CCIL MIBID/MIBOR - Clean Benchmark Reference Rates for Indian Market

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Globally a good benchmark reference rate provides the pulse and direction of the market for the day as it is collated in early market hours from important market participants who weigh their options on various factors that would likely to drive their lending and borrowing business during the course of the day. The important factors include, among others, information on liquidity condition in the market, demand and supply condition, central bank's likely support to the market, money flows in and out of the market, general rates prevailing in the short term markets, inflation rate updates, important policy directives, etc. A good benchmark rate should garner the respect of the market participants and used widely in. LIBOR (London Inter Bank Offer Rate) disseminated by British Banks' Association is one of the most important and widely used benchmark reference rate in the world. Many central banks also disseminate reference rates like Repo/Reverse Repo rates. A dynamic benchmark reference rate is a very important infrastructural support to the market participants in financial markets. This is important as all derivative pricing is done on the basis of the reference benchmark rates.The benchmark reference rate is an interest rate closely followed by market participants in pricing their products and using the same while executing various other transactions. An ideal benchmark rate plays a useful role not only in the short term market but also helps in pricing of complex products like derivatives.

For wider acceptability, such rate should be worked out for dissemination by an un-biased entity which does not have vested interest in the market. The methodology should be robust and transparent so that market participants can have confidence in using such rate. The methodology of collation and computation should be scientific, should eliminate noise, and resist manipulation. A benchmark rate coming from an unbiased source would be most acceptable as the entity responsible for collating such rate would have no direct interest in the market movement. The benchmark rate should be made available easily and regularly so that market participants can use it whenever they choose

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to do so. It is required to build a historical database. A benchmark reference rate, which embodies all these qualities, would be widely acceptable to the market as reliable benchmark rate.

Indian Scenario

In India, the most widely used benchmark reference rate, MIBOR (Mumbai Inter Bank Offer Rate), is disseminated by National Stock Exchange since 1998 and has been most widely accepted benchmark rate. The MIBOR has been widely used in the IRS (Interest Rate Swaps) contracts. The same is popularly known as FIMMDA-NSE-MIBOR/MIBID. Many banks, finance companies and financial institutions have issued MIBOR-linked deposits/papers. NSE MIBOR has been designed to give the overnight clean reference rate and generally tracks the call market. The basic design behind the said rate is the polling methodology– rates are polled from the traders over phone as to what rate they would quote to borrow or lend Rs.500million in the overnight call money market. Thirty three banks and primary dealers are polled on daily basis at 9.30AM for overnight rate and at 11.30AM for term rates. The average rate with lowest standard deviation is taken as the reference rate for the market. However, a boot strapping is used if there are sufficient rates polled in order to derive multiple average rates with their respective standard deviations. However, the traders can wrongly quote the rate as there is no compulsion on the polled trader to correctly give a quote and do a deal on the said rate. NSEIL disseminates 4 MIBOR/MIBID rates daily: overnight, 14-day, 1-month and 3-month. However, only overnight benchmark is relevant and widely used while other rates are not relevant as most of the days, it receives very few rates from polled members.

CCIL released its Collateralized Benchmark Reference Rates (CCBID/CCBOR) with effect from March'06. The rates were derived out of orders placed in the Collateralized Borrowing and Lending Obligations (CBLO) market. CBLO segment has been in the forefront of the short term market for a long time and it leads the other short term markets like repo and call in setting up the rates. It is the largest short term market in terms of volume. The CCBID/CCBOR rates are leased at 10.10AM on the basis of the orders received in CBLO market by 10.00AM.

Call market in India

Call market in India has gone through major changes in recent years. After phasing out the non-bank entities from the call market, it was converted to a pure inter-bank kind of market with banks and primary dealers having access to the same to raise short funds to manage the asset liability mismatch. Market participants have been reporting their deals in the call market to RBI through Negotiated Dealing System. The recent introduction of electronic system (NDS-Call module) to facilitate call dealings has helped the banks to quickly finalize their deals with their preferred counterparties. NDS-call has been showing steady progress and about 20% of the deals have shifted to this platform. Since the deals in NDS-Call have to be put through RTGS system within a short period of time which direct deals outside the system does not have that compulsion, market participants prefer to deal in direct deals. Table – 1 gives the market share of NDS-Call.

