Technical Report 2016
http://dspace.library.iitb.ac.in/jspui/handle/100/18427

Interest on Deposits - Moving towards Computing Standards

Ashish Das

Department of Mathematics
Indian Institute of Technology Bombay
Mumbai-400076, India

Indian Institute of Technology Bombay
Powai, Mumbai-400 076, India

Interest on Deposits – Moving Towards Computing Standards

Ashish Das[+]

Department of Mathematics, Indian Institute of Technology Bombay, Mumbai 400076

March 14, 2016

Executive Summary

The Reserve Bank of India (RBI) on March 3, 2016 came out with master directions on 'interest rate on deposits'. These directions over rule all the existing instructions on the subject and applies to all deposits accepted by banks based on the rules prescribed hitherto. In the master directions, for savings deposits, RBI has mandated that banks pay interest at quarterly or shorter intervals. Savings Bank (SB) deposits and Term deposits amount to more than Rs 90 lakh crore at present. In the absence of any regulation on interest application frequency to such deposits, till now most of the banks were paying interest on the SB deposits, that accounts for more than a quarter of the total deposit pie, at an interval of six months. Under the prevailing SB interest of 4% per annum, the new regulation would benefit the SB depositors to the tune of Rs 500 crore or more from the next financial year.

Though this is a major step in favour of the depositors, a disparity compared to loans is still left unattended. For loans taken from the banks, the interest is computed at monthly rests. In other words, if a borrower defers payment of interest by two months, the banks charge two months' interest on the delayed interest. Though RBI has deregulated rates of interest on Term deposits, SB deposits and loan accounts, it still regulates the interest application frequency on such products, disharmoniously. The regulator provides no rationale on why interest application frequencies on deposit accounts (quarterly or shorter intervals) are different from those for loan accounts (monthly intervals), both of which are to the benefit of the banks and detrimental to the interest of the borrowers and, even more so, depositors. RBI has a responsibility to bring in standards and transparency in interest application frequency, in the interests of the depositors.

RBI has also left to the banks the method that they may adopt for computing interest. Absence of regulation gives banks the freedom to decide, in a non-transparent fashion, the effective annualised returns on deposits held by them. With this, the depositors are burdened with the problem of shopping among banks for the most attractive

[+] Dr. Ashish Das is a Professor of Statistics with the Indian Institute of Technology Bombay. E-mail: ashish@math.iitb.ac.in

methodology used in their interest application and computation procedures. The depositor is neither capable to make such comparisons nor aware that such matters affect his return. And depositors' ignorance is a big asset for banks. In the annual monetary and credit policy for the year 2002-2003, there was a proposal that banks should provide information on deposit interest rates for various maturities along with the effective annualised yield. However, RBI neither came up with any formal directions to implement the proposal nor explained how absence of accounting standards will help the real stake holders, that is, the depositors.

Unlike some of the global best practices, lack of basic accounting standards in India gives administrative convenience to banks and the regulator and thrusts responsibilities to the depositors to read between the lines. Is it not **too unrealistic for the regulator** to expect (i) the depositors to ask the banks to show their method of computing interest, (ii) the banks to have a comprehensive and easy to understand document for the same, and finally, (iii) the depositors to understand the method and then have the ability to compare banks? It needs to be appreciated that this is too much of expectation from depositors since there are ground level limitations.

While trying to ensure that the depositors' earnings are derived in a transparent and comprehensible manner using prudent accounting/computing standards, through this paper we attempt to reiterate the need to address the skew in the present interest computation setup that is disadvantage to the depositors. Some recommendations are made to address the concerns.

1. Introduction

1. In 2002, banks were mandated by Reserve Bank of India (RBI) to change the interest application frequency from quarterly to monthly for their loans and advances. Due to increase in the interest application frequency, the yield for banks on loans extended by them increased. In contrast, banks were also mandated by RBI to pay interest on Savings Bank (SB) deposits and Term deposits only at 'quarterly or longer intervals' resulting in depositors getting relatively less yield on their deposits. Subsequently, effective November 29, 2013, RBI withdrew prescriptions for interest application frequency on SB and Term deposits, thereby bringing in a marked disparity in the interest application frequency for the loan accounts and the deposit accounts. RBI took this stance despite several reports and articles, including one by former Deputy Governor of RBI, Mrs. Usha Thorat, highlighting these issues and concerns (see references [6], [7], [8], [9], [10], [11] and media reports).

