of Conduct recently, in June 2012, there hasn't yet been a need to activate it.

19. Euribor-EBF staff supports a renewal of the membership of the Steering Committee to cover a wider set of stakeholders such as macro economists, practitioners, and regulators/supervisors. The view of Euribor-EBF is that the SC could continue to cover both technical and oversight issues. Moreover, Euribor-EBF's auditor also recommended widening the membership to cover a wider group of stakeholders by reducing the number of market practitioners in the SC.

20. The SC members have two year mandates which are renewable. The membership seems to be relatively stable and the SCs for different rates overlap significantly. The Euribor SC members are also members of Eonia and USD Euribor Steering Committees.

- Sieveking (ACI, Investitions bank Berlin), and Verdugo (ESBG, Confederation Espanola de Cajas de Ahorros) have been SC members at least since 2000 (the minutes are available from 2000).
- Biewald (Commerzbank, since 2009), Covin (Unicredit, since 2011), Sulin (Nordea, since 2003), Torralba (BBVA, since 2011), Seignat (Credit Agricole, since 2007), Chatzimpei (National Bank of Greece, since 2011), Bescond (Societe Generale, since 2011), Mahon (Allied Irish Bank, observer since 2007)

Meetings

21. The SC has regular meetings twice a year and the Euribor-EBF secretariat asked for several ad hoc meetings between July-October 2012.

22. The meeting minutes are available on Euribor-EBF's website. The agendas include several regular topics:

- Level and use of Euribor/Eonia
- Compliance of panel banks with their obligations
- Composition of the Euribor/Eonia Panel
- Review of the Code of Conduct, Euribor definition (including definition of a prime a bank)
- USD Euribor

2.6 Contributing firms and submitters

23. The Code of Conduct does not describe or set out any criteria for the contributing firms and submitters in the panel banks.

24. The Steering Committee has discussed submitter roles in its meeting on 5 June 2009 and clarified that the submitters must be in charge of money market interbank operations and that derivatives desks have to be excluded from the process to ensure the high quality of the benchmark.

3. Oversight functions

3.1 Steering Committee

25. The Steering Committee is responsible for the governance of the rate setting process and its tasks are described in the Code of Conduct which is published on the Euribor-EBF website.

26. The Euribor Code of Conduct describes the tasks of the SC in Article 6:

The Steering Committee may at any time request panel banks to demonstrate and prove that their relevant market activities (see Article 1) still qualify them for a seat on the panel.

The Steering Committee also reviews, in accordance with Article 3, new applications for a seat on the panel and may decide to suspend or remove a bank from the panel if the criteria laid down in Article 1 are no longer met.

The Steering Committee also periodically reviews whether, in the light of market development, a reduction of or an increase in the number of panel banks is warranted.

The Steering Committee will also control whether the panel banks fulfil their obligations under this Code.

27. The Code does not include any strong oversight aspects. Article 4 of the Code describes panel banks' obligations, which include the commitment to submit the rates to the best of their knowledge and to make necessary arrangements to ensure delivery of the rates without interruption due to human or technical failure. The Code does not include any requirements for internal controls or management of conflicts of interests. Article 4, paragraph 4 requires the panel banks to take all other measures which may be reasonably required by the Steering Committee or the screen service provider.

28. The Steering Committee discusses regularly in its meetings the compliance of panel banks with their obligations. Thomson Reuters as the benchmark calculation agent for Euribor provides regular updates on the submissions. The Steering Committee has no means of assessing the panel banks' internal processes and they are only able to assess the quality of submissions based on the means (i.e. if a submission is sent via the electronic platform or by phone) and timeliness of submissions.

29. Euribor-EBF organised on 12 October 2012 a stakeholder workshop where all 43 panel banks and the Steering Committee members were present. Representatives from the EBA, ESMA, IOSCO and the ECB were also present. Following the meeting Euribor-EBF launched a survey among panel banks to start the work on defining common contribution guidelines.

Sanctions

30. Sanctions are described in Article 7 of the Code of Conduct:

The Steering Committee may take the following sanctions if panel banks do not comply with the obligations under this Code:

- issuance of a warning to remedy the situation quickly;*
- if such warning is ignored, suspension or exclusion of a panel bank from the panel.*

31. Currently the SC can issue warnings or decide to suspend or exclude a bank from the panel. The SC has discussed possibilities for random compliance checks by Euribor-EBF staff but there was more support among SC members to introduce a requirement, and develop a framework for regular external audits.