Table-1: NDS-Call Market Share (Amount in Rs. Crore)

Month	NDS-CALL	CALL	Market Share of NDS-Call (%)
Sep-06	15463.95	151328.86	10.22
Oct-06	30160.00	313566.47	9.62
Nov-06	42539.00	373676.60	11.38
Dec-06	69457.90	354774.25	19.58
Jan-06	27975.00	144053.50	19.42

Methodology:

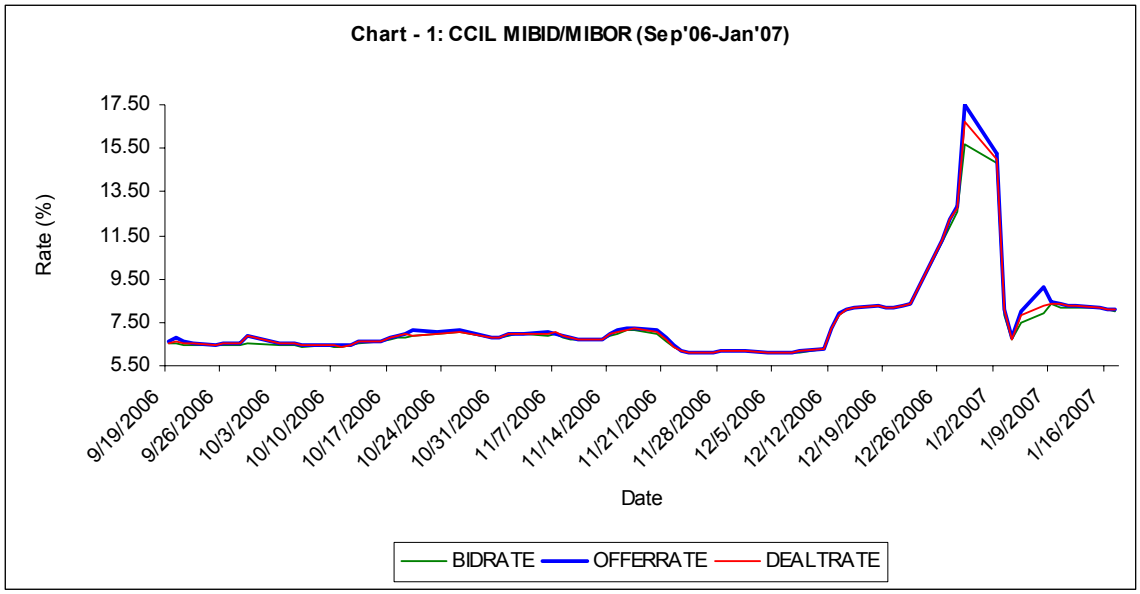
In the call market, banks take credit risk against their counterparties and hence set counterparty limits before trading. Normally in a call market deal put through the system, the market participants set their preferred counterparties in their dealing screen and provide bid / offer rates for their transaction with the counterparty. It is upto the counterparty to decide if he is willing to accept the bid/offer provided to it by other preferred market participants. If the bid/offer rate is not acceptable, the counterparty can provide its own bid/offer rate. Normally the market is very active in the first couple of hours of the day. It is required to take cognizance of the reaction of the market participants through their bid/offers in the NDS-Call. If the market is at equilibrium, the average rate in bid side will match the average rate in offer side. The wider difference between bid and offer rate would imply disharmony and substantial variance.