2. RBI through a Master Direction dated March 3, 2016 mandated that banks pay interests on savings deposits at quarterly or shorter intervals (see reference [1]). Though such a step is a big leap, yet it leaves some ground to be covered. The current

asymmetry between the periodicity of interest paid to depositors (at quarterly or shorter intervals) and the interest charged on loan accounts (at monthly intervals) still needs a relook.

3. In this paper, we re-look at three aspects of the interest paid on deposits. Other than the interest application frequency for such deposits, we look at the non-uniformity in the method of computing interest for Term deposits and the need for dissemination of effective annualised yield for depositors.

2. Interest Application Frequency— Depositors Left at Large

4. By about mid 90's, RBI deregulated interest rates for Term deposits and loan accounts. Later, effective October 25, 2011, RBI also deregulated the interest rates on SB deposits. However, RBI always regulated the interest calculation method on SB deposits which, effective April 1, 2010, was set on a daily product basis. On March 3, 2016 RBI came out with master directions on 'interest rate on deposits'. These directions over rule all the existing instructions on the subject and applies to all deposits accepted by banks based on the rules prescribed hitherto. In the master directions, for savings deposits, RBI has mandated that banks pay interest at quarterly or shorter intervals. SB deposits and Term deposits amount to more than Rs 90 lakh crore at present. In the absence of any regulation on interest application frequency to such deposits, till now most of the banks were paying interest on the SB deposits, that accounts for more than a quarter of the total deposit pie, at an interval of six months.

5. The question of RBI's inability, till date, on standardizing the interest application frequency to monthly or shorter intervals is a concern since it affects the depositors towards getting a fair, transparent, and simple means of comparing banks with respect to interest payable. With the technological advancement in core banking solutions, the bank's computing ability and the capacity of the IT system, as such, is well geared to handle much more than this simple switchover to monthly interest payoffs from existing quarterly payoffs of interest. More so, with the 1500 million deposit accounts distributed over 80 banks in India, the exercise can hardly be any challenge for the computing capacity of the banks in India. It is important to understand as to why RBI could not effectively standardize the interest application frequency to monthly intervals across deposits as done for loans and advances?

6. RBI has a responsibility to bring in standards and transparency in interest application frequency, in the interests of the depositors. In view of Section 35A of the BR Act, 1949, one would like to understand RBI's rationale for deferment of its decision, for over a decade, to bring parity across deposit and loan products offered by banks.

Loan Accounts: Interest Charged at Monthly Rests

7. During 2002-03, RBI changed the interest application frequency from quarterly to monthly with respect to interest on loans taken by public from the banks. This switchover of interest application frequency to monthly rests from quarterly or longer rests had become necessary to facilitate adoption of 90 days norm for recognition of loan impairment (see reference [12]). By increasing interest application frequency, the yield on the product increases.

8. In view of interest application frequency being monthly on loan accounts, if a borrower defers payment of interest by two months, the banks charge two months' interest on the delayed interest. To facilitate adoption of a 90 day norm for loan impairment, the banks could have continued to charge interest quarterly and such quarterly computed interest amount could be discounted monthly. The concept of discounting in interest computation allows interest to be paid before the due date after adjusting for the interest on the pre-payment amount. This leads to an effective reduction in the rate of interest, while making early interest payments. For example, if interest is due after every 3 months at 10% per annum rate, and one insists for the equated interest to be paid every month, it can be paid only after adjusting the 10% rate to a 9.9171% rate (see Appendix A for details). In case of loan accounts, the discounting concept is not practiced by banks where one could benefit from interest being calculated for the quarter and paid monthly at a discounted value.

Banks' Banking with RBI: Interest Applied at Monthly Rests

9. During the period 2002-03, RBI also changed the interest application frequency from quarterly to monthly with respect to (i) interests charged on loans/refinance taken by banks; and (ii) interests paid on eligible Cash Reserve Ratio (CRR) balances held by RBI. Since by increasing the interest application frequency, the yield on the product increases, banks gained while receiving interest (at monthly rests) on CRR balances (that has since been discontinued).