32. The Steering Committee has sent a few warning letters to the panel banks:

- In October 2011 - To all panel banks regarding investigations by the European Commission.
- In February 2011 - To two panel banks on very frequent problems in providing contributions (90 % of the contributions were made by phone and in almost 20 % of the cases the bank needed to be reminded to submit a quote in time) and to remind them about their obligations.
- In September 2009 - To all panel banks reminding them about their obligations following the differences in Euribor and Libor quotes which they had submitted. The Steering Committee discussed in December 2009 discrepancies between Euribor and Libor and Barclays Capital's reaction to the Secretariat letter. The SC agreed that the panel banks should be consistent in their interpretations of the respective definitions over time.
- In November 2007 - To all panel banks to stress the importance of submitting quotes to truly reflect the current market situation.

33. Based on the Steering Committee minutes, the warning letters resulted in better quality and more timely submissions from the addressees, but problems persisted in the case of some banks. Some banks still required many reminders to ensure submissions. In 2012, the number of missing submissions decreased significantly compared with 2011, when some banks missed half of the fixing days.

34. Following the measures taken by the UK FSA against Barclays in June 2012 the SC considered suspending the bank from the panel.

3.2 Euribor-EBF staff

35. The Euribor-EBF staff is responsible for operational tasks in the governance process. The Code of Conduct does not recognise staff/Secretariat responsibilities which is said to be making interventions more difficult.

36. In recent months, the Euribor-EBF staff has worked to improve the governance process:

- The staff has convened several ad hoc Steering Committee meetings following the Libor crisis.
- Based on a Steering Committee mandate, the Euribor-EBF staff demanded a self-certification form from the panel banks asking for assurance of adequate/proper internal governance. All banks sent their forms back.
- The staff requested the Steering Committee to organise a stakeholder meeting which took place on 12 October 2012 for all panel banks and other stakeholders to discuss the way forward.

-
- Following the stakeholder meeting, the Euribor-EBF staff initiated a survey to the panel banks to define adequate processes that should be in place in all banks.

3.3 Thomson Reuters

Roles and responsibilities

37. Thomson Reuters acts as the calculation and publication agent of Euribor benchmarks. The rules for calculation (minimum amount of submissions etc.) and methodology are set by Euribor-EBF in its Code of Conduct.

38. Euribor-EBF and Thomson Reuters have a contract in place for the calculation activities but it is not supported by a service level agreement covering quality controls. The panel banks are responsible for providing accurate submissions and Thomson Reuters is applying some sanity checks on submitted quotes before the fixing.

39. If a bank fails to provide regular quotes, Thomson Reuters informs Euribor-EBF.

40. On request from Euribor-EBF, Thomson Reuters provides the Steering Committee with reports on outliers and the quality of submissions (whether the submissions are conducted on time and the method of submission, i.e. via phone, e-mail, electronic systems). The reports include the following:

- Eliminated high and low contributions over 5-6 months per bank;
- Missing rates per bank;
- Days where Thomson Reuters needed to remind banks about their submission; and
- In 2010 more attention was paid to interventions and calls per bank since Thomson Reuters needed to send many repeat reminders in the case of some panel banks.

4. Calculation process, methodology

4.1 Euribor

41. Euribor is the rate at which euro interbank term deposits are being offered within the EMU by one prime bank to another at 11.00 am Brussels time (“the best price between the best banks”). It is quoted for spot value (two Target days) and on an actual / 360-day basis.

42. The rate is the offered rate which each panel bank believes one prime bank is quoting to another prime bank for interbank deposits within the Euro zone. Panel banks are therefore not supposed to quote a price reflecting their own position.

43. The definition reduces the incentive to manipulate quotes due to a potential reputational effect. However, the fact that the rate is hypothetical for an average bank, and the fact that the incentive to

manipulate the rate to benefit trading positions is the same as for the Libor, means that manipulation remains a concern.

4.2 Euribor Panel

44. Banks can qualify for the panel if they are active market players in the euro money markets in the euro-zone or worldwide and if they are able to handle good volumes in euro-interest rate related instruments, especially in the money market, even in turbulent market conditions. The criteria for consideration covers:

- Assets/liabilities: loans/deposits up to one year maturity, money market papers, reverse repos/repos
- Off-balance sheet: derivatives referring to a Euribor underlying denominated in the EMU currencies, FX swaps

45. Panel banks must be banks of first class credit standing, high ethical standards and enjoying an excellent reputation.

46. The number of panel banks should be high enough to reflect faithfully the geographic diversity and low enough to ensure an efficient manageable panel.

47. The Steering Committee decides on the composition of the panel and ensures that the selected panel always truly reflects money market activities within the euro zone.

48. The current panel of 42 banks represent different types of banks (commercial, cooperative, savings banks, investment banks, local and international banks of different sizes). In the current environment some of the panel banks cannot be described as being of 'first class credit standing'.