The benchmark reference rates should be disseminated for both sides of the deal – Weighted Average Bid and Offer Rate. For brevity, these rates can be referred as CCIL-MIBID **(CCIL Mumbai Inter-Bank Bid Rate)** and CCIL-MIBOR **(CCIL Mumbai Inter-Bank Offer Rate).** These rates should be disseminated at 10.10AM on the basis of orders received in NDS-Call segment upto 10.00AM. The orders would be collated and the weighted average rate would be derived for both Bid and Offer quotes. The standard deviation of rates would be calculated and disseminated with the benchmark rates to make the market aware about the level of divergence in quotes. Since the short term markets do not have representative volumes on Saturdays, there would be no dissemination of CCIL-MIBID/MIBOR on Saturdays.

If for a particular day, both average bid and offer rates are not available because no NDS-Call quotes have come to the system or only few quotes (less than 5 quotes in both sides from different participants), then the previous available Bid/Offer rate would be disseminated to the market as the rates for the day. However, this issue is a theoretical one as normally NDS-Call system receives large number of orders before 10:00:00AM. The Table-2 gives the information of CCIL MIBID/MIBOR from Sep'06. The outliers in the quotes should be identified and the estimation should be done sans outliers.

Empirical of CCIL-MIBID/MIBOR

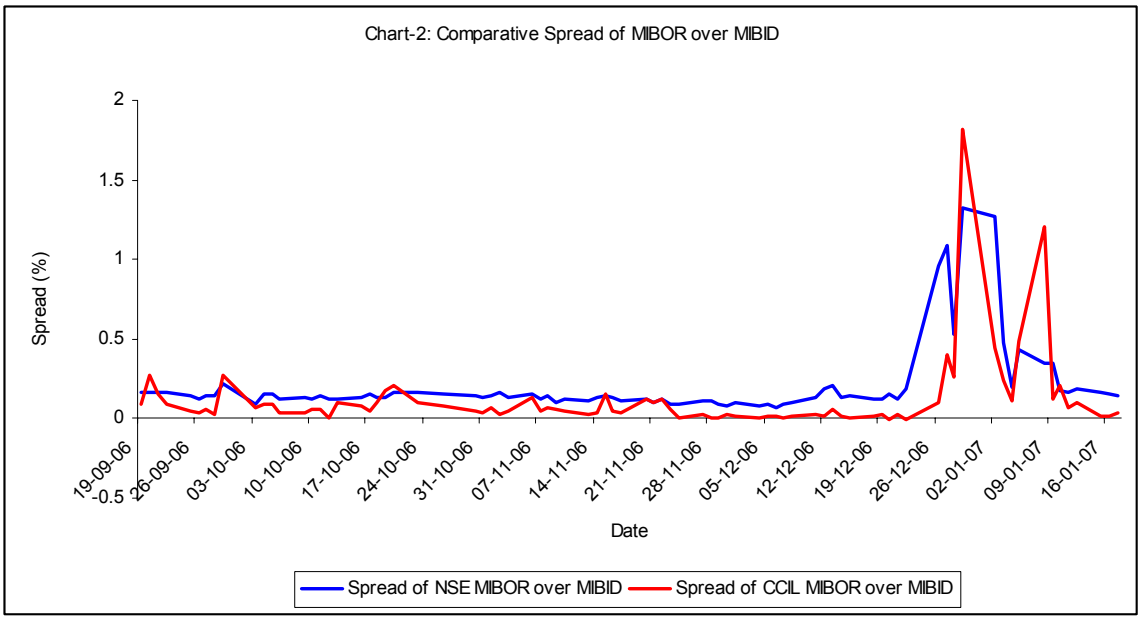
We have extracted the order data of NDS-Call segment from 9.00AM to 10.00AM on daily basis from Sep '06 (19th Sep) to Jan'06 for our analysis. All orders arrived in the system sans outliers and apparent wrong order (for example few orders came for lending at 62.0% (by mistake 6.2% has been keyed in as 62% and later cancelled)) upto the cut-off time are considered for our analysis. The weighted average rates for both bid and offer are estimated alongwith their respective standard deviations. Chart-1 gives the movement of CCIL MIBID and MIBOR during last 26 months. Annexure-1 gives the CCIL-MIBID/MIBOR from its inception till Jan 17, 2007.