10. Reserve Bank extends refinance facility for Export Credit extended by banks. It also provides a standing liquidity facility to Primary Dealers (PDs). RBI's interest application frequency for such liquidity support to banks / PDs is monthly.

11. On the other hand as part of CRR, banks park a certain portion of their Net Demand and Time Liabilities (NDTL) with RBI. The banks earned interest on eligible CRR balances at monthly frequency. After RBI (Amendment) Act, 2006, the clause that enabled RBI to remunerate reserves was removed and effective March 31, 2007, no interest is paid on reserve balances maintained by banks with RBI. However, prior to this change, the interest payment frequency for CRR balances was monthly.

Deposit Accounts: Why Interest is applied at Quarterly or Shorter Intervals?

12. For more than 1250 million SB deposit and 250 million Term deposit accounts held under banks in India, though interest is computed on a per annum basis, RBI has only recently mandated banks to pay such interests to savings depositors at quarterly or shorter intervals. Most of the banks have been paying interest on the SB deposits at an interval of six months. In case of Term deposits, banks are usually paying interest at quarterly intervals. For Term deposits, the concept of discounting is applied in case of monthly deposit schemes where the interest is calculated for the quarter and paid monthly at discounted value. Such a discounting procedure lowers the return (compared to interest being applied monthly) for senior citizens and pensioners who usually opt for monthly payment of interests on their Term deposits and for whom the monthly interest payment are main source of flows for sustenance. As and when banks move to application of interest at monthly intervals, apart from financial gains to the depositors, it would bring parity across bank depositors and borrowers. This will also remove the requirement of discounting when interests are paid every month to depositors.

13. When (i) banks charge interest from its borrowers at monthly rests on loans extended; when (ii) RBI charges interest from the banks at monthly rests for loans given by it; and when (iii) RBI paid interest (a practice since discontinued) at monthly rests on eligible balances of reserves that banks maintained with it, **why** are bank depositors treated differently? In a deregulated interest rate environment, regulating the interest payment to the detriment of the depositors reflects slipshod accounting standards in the banking industry affecting more than 1500 million deposit accounts in terms of biased returns. More importantly, it implicitly requires depositors, who usually concentrate on the rate of interest and rarely on interest application frequency, to compare banks on this artificially created and unnecessary yield factor. It is neither desirable nor feasible for a common depositor to shop for a bank on such aspects to park her/his money which affects the earnings from their savings.

Interest Application Frequency: Bank Practices Differ

14. Most of the banks are currently paying interest at the rate of 4% per annum for the SB deposit accounts. With respect to SB deposit interest application frequency, in Appendix B we list few banks and their policy on the same. It is observed that baring Axis Bank and Yes Bank, all major public, private and foreign banks have been paying interest at half yearly intervals.

15. The application of interest at half yearly intervals has been more of a legacy. It seeded more from the ease and convenience of interest computation at the pre-computer era. Such a scenario no longer exists since the country today has a satisfactory level of computerization in commercial bank. However, it is seen that because of the existing lax regulation, some banks (e.g., HDFC Bank, effective April 2011) have moved from

their earlier quarterly application of interest to half yearly application. Such a move, though beneficial to the banks, is at the cost of their SB depositors. With the new regulation in place, now all banks would pay interest atleast at quarterly intervals.

Impact of Interest Application Frequency

16. Based on a conservative projection (see reference [0]), during 2015-16 a daily average of about Rs 25,00,000 crore was parked in SB deposits. Thus, considering an average rate of interest on SB deposit accounts as 4% per annum, in the forthcoming financial year 2016-17, the SB depositors would be paid an additional Rs 500 crore or more since interest would be paid at quarterly intervals (if not shorter) instead of half yearly intervals (which has been the general norm among banks in India). For SB deposit interest rate of 4% per annum, the increase in the effective yield rate would be 2.04 basis points when banks move from half yearly to quarterly interest payoffs.