49. The Steering Committee has discussed the definition of a prime bank but without solution. The Steering Committee members are reluctant to link the definition to a credit rating.

4.3 Submission and calculation

50. A representative panel of banks (contributing firms) provide daily quotes of the rate, rounded to two decimal digits, that each panel bank believes one prime bank is quoting to another prime bank for interbank term deposits within the euro zone.

51. The daily process for submissions can be described as follows:

- ▶ 10 am (CET) Thomson Reuters clears the previous data and opens the system for banks to submit quotes.
- ▶ Every panel bank is required to directly input its data no later than 10:45 am on each operational day. Each panel bank is allocated a private page on which to contribute its data. Each private page can only be viewed by the contributing bank and by Thomson Reuters

staff involved in the fixing process. From 10:45 to 11:00 am at the latest, the panel banks can correct, if necessary, their quotations.

- ▶ 10.45 am the system sends an automatic alert to banks which have not submitted quotes. These e-mails are recorded and can be checked afterward for statistics.
- ▶ Thomson Reuters runs checks after banks submit their quotes (as submissions come in) and calls banks to confirm any outliers. All contacts and changes are recorded in a daily diary. Banks can re-submit until 11 am. Thomson Reuters can make changes to the quote only in case of technical problems. These changes are all recorded by Thomson Reuters and go through 4 eyes.
- ▶ 11.00 am the window closes for submissions and Thomson Reuters processes the Euribor calculation. For each maturity, the highest and lowest 15% of all the quotes collected are eliminated. The remaining rates are averaged and rounded to three decimal places. After the calculation has been processed at 11:00 am, Thomson Reuters will instantaneously publish the Euribor rate, which is made available to all its subscribers and to other data vendors. At the same time, the underlying bank by bank submissions are published on a series of composite pages which display all the rates by maturity. Thomson Reuters also provides all historical data.
- ▶ Thomson Reuters always publishes the rate by 11.15 am and the highest priority is given to timely publication.

52. Before calculating the rate at 11:00 am Thomson Reuters verifies whether all panel banks have made their data available for that day in accordance with established procedures. If one or more banks have failed to do so, Thomson Reuters reminds such banks by telephone or any other means of communication of their obligation to provide the data and shall invite them to submit the data immediately. Should any panel bank, after such a reminder, still not provide its data by 11:00 am, Thomson Reuters will calculate the Euribor for that day without the missing data and promptly notify Euribor-EBF in writing.

53. Checks include the checking of descending curves and comparison against previous day's quotes and comparing against other banks. Currently static quotes are not checked. If a bank does not submit by 11 am, their quote will be excluded. The same applies also for corrections made too late. The system accepts only a full curve of quotes.

54. The absolute priority is to publish the fixing at 11.00 am which results in challenges for robust checks in the case of submission close to the 11.00 am deadline. 99 % of the quotes are submitted normally by 10.45 am.

55. If more than 50% of Panel Banks fail to provide their data by 11:00 am, Thomson Reuters shall delay calculating the Euribor until 50% of the Panel Banks have submitted their quote. If this is not possible before 11:15 am, Thomson Reuters, at 11.15 am, shall either:

- if 12 or more banks from three or more countries have provided data, they calculate and display the Euribor based on this data.

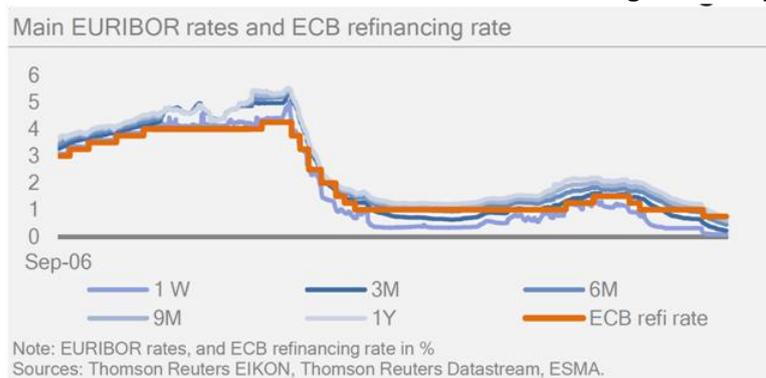
- if fewer than 12 banks have provided data or if the banks which have provided data are from fewer than three countries, Thomson Reuters shall delay the calculation of the Euribor for that day until 12.00 am or earlier when more banks from three or more countries have provided data. Thomson Reuters at 11:15 am shall indicate the delay on the page where Euribor should be displayed.