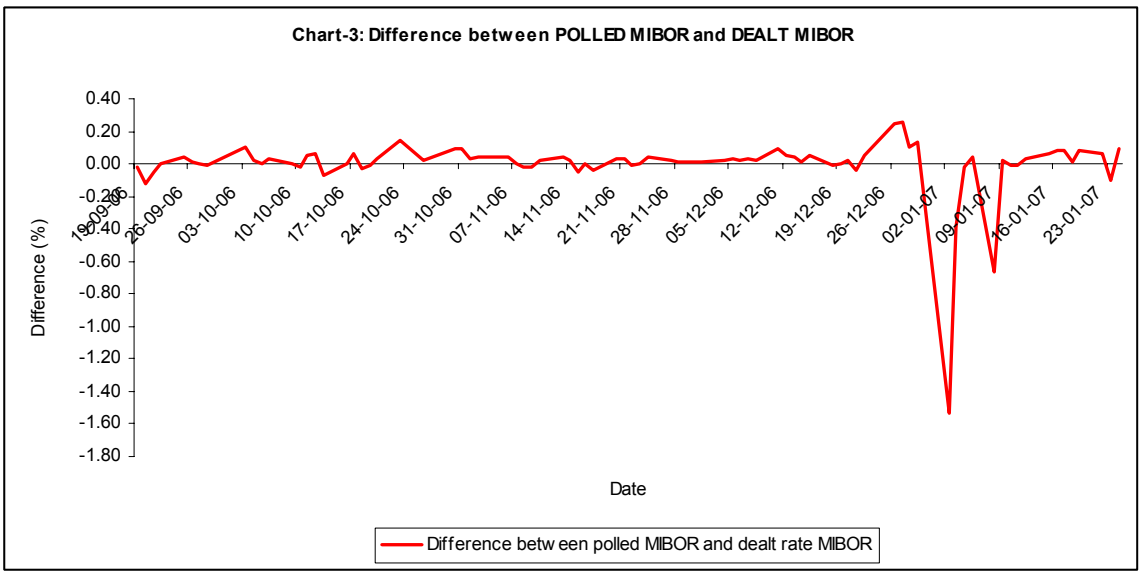
The Table-2 gives the descriptive statistics of the four benchmark reference rates.

Table-2 : Descriptive Statistics of CCIL-MIBID/MIBOR		
Parameters	*CCIL-MIBID*	*CCIL-MIBOR*
Mean	7.32	7.44
Standard Error	0.19	0.21
Median	6.76	6.85
Standard Deviation	1.72	1.89
Sample Variance	2.97	3.56
Kurtosis	11.19	13.39
Skewness	3.16	3.39
Range	9.53	11.34
Minimum	6.12	6.13
Maximum	15.65	17.48
Count	81	81

The polled based reference benchmark rate like NSE-MIBID/MIBOR may not represent the market sentiment as market participants may give a standard spread of MIBOR over MIBID to possibly influence the rates to some extent. The analysis of spread of NSE-MIBOR over MIBID and CCIL MIBOR over MIBID is given in Chart-2. It is evident from the said chart that the actual spreads quoted by the market participants were different from the polled data.



Since the polled rates are not binding on the entities to trade at such rate, there are differences between the polled MIBOR and actual MIBOR derived from the quotes offered by market participants. Chart-3 gives the difference between polled MIBOR and dealt rate MIBOR. It can be seen that out of 85 days, polled MIBOR is higher than the dealt rate MIBOR. In some of the most volatile days, the polled rate much away from the actual market rate as can be seen in the Chart-3 (for Jan 2, 2007).