17. However, the depositors would still be deprived of their rightful returns on deposit accounts since interest periodicity that would be adopted by the banks is expected to be quarterly rather than monthly. For more details see reference [6].

Reserve Requirements and Interest Application Frequency

18. In terms of Section 42 (1) of RBI Act, 1934 and Section 24 (2) (B) of BR Act, 1949, RBI, having regard to the needs of securing the monetary stability in the country, prescribes the CRR and Statutory Liquidity Ratio (SLR), respectively, for Scheduled Commercial Banks (SCBs). At present the CRR is prescribed at 4% of a bank's NDTL that banks have to keep as balances with the central bank. Similarly for SLR, presently prescribed at 21.5% of NDTL, every SCB has to maintain eligible assets in India (see reference [3] for more details). **NDTL includes interest accrued on deposits** (See Para 1.7 of reference [3]). NDTL is computed every fortnight, and thus banks are expected to have systems in place to arrive at this figure fortnightly.

19. In order to safeguard the banking system against potential defaults, RBI ensured that interest is paid monthly in case of loan accounts for timely identification of non-performing assets and in this process also allowed the banks to apply the interest monthly. Similarly, to safeguard the banking system, liabilities of banks (including interest accrued) are to be identified on a fortnightly basis and reserves be maintained on them. While SB deposit interest is accounted for fortnightly, they are not credited to deposit account monthly. Had RBI mandated ‘monthly or shorter intervals’ instead of ‘quarterly or shorter intervals’ for payment of interest for SB deposits and Term deposits, it would have brought parity between customers (depositors and borrowers of banks). RBI’s insensitivity on such an issue is detrimental to the interests of the depositors.

International Practice on Interest Application Frequency

20. Majority of the banks in USA, Canada, UK, France, Germany, Australia and New Zealand, follow the principle of monthly or shorter intervals for paying interest to the deposit accounts. The same holds for China, Hong Kong, Taiwan, Japan and Bahrain. In Appendix C we provide the bank details on interest application frequency for some of these countries.

21. In USA, the **Truth in Savings Act** was implemented through the Federal Reserve's Regulation DD, effective June 1993 (see reference [14]). It establishes uniformity in the disclosure of terms and conditions regarding interest and fees when giving out information on or opening a new deposit account. The provisions of the regulation include a requirement that depository institutions disclose an Annual Percentage Yield (APY) for interest-bearing deposit accounts. An APY provides a uniform basis for comparison by indicating, in percentage terms on the basis of one year, how much interest a consumer receives on a deposit account. On passing this law, the US Congress noted that it would help promote economic stability, competition between depository institutions, and allow the consumer to make informed decisions.

22. Throughout RBI's regulated and deregulated regime of SB deposit and Term deposit interest rates there had been some lack of standards on interest application frequency leading to APY for such accounts being different for different banks. There is no good reason for introducing such flexibility in interest computation standards which, apart from being much involved (beyond the capacity of an ordinary depositor), keeps sufficient scope for non-transparency and inconvenience of artificially created comparison requirements.

3. Non Transparent Method of Computing Interest– Need for APY

23. RBI has left to the banks the method that they may adopt for computing interests on domestic deposits when interest rates are declared on a per annum basis. However, for FCNR(B) deposits RBI has mandated that interest shall be calculated on the basis of 360 days to a year. Thus, on one hand, RBI finds it prudent to remain silent on the manner of calculation of interest for domestic Term deposit accounts and on the other, advocates a method when it comes to calculation of interest on foreign currency deposits held in India. This means that banks are not only free to adopt any methodology for calculation of interest, but are also free (through omission of the same in the recent master direction) to remain non-transparent to their depositors about the manner of calculation of interest while accepting domestic deposits. Unlike good international practices where there is a requirement that depository institutions disclose an APY for interest-bearing deposit accounts, in India it is prohibited to issue any advertisement / literature soliciting deposits from public highlighting only the

compounded yield on Term deposits without indicating the actual rate of simple interest offered by bank for the particular period. Thus, it appears that the RBI requires that banks invariably indicate the simple rate of interest per annum for the period of deposit. However, additional information on compounded yield may be indicated but this is not mandatory for banks to declare.