56. Only on very rare occasions have there been fewer than 40 banks submitting quotes.

5. Analysis of submissions and fixings

57. Euribor rates are closely linked to the ECB refinancing rate, which is supposed to be a floor for interbank rates, at least before the financial crisis (Chart 1). During the financial crisis, due to counterparty and liquidity risk, interbank rates were significantly higher than the ECB rate. Since early 2009, short-term Euribor rates have been lower than the ECB rate due to liquidity facilities provided by the ECB (unlimited refinancing operations at fixed rate over longer maturity than usual).

Chart 1: Main EURIBOR rates and ECB refinancing rate – Sep 2006 to end 2012



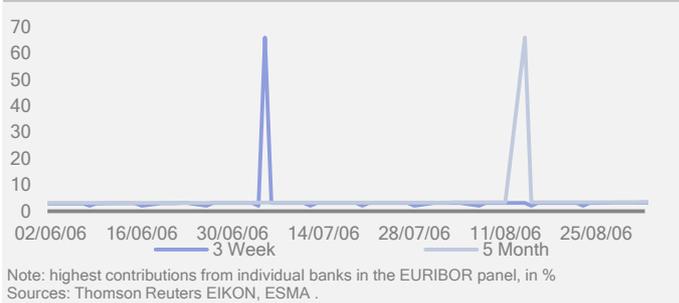
5.1 Fat finger errors

58. The preliminary analysis of individual quotes from panel banks¹ shows that some anomalies can be found in the submissions, despite Thomson Reuters sanity checks. These anomalies can be seen as fat finger errors. For example on 12 June 2004, Bank 30 provided quotes between 44% and 55.5% for all tenors, and on 14 August 2006, the same bank provided quotes of 66% for a range of maturities (1 week to 3 weeks and 2 months to 5 months) as indicated in Chart 2.

¹ The analysis focused on a sample of banks based on the last available panel and data is collected from 1 January 2004 to 9 October 2012.

Chart 2: Contributions to EURIBOR fixings

Some contributions for the EURIBOR fixing were clearly erroneous



59. More recently, some banks provided very different quotes from one day to the other, as evidenced in Table 1.

Table 1: Fat finger errors

Date	Rate T-1	Rate T	Rate T+1	Tenor	Bank
03/03/09	1.87%	2.87%	1.85%	5M	Bank 7
10/11/10	1.20%	1.80%	1.20%	5M	Bank 10
10/07/12	0.20%	1.17%	0.16%	2W	Bank 2

Sources: Thomson Reuters Eikon and ESMA calculations

60. Given that those fat finger errors passed the sanity checks, they have impacted the level of the Euribor. For example, on 10 July 2012, Bank 2 provided a quote of 1.17% instead of a more likely 0.17%. As a result, the quote was excluded from the computation of the Euribor as an outlier, resulting in a rate of 0.171%. If the error had been detected and corrected, the rate would have been 0.170% (see Table2). Thomson Reuters checked the 10 July 2012 submissions and according to the records they contacted the bank submitting the erroneous quote three times without any reply from the bank. For the quote by Bank 7 on 3 March 2009, the rate should have been 1.864% instead of 1.866%. Although the change in the rate is small in absolute value, even a small difference can have an impact on the cash flows given that many derivatives use Euribor as a reference.

Table2:

With erroneous quote included				With fat finger errors detected			
Bank 2	1.17	Bank 25	0.17	Bank 14	0.25	Bank 25	0.17
Bank 14	0.25	Bank 29	0.17	Bank 33	0.25	Bank 29	0.17
Bank 33	0.25	Bank 41	0.17	Bank 15	0.24	Bank 41	0.17
Bank 15	0.24	Bank 4	0.16	Bank 22	0.22	Bank 4	0.16

Bank 22	0.22	Bank 10	0.16	Bank 1	0.21	Bank 10	0.16
Bank 1	0.21	Bank 13	0.16	Bank 20	0.20	Bank 13	0.16
Bank 20	0.20	Bank 16	0.16	Bank 30	0.20	Bank 16	0.16
Bank 30	0.20	Bank 18	0.16	Bank 3	0.19	Bank 18	0.16
Bank 3	0.19	Bank 32	0.16	Bank 6	0.19	Bank 32	0.16
Bank 6	0.19	Bank 9	0.15	Bank 11	0.19	Bank 9	0.15
Bank 11	0.19	Bank 34	0.15	Bank 23	0.19	Bank 34	0.15
Bank 23	0.19	Bank 36	0.15	Bank 24	0.19	Bank 36	0.15
Bank 24	0.19	Bank 39	0.15	Bank 8	0.18	Bank 39	0.15
Bank 8	0.18	Bank 40	0.15	Bank 19	0.18	Bank 40	0.15
Bank 19	0.18	Bank 35	0.14	Bank 27	0.18	Bank 35	0.14
Bank 27	0.18	Bank 37	0.13	Bank 28	0.18	Bank 37	0.13
Bank 28	0.18	Bank 12	0.12	Bank 31	0.18	Bank 12	0.12
Bank 31	0.18	Bank 21	0.09	Bank 43	0.18	Bank 21	0.09
Bank 43	0.18	Bank 26	0.07	Bank 2	0.17	Bank 26	0.07
Bank 5	0.17	Bank 42	0.07	Bank 5	0.17	Bank 42	0.07
Bank 7	0.17	Bank 38	0.05	Bank 7	0.17	Bank 38	0.05
Bank 17	0.17	EURIBOR	0.171	Bank 17	0.17	EURIBOR	0.170