Conclusion

A benchmark reference rate should be representative of the market activity. NSE MIBID/MIBOR, being polled rates; do not satisfy the need of a benchmark rate as stated by FIMMDA. Since CCIL-MIBID/MIBOR is based on actual call quotes/deals it will be more representative of the market vis-à-vis NSE MIBID/MIBOR. The market participants would like to have a dealt rate rather than a polled rate which can be manipulated to a large extent. The NDS-Call being a commitment oriented and actual market quotes (any quote has a possibility of resulting into a trade) would have added advantage over a system that rolls out benchmark rate on the basis of a poll. A polled rate system has possibility of manipulation and traders may quote a rate but may not be willing to do a deal at that rate. Hence, NDS-Call driven CCIL-MIBID/MIBOR benchmark reference rates may be considered as effective and true benchmark rates for the Indian market.

Annexure-1: CCIL MIBID/MIBOR (Sep'06 - Jan'07)								
Date	BIDS	BID RATE	BID STDEV	OFFERS	OFFER RATE	OFFER STDEV	DEALT RATE	DEALT ORDERS
19-Sep-06	27	6.51	0.20	18	6.60	0.30	6.57	6
20-Sep-06	43	6.51	0.20	50	6.78	0.21	6.60	14
21-Sep-06	33	6.44	0.15	19	6.60	0.13	6.52	9
22-Sep-06	31	6.47	0.09	24	6.56	0.09	6.56	10
25-Sep-06	12	6.42	0.07	14	6.47	0.05	6.45	6
26-Sep-06	17	6.47	0.09	20	6.51	0.03	6.51	13
27-Sep-06	22	6.43	0.07	17	6.49	0.02	6.50	12
28-Sep-06	24	6.49	0.03	18	6.52	0.02	6.51	13
29-Sep-06	6	6.57	0.19	1	6.85	0.00	6.85	1
3-Oct-06	16	6.45	0.11	8	6.52	0.10	6.51	4
4-Oct-06	21	6.44	0.17	13	6.53	0.05	6.51	8
5-Oct-06	10	6.41	0.23	7	6.50	0.00	6.50	6
6-Oct-06	28	6.40	0.09	13	6.43	0.06	6.41	9
9-Oct-06	20	6.43	0.11	16	6.47	0.04	6.47	10
10-Oct-06	37	6.40	0.06	32	6.46	0.05	6.44	17
11-Oct-06	18	6.35	0.19	11	6.41	0.02	6.40	7
12-Oct-06	23	6.42	0.04	18	6.42	0.04	6.41	15
13-Oct-06	30	6.51	0.11	23	6.62	0.09	6.59	15
16-Oct-06	32	6.58	0.10	27	6.66	0.09	6.62	18
17-Oct-06	34	6.73	0.19	26	6.78	0.05	6.77	16
18-Oct-06	36	6.78	0.10	22	6.88	0.06	6.86	15
19-Oct-06	22	6.78	0.25	22	6.96	0.07	6.96	7
20-Oct-06	29	6.90	0.14	19	7.11	0.17	6.91	8
23-Oct-06	18	6.98	0.18	11	7.08	0.17	7.00	5
26-Oct-06	7	7.05	0.09	7	7.13	0.11	7.07	6
30-Oct-06	23	6.76	0.03	11	6.80	0.05	6.77	9
31-Oct-06	30	6.76	0.12	19	6.80	0.05	6.80	15
1-Nov-06	22	6.88	0.09	13	6.95	0.06	6.95	11
2-Nov-06	29	6.96	0.08	33	6.99	0.04	6.99	20
3-Nov-06	29	6.93	0.09	27	6.98	0.05	6.98	18
6-Nov-06	12	6.89	0.08	13	7.03	0.07	6.98	6
7-Nov-06	23	6.96	0.08	25	7.00	0.06	7.02	14
8-Nov-06	24	6.81	0.07	20	6.88	0.05	6.85	14
9-Nov-06	28	6.75	0.07	27	6.80	0.05	6.79	18
10-Nov-06	25	6.68	0.06	21	6.73	0.06	6.71	12
13-Nov-06	31	6.69	0.06	24	6.71	0.05	6.71	19
14-Nov-06	28	6.92	0.07	23	6.95	0.10	6.93	17
15-Nov-06	29	6.98	0.13	26	7.13	0.13	7.05	10
16-Nov-06	28	7.14	0.10	38	7.19	0.03	7.17	8
17-Nov-06	35	7.18	0.03	39	7.22	0.04	7.19	14
20-Nov-06	25	6.98	0.14	28	7.10	0.05	7.09	11
21-Nov-06	18	6.66	0.15	19	6.76	0.15	6.70	10
22-Nov-06	22	6.33	0.12	26	6.45	0.15	6.38	12
23-Nov-06	15	6.17	0.07	31	6.23	0.06	6.19	9