24. Thus we need to address the possible requirement of a uniform method for interest computation involving in domestic Term deposits just like there is one for the FCNR(B) or SB deposits. The only criteria for comparing banks for deposit accounts should be the nominal interest rate. In its absence (due to non-uniformity in the method of computing interest), there has to be atleast some degree of transparency through dissemination of effective annualised yield for depositors.

25. Given the freedom to bankers in the current setup, RBI facilitates a ***'non transparent'*** deregulated interest policy in terms of net return on funds parked under deposit accounts. **In order to enhance transparency, Monetary and Credit Policy 2002-03 proposed dissemination of effective annualised yield on deposits offered by various banks. However, this is neither being followed by banks nor has RBI ensured the implementation of the same.** And such is the status despite an international environment where several countries have recognized its importance and set up regulations for implementing such customer protection policies. Are we not ready for the same?

26. As per RBI, the Indian Banks' Association (IBA) Code for Banking Practice is issued by IBA for uniform adoption by the member banks. The Code is intended to promote good banking practices by setting out minimum standards which member banks will follow in their dealings with customers. IBA, for the purpose of calculation of interest on domestic Term deposit, have prescribed that on deposits repayable in less than three months or where the terminal quarter is incomplete, interest should be paid proportionately for the actual number of days reckoning the year at 365 days.

27. Though RBI acknowledges that some of the banks are adopting the model of reckoning the year at 366 days / 365 days in Leap year and in other years respectively, RBI has advocated that banks are free to adopt their methodology. It is worthwhile to mention here that under the Truth in Savings Act (Regulation), if February 29 is present in the term of the deposit a daily rate of 1/366 or 1/365 of the interest rate for 366 days in a leap year may be applied. Thus, for the deposits held in the US banks, a daily rate of 1/366 of the interest rate for 366 days in a leap year may be applied only if the deposit will earn interest for February 29.

28. The Truth in Savings Act is to assist consumers in comparing deposit accounts (through banks' discloser of APY) offered by depository institutions and to minimize some of the confusions depositors face. While in USA federal laws make it easier to

comparison shop for deposit accounts, a variety of methods continue to be used in India to calculate the amount of interest earned by a depositor. To make an informed decision, it may be useful to understand the relationships between different methods prevailing in Indian banks. For more details see reference [11].

29. Unlike clear and detailed definition of APY (as per Federal Reserve) and Annual Equivalent Rate (AER) (as per British Bankers' Association), there is no clear guidelines of the yields in the Indian bank scenario. RBI needs to introduce a standard definition of yield to be adopted universally by all banks in India. The declaration of such a standardized yield figure by all banks would lead to more transparent figures of actual interest rates.

4. Closing Remarks and Recommendations

30. The RBI on March 3, 2016 came out with master directions on 'interest rate on deposits'. These directions over rule all the existing instructions on the subject and applies to all deposits accepted by banks based on the rules prescribed hitherto. In the master directions, for savings deposits, RBI has mandated that banks pay interest at quarterly or shorter intervals. In contrast, for loan accounts banks are required to levy interest at monthly intervals. In other words, if a borrower defers payment of interest by two months, the banks charge two months' interest on the delayed interest.

31. RBI has also left to the banks the method that they may adopt for computing interest. The regulation thus gives banks the freedom to decide, in a non-transparent fashion, the net returns on deposits held by them, and burdens the depositors with the problem of shopping among various banks for the most attractive methodology used in their interest application and computation procedures. The depositor is neither capable to make such comparisons nor aware that such matters affect his return. And depositors' ignorance is a big asset for banks.

32. The study recommends that:

- In order to bring parity across all customers of banks (depositors and borrowers), for deposit accounts RBI should **make interest application frequency at "monthly or shorter intervals" for SB deposits and Term deposits**.
- **RBI should put in place basic / broad standards in the method of computing interests for domestic deposit accounts.** In its absence, the burden falls on the depositors to shop around on such fundamental aspects even given a transparent environment. The only criteria for comparing banks for deposit accounts should be the nominal interest rate.
- **RBI should introduce a system of dissemination of APY for all deposit accounts.** With a well-defined APY, it would bring in comparability standards for

better understanding of the true returns of deposit products offered by financial institutions.