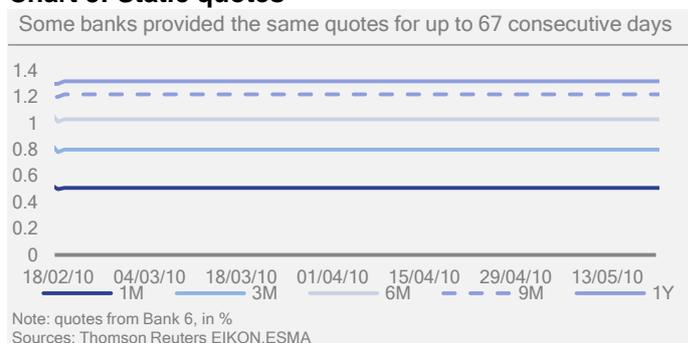
61. Therefore, the inability to address errors in submissions has had an impact on the level of the Euribor. These examples also show that a single bank may directly affect the level of the Euribor, despite the size of the panel.

5.2 Lack of changes in quotes

62. Another feature of the Euribor submission is that almost half of the quotes are identical from one day to another. For example, Bank 6 provided identical consecutive quotes for 67 days in a row for all tenors between February and May 2010 (Chart 3 below). This could mean that submissions may

not be an adequate indication of changing market conditions. Thomson Reuters informed that it did not check for patterns in quotes submissions.

Chart 3: Static quotes



63. This feature is not specific to the Euribor but rather widespread across IBORs. As indicated in the table below, around 50% of the quotes are identical over two consecutive days for most IBORs. Moreover, in some cases banks provided the same quote for up to 476 consecutive days (~3 years) for the JPY Libor panel.

Table 3: Identical quotes

3-Month tenor	Average % of identical quotes	Max. % of identical quotes for an individual panel bank	Max. of consecutive days with same quotes from contributors
EURIBOR	48%	66%	67
USD LIBOR	38%	62%	119
GBP LIBOR	50%	71%	74
JPY LIBOR	69%	88%	476
CAD LIBOR	50%	65%	79
AUD LIBOR	35%	62%	94
DKK LIBOR	36%	42%	100
SEK LIBOR	62%	77%	85

CHF LIBOR	48%	67%	175
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Note: figures computed over the Jan.-04-Sept.-12 period
Sources: Thomson Reuters EIKON and ESMA computations

5.3 Dispersion in individual quotes

64. As indicated in the chart below, individual banks' contributions can vary over time.

Chart 4: Dispersion of individual quotes(3m)

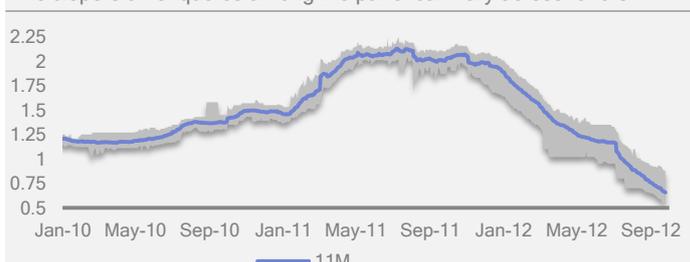
The dispersion of quotes among the panel can vary over time



Note: 3 Month EURIBOR and highest and lowest quotes from the panel, in %
Sources: Thomson Reuters EIKON, ESMA.

Chart 5: Dispersion of individual quotes (11m)

The dispersion of quotes among the panel can vary across tenors



Note: 11 Month EURIBOR and highest and lowest quotes from the panel, in %
Sources: Thomson Reuters EIKON, ESMA.

65. Eliminated high (banks excluded in most fixings):

- ▶ Bank 1 (2010-2012 in 80 % of the fixings)
- ▶ More than 50% of fixings for Bank 15 (2011-2012), Bank 22 (2010-2012), Bank 14 (2010, 2012), Bank 44 (2010), Bank 21 (2010), Bank 6 (2010).