24-Nov-06	19	6.14	0.04	17	6.15	0.05	6.15	13
27-Nov-06	10	6.12	0.04	13	6.14	0.05	6.13	7
28-Nov-06	25	6.15	0.04	31	6.16	0.04	6.17	17
29-Nov-06	31	6.17	0.04	31	6.17	0.03	6.17	20
30-Nov-06	29	6.16	0.04	31	6.19	0.04	6.17	15
1-Dec-06	26	6.18	0.04	33	6.19	0.03	6.18	18
4-Dec-06	23	6.13	0.02	29	6.13	0.02	6.13	20
5-Dec-06	36	6.13	0.03	31	6.14	0.03	6.14	17
6-Dec-06	39	6.13	0.03	42	6.15	0.02	6.14	24
7-Dec-06	27	6.12	0.03	32	6.13	0.03	6.13	24
8-Dec-06	37	6.13	0.03	29	6.15	0.02	6.15	22
11-Dec-06	51	6.27	0.07	31	6.29	0.09	6.27	23
12-Dec-06	19	7.19	0.13	14	7.21	0.14	7.21	12
13-Dec-06	23	7.85	0.12	27	7.91	0.13	7.86	12
14-Dec-06	35	8.08	0.06	43	8.09	0.06	8.08	26
15-Dec-06	31	8.15	0.08	35	8.15	0.09	8.15	25
18-Dec-06	41	8.23	0.09	42	8.25	0.08	8.25	32
19-Dec-06	42	8.19	0.08	43	8.21	0.06	8.21	29
20-Dec-06	31	8.21	0.06	38	8.21	0.05	8.21	25
21-Dec-06	44	8.23	0.07	60	8.25	0.08	8.24	31
22-Dec-06	26	8.33	0.07	24	8.33	0.07	8.33	19
26-Dec-06	35	11.19	0.39	42	11.29	0.42	11.27	22
27-Dec-06	49	11.87	0.65	48	12.28	0.65	12.26	31
28-Dec-06	72	12.55	0.51	81	12.81	0.46	12.76	46
29-Dec-06	54	15.65	1.77	47	17.48	2.44	16.73	22
2-Jan-07	24	14.79	1.17	38	15.24	0.79	15.01	13
3-Jan-07	33	7.87	0.82	48	8.11	0.71	8.11	27
4-Jan-07	47	6.70	0.16	55	6.81	0.16	6.73	30
5-Jan-07	37	7.49	0.29	50	7.98	0.44	7.85	14
8-Jan-07	42	7.91	0.45	36	9.11	0.92	8.24	16
9-Jan-07	75	8.31	0.12	78	8.43	0.24	8.36	35
10-Jan-07	95	8.17	0.34	82	8.38	0.16	8.35	48
11-Jan-07	89	8.18	0.15	85	8.25	0.13	8.24	46
12-Jan-07	102	8.14	0.18	106	8.24	0.10	8.22	46
15-Jan-07	36	8.15	0.06	34	8.16	0.08	8.15	29
16-Jan-07	63	8.10	0.06	60	8.11	0.07	8.12	44
17-Jan-07	51	8.03	0.06	83	8.07	0.05	8.05	32