33. As and when banks move to application of interest at monthly intervals, apart from financial gains to the depositors, it would bring parity across bank depositors and borrowers. This will also remove the requirement of discounting when interests are paid every month to depositors.

34. With the current state of satisfactory computerisation of the banks, the past difficulties on matters related to computations no longer exist. To break the ice and come out of the mind-set, one has to primarily understand the benefits of moving from 'lack of standards' to 'existence of standards' to the advantage of the depositors, the exchequer and the banks alike. This has been amply demonstrated in reference [6].

35. Unlike some of the global best practices, lack of basic accounting standards in India gives administrative convenience to banks and the regulator and thrusts responsibilities to the depositors to read between the lines. Is it not **too unrealistic for the regulator** to expect (i) the depositors to ask the banks to show their method of computing interest, (ii) the banks to have a comprehensive and easy to understand document for the same, and finally, (iii) the depositors to understand the method and then have the ability to compare banks? It needs to be appreciated that this is too much of expectation from depositors since there are ground level limitations.

36. To conclude, in RBI's capacity as the guardian of public interest and regulator of financial systems, it may be justified to see the central bank come out with definite standards for interest bearing deposit accounts which constitute the bulk of public savings. It might be worthwhile to take-up a more comprehensive study- but that would require an active involvement of the Reserve Bank of India and other institutions concerned.

References *(Chronological from latest)*

[0] Basic Statistical Returns of Scheduled Commercial Banks in India - Volume 44, March 2015, March 10, 1016.
https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Basic%20Statistical%20Returns

[1] Master Direction - Reserve Bank of India (Interest Rate on Deposits) Directions, 2016. RBI/DBR/2015-16/19 Master Direction DBR. Dir. No.84/13.03.00/2015-16 dated March 3, 2016.
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/19MD136AF73A742648C4B28FDEADCBA16D23.PDF

[2] Master Circular on Interest Rates on Rupee Deposits held in Domestic, Ordinary Non-Resident (NRO) and Non-Resident (External) (NRE) Accounts. RBI/2015-16/39 DBR.No.Dir.BC.7/13.03.00/2015-16 dated July 1, 2015.
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/39IR94EF8A849FDD4FC49062CEFCBC906330.PDF

[3] Master Circular - Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR). RBI/2015-16/98 DBR.No.Ret.BC.24/12.01.001/2015-16 dated July 1, 2015.
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/98MNDADA89616D1B44C1B8106ED375AE0E57.PDF

[4] Master Circular on Interest Rates on Rupee Deposits held in Domestic, Ordinary Non-Resident (NRO) and Non-Resident (External) (NRE) Accounts. RBI/2014-15/63 DBOD.No.Dir.BC.15/13.03.00/2014-15 dated July 1, 2014.
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/63MC01072014FD.pdf

[5] Periodicity of Payment of Interest on Rupee Savings/Term Deposits. RBI/2013-14/385
DBOD.No.Dir.BC. 69/13.03.00/2013-14 dated November 29, 2013.
https://rbidocs.rbi.org.in/rdocs/notification/PDFs/DBRF291113S.PDF

[6] Das, A. (2013). 'Interest' of Bank Depositors in Chaos. IIT Bombay Technical Report.
http://www.math.iitb.ac.in/~ashish/workshop/Interest_July2_2013.pdf

[7] Thorat, Usha, Udeshi, Kishori J. and Tarapore, S.S. (2011). Deregulation of Savings Banks' Deposit Interest Rates. Published by Forum of Free Enterprise.
http://www.forumindia.org/booklet/Deregulation%20of%20Savings%20Banks%27%20Deposit%20Interest%20Rates%20-%20Usha%20Thorat,%20Kishori%20Udeshi,%20S.%20S.%20Tarapore.pdf

[8] Das, A. (2011a). A Rational Savings Bank Deposit Interest Rate in India. IIT Bombay Technical Report.
http://www.math.iitb.ac.in/~ashish/workshop/On_SB_Deposit.pdf