66. Eliminated low (banks excluded in most fixings):

- ▶ Bank 37 (2010-2012, in 2011-2012 excluded in almost all fixings), Bank 20 (2010, 2011 in 2011 almost all fixings), Bank 12 (2012 almost all fixings)
- ▶ More than 50% of fixings Bank 34 (2012), Bank 21 (2012), Bank 42 (2010), Bank 20 (2010), Bank 24 (2010), Bank 26 (2011, 2010), Bank 4 (2010)

67. Some banks appear on both exclusion lists: Bank 20 (2010 60 % high, 30 % low). Bank 20 was in 2011 excluded in almost all fixings due to low quotes. In 2012 Bank 20 was excluded due to high quotes in and around 30 % of the fixings.

68. Missing quotes

- ▶ 2011 of 257 fixing days: Bank 45 (165 days), Bank 19 (145), Bank 9 (80), Bank 38 (75), Bank 37 (55), Bank 22 (55), Bank 20 (50). All banks except one had missing rates.
- ▶ Following the efforts of the Steering Committee, Euribor-EBF and Thomson Reuters the timeliness and coverage of submissions increased and in 2012 only a maximum of two rates were missing per bank of 106 fixing days. For two banks two rates were missing, for four banks one rate was missing.

5.4 Euribor versus Euro Libor

69. Comparisons between Euribor and Euro Libor. The Libor “*is the rate at which panel banks could borrow funds, by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am*”, while Euribor is “*the rate at which Euro interbank term deposits are offered by one prime bank to another prime bank within the EMU zone*”.

70. The main differences are that i) Libor refers to individual panel banks’ funding conditions while Euribor refers to a “theoretical” prime bank and ii) Libor is a borrowing rate while Euribor is a lending rate, iii) Euro Libor is based on a panel of 15/16 banks against 43 banks for the Euribor and iv) Libor is computed as a trimmed average where the 25% lowest and highest quotes are excluded (i.e. based on 8 quotes), while for Euribor the trimmed average exclude the 15% lowest and highest quotes (i.e. based on around 31 quotes) and finally v) Libor requires all panel banks quotes to be computed while Euribor can be computed as soon as at least 50% of the panel banks have contributed.

71. Despite these differences, both rates were very close before the financial crisis, as evidence in Chart 6. However, since end-2009, Euribor rates have been substantially higher than Euro Libor by around 10 basis points (Chart 7).

Chart 6: Differences between EURIBOR and EUR LIBOR quotes (1w to 2m)

Differences between EURIBOR rates and EUR LIBOR rates have been increasing since 2008

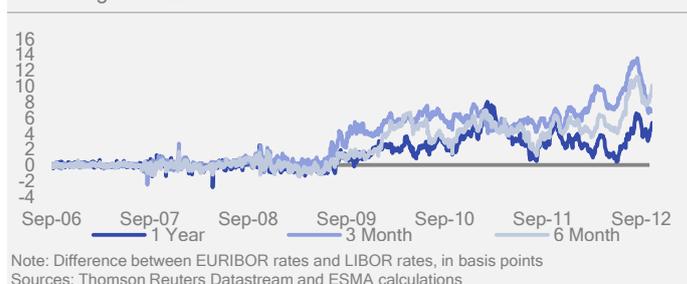


Chart 7: Differences between EURIBOR and EUR LIBOR quotes (6m to 1y)

Differences between EURIBOR rates and EUR LIBOR rates have been increasing since 2008



72. In theory, given funding problems faced by panel banks, one could assume that the Libor should have been higher than the Euribor as banks in the Libor panel are supposed to report on their own funding costs. One potential explanation may be linked to the stigma effect in Libor quotes that could have incentivised banks to report lower Libor quotes.

73. One way to assess this is to look at banks that are in both panels². As indicated in the two charts below, Euribor and Libor quotes were on average close before the financial crisis and - with the exception of the period from September 2008 to January 2009 up to September 2009. However since September 2009, Euribor quotes have been significantly higher.

Chart 8: Differences in EURIBOR and LIBOR submission 2007-2008

Significant differences between EURIBOR and LIBOR fixings in 2007-2008

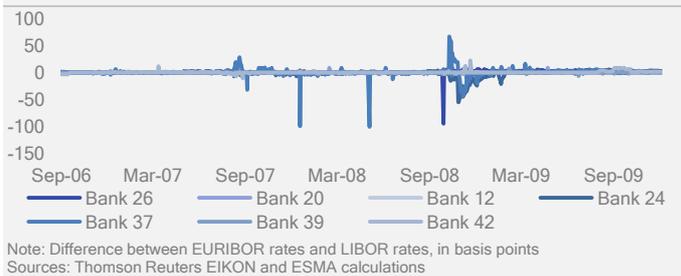
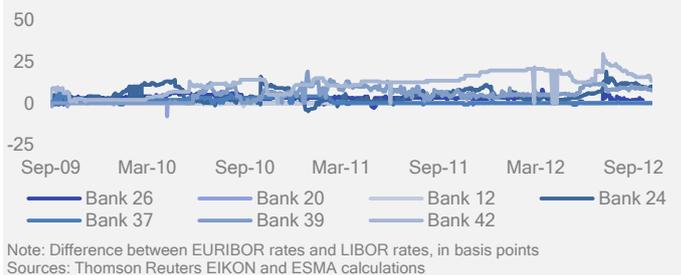


Chart 9: Differences in EURIBOR and LIBOR submissions 2009 -2012

Differences between EURIBOR rates and EUR LIBOR rates have been increasing since 2008



6. Response to Libor/Euribor crisis

²7 banks are in both panels: Bank 26, Bank 20, Bank 12, Bank 24, Bank 37, Bank 39 and Bank 42.

74. The Steering Committee organised several ad hoc conference calls between July-October 2012 to discuss the Euribor response. The following topics were discussed:

- Barclays suspension
- Euribor-EBF's meeting with EU representatives
- Alternative to Euribor, no support on transactions based benchmark but agreement to start a test of a hybrid system with the ECB
- Review of the governance system including:
 - ▶ Inclusion of a supervisor representative within the Euribor Steering Committee
 - ▶ Supervision of the calculation process
 - ▶ Legal obligation to contribute as a panel bank
 - ▶ Increasing the number of Steering Committee meetings
 - ▶ Establish an external audit on panel banks' processes
 - ▶ Random "compliance checks" visits to panel banks by one representative of the Euribor-EBF and the supervisor representative in the SC
 - ▶ Review of sanction measures
- Wheatley review

75. Euribor-EBF has also drafted a response to the Commission consultation in September and in November.

7. Weaknesses and insufficiencies

76. The current set-up of the Euribor process displays several weaknesses and insufficiencies, which can be grouped as follows:

Code of Conduct

- Panel banks' obligations
 - ▶ The obligations focus on submitting all rates, on time, daily and to the best of their knowledge, accurately with two digits.
 - ▶ The obligations on organisational arrangements focus on ensuring smooth delivery of rates.
 - ▶ The obligations do not include any requirements on internal governance and management of conflicts of interest.

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- ▶ The obligations do not specify any roles and responsibilities for the submitters.
 - Steering Committee
 - ▶ Membership consists only of market practitioners directly involved in market operations or who are directly responsible for market operations. In many cases the EBF quota consists of members from the panel banks possibly participating in the submission process.
 - ▶ All members must be independent and not subject to instructions from the companies to which they belong but there is no evidence that Euribor-EBF enforces this requirement.
 - ▶ Tasks focus on monitoring and managing the panel of banks and not on governance issues.
 - ▶ Current Steering Committee powers to request information only cover demonstrations of active market participation by the panel bank and do not cover rate submission or processes in place for rate submission.
 - ▶ While the EBF has asked Thomson Reuters to provide the Steering Committee with updates on quotes submissions, they have been done on ad hoc basis and therefore have been irregular.
 - Sanctions
 - ▶ Warning letters have improved the situation on timely submissions in some cases, but Euribor-EBF lacks a wider set of sanctioning powers before suspension or exclusion is applied.
 - ▶ Suspension or exclusion might not be effective in the current environment.

Governance

- Internal governance
 - ▶ Currently there are no written minimum requirements for panel banks in terms for their internal governance arrangements.
- Oversight
 - ▶ Neither Euribor-EBF nor the Steering Committee have information or access to information on panel banks' processes to ensure that they comply. Therefore the oversight function is not working properly.
 - ▶ Euribor-EBF and the Steering Committee are not regulated entities.
- Organisation
 - ▶ Euribor-EBF is a sister association of the EBF and its members are national banking associations. Euribor-EBF is therefore governed by the EU banking industry, if not by the submitting banks directly.

Calculation process – controls

- Submissions

- ▶ There are no requirements for the panel banks on record keeping of submissions.
- ▶ Although there are requirements in place to ensure uninterrupted submissions there are no requirements for the panel banks to ensure the quality of submissions, including that their quote has been published correctly. As a result, panel banks have been able to provide erroneous quotes without being spotted, resulting potentially in a bias in Euribor fixings. The self-certification requested by the Steering Committee in autumn 2012 requested banks to confirm they have robust processes in place for the submissions.

- Benchmark calculation agent/Thomson Reuters

- ▶ The calculation agent is only responsible for collecting banks' quotes, without having any formal power to enforce the submission of quotes. Moreover, while Thomson Reuters runs checks on the submissions, it has no formal duty to do so and erroneous quotes have been incorporated in the fixings.
- ▶ There is no written agreement on responsibilities regarding quality checks between Thomson Reuters and Euribor-EBF.
- ▶ The highest priority has been to provide the fixing in time without sufficient consideration as to its quality.

Methodology

- ▶ The definition of what is a Prime bank has not been outlined. This could create some uncertainty for panel banks and may result in difficulties in assessing the reliability of the quotes provided by panel banks. Some further ambiguity comes from the criteria that should be fulfilled to be a panel bank such as enjoying high credit standards and high reputation which may be understood as a kind of proxy for being a prime bank.
- ▶ While the Euribor Steering Committee has created a working group seeking to define what a prime bank is, possibly by using a credit rating, there was no final decision on this and Euribor-EBF is seeking guidance from regulators on the definition of a prime bank.
- ▶ There are no requirements to use any evidence as a basis for a quote – to the best of their knowledge is not prescribed in any way. This makes it difficult to assess the quality and accuracy of the quotes.

8. Recommendations

77. In view of the above considerations, the EBA and ESMA have jointly made a set of recommendations to Euribor-EBF. Their prompt and full implementation is an important step towards ensuring that Euribor represents a transparent and reliable benchmark for financial transactions (lending, trading and investments) within the euro area and beyond.

- ▶ The governance must improve immediately and the composition of the Euribor Steering Committee should be broadened to make it more independent of the banking industry and more diverse. More specifically, it should include members who are not affiliated to panel

banks (or to banks in general). Independent Steering Committee participants would inherently represent a counterbalance to panel bank committee members who currently represent a large majority. The number of members from panel banks should be limited to a minority. Details of the membership should be made public, along with any declarations of conflicts of interests and the processes for election or nomination of the Steering Committee members.

- ▶ The Steering Committee should hold no less than one bi-monthly meeting and promptly thereafter should publish transparent minutes.
- ▶ The references of Euribor should focus on maturities with the highest use and volume of underlying transactions. Rates should be scaled down from 15 currently (1-3 weeks and 1-12 months) to no more than 7 (1 and 2 weeks, 1, 3, 6, 9 and 12 months) at the maximum and fewer if appropriate. The reduction in the number of tenors would concentrate on eliminating those tenors that are already proven to be less used and of which fewer financial instruments are priced. Such a reduction would therefore have the benefit of simplifying the submission process without creating major financial stability risks in the transition process.
- ▶ The Euribor definition should be adjusted for more clarity. In particular, the term “prime bank” needs a clear definition. The term “interbank transactions” also needs to be clarified and, if needed, to be broadened and adjusted.
- ▶ Euribor-EBF should assume responsibility for the quality of the data being submitted by the panel banks and subsequently being collated, calculated and distributed by Thomson Reuters. In this context, substantive back-testing of the quoted rates should be performed on a regular and consistent basis, with the results reported to the Euribor Steering Committee.
- ▶ Euribor-EBF’s governance and Code of Conduct need to be improved and reinforced. A specific area for improvement is the identification and management of conflicts of interest. These can arise at multiple levels: within Euribor-EBF itself; within the Euribor Steering Committee; between Euribor-EBF and the Euribor Steering Committee; between Euribor-EBF or the Steering Committee and various national banking associations or panel banks (whether they participate in the Steering Committee or not); among national banking associations or among panel banks; etc. A new enhanced Code of Conduct should also refer to sanctions for breaching various clauses, including the manner in which they would be applied and enforced.
- ▶ Euribor-EBF should perform internal audits. Furthermore external audits should be carried out periodically, followed by public disclosure of the results.
- ▶ Euribor-EBF should define clearly its minimum expectations regarding the internal procedures and controls being applied by the calculation agent (currently Thomson Reuters). These expectations should include a clear definition of the checks to be performed by the calculation agent.
- ▶ The calculation agent should have its own Code of Conduct related to reference-rate setting. It should also perform earmarked internal audits and undergo a once-a-year external audit carried out by Euribor-EBF.
- ▶ Both Euribor-EBF and the calculation agent should keep complete, transparent and clear records of all submissions from each panel bank over the years, including data on panel banks which were either not submitting or were submitting flawed or questionable quotes

over certain days or longer periods. The EBF should maintain an ongoing record of individuals responsible for submissions in individual banks.

- ▶ EBA and ESMA aim to review the implementation of the current recommendations by Euribor-EBF no more than six months after they are agreed upon by Euribor-EBF.