[9] Das, A. (2011b). Savings Bank Accounts- Interest Rate Deregulation. IIT Bombay Technical Report.
http://www.math.iitb.ac.in/~ashish/workshop/TechReport_SBratederegulation.pdf

[10] Das, A. (2007). Savings Bank Accounts- 'interest'ing Issues.
http://www.math.iitb.ac.in/~ashish/workshop/SBrate.pdf

[11] Das, A. and Das, P. (2002). Rate of Interest on Term Deposits– A Micro Level Study. ISI Delhi Technical Report.
http://www.math.iitb.ac.in/~ashish/paper.htm

[12] Charging of Interest at Monthly Rests: Consolidated Instructions. DBOD No. Dir. BC. 8/13.03.00/2002-03 dated July 26, 2002.
http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=792&Mode=0

[13] Annual Monetary and Credit Policy for the year 2002-2003, Reserve Bank of India, April 29, 2002.

[14] The Truth in Savings Act, 1991 (Regulation DD) Title 12, Chapter II, Part 230, Code of Federal Regulations, The Federal Reserve System Board. USA.
http://www.gpo.gov/fdsys/pkg/FR-2011-12-21/pdf/2011-31727.pdf

Media Articles (Last accessed on March 12, 2016)

The Free Press Journal: Monetary policy and inflation control. November 4, 2013.
http://www.freepressjournal.in/monetary-policy-and-inflation-control

The Times of India: Quarterly interest means depositors lose Rs 2,500 crore every year. July 5, 2013.
http://timesofindia.indiatimes.com/business/india-business/Quarterly-interest-means-depositors-lose-Rs-2500-crore-every-year/articleshow/20919434.cms?gclid=CjwKEAiAmY-3BRDh7pjvg46p1iYSJADQ78gNeXA3Ycv6brOdgiaLrY9l5HPCtvOUYMrUYN4dZ5C8IhoCZFrw_wcB

The Hindu Business Line: RBI may ask banks to pay savings bank interest at quarterly or shorter rests. May 25, 2011.
http://www.thehindubusinessline.com/money-and-banking/rbi-may-ask-banks-to-pay-savings-bank-interest-at-quarterly-or-shorter-rests/article2048674.ece

Appendix A

Discounting of Interest while Paying Monthly but Applied Quarterly

For paying the equated Monthly interest, one needs to find the unknown equated Monthly interest by equating the Quarterly interest to the sum of 3 months' Monthly interest (in additional to the interest on the Monthly interest). Let P be the principal amount and r the per annum rate of interest. Furthermore, let the unknown equated Monthly interest be *x*. Then,

Quarterly interest $= P(r/400)$

3 months' equated Monthly interest plus "interest on interest" $= x\{(1+r/1200)^2 + (1+r/1200) + 1\}$

Therefore,

Equated Monthly interest $= x = P(r/400)/ \{(1+r/1200)^2 + (1+r/1200) + 1\}$

Illustration:

Principal (P)	1000
RoI (% p.a.) (r)	12
Interest Application Frequency	3 months

Interest paid at the end of 3 months = Q =	**P*r/400 =**	30	**effective Annual RoI = 400*Q/P =**	**12**
Equated Interest Amount when paid every month = *x* =	**P(r/400)/{(1+r/1200)^2+(1+r/1200)+1} =**	9.9007	**effective Annual RoI = 400*A/P =**	**11.8808**
Sum of 3 months' monthly Interest = A =	**3*x =**	29.7020		

Appendix B

Savings Deposit Interest Application Frequency		
Bank Name	**Bank Type**	**Interest Application Frequency (month)**
State Bank of India	Public	6
Indian Bank	Public	6
Andhra Bank	Public	6
Canara Bank	Public	6
Indian Overseas bank	Public	6
United Bank of India	Public	6
Allahabad Bank	Public	6
Bank of Baroda	Public	6
Bank of India	Public	6
Bank of Maharashtra	Public	6
Central Bank of India	Public	6
Corporation Bank	Public	6
Punjab National Bank	Public	6
Syndicate Bank	Public	6
UCO Bank	Public	6
Union Bank of India	Public	6
HDFC Bank	Private	6
ICICI Bank	Private	6
Axis Bank	Private	3
Yes Bank	Private	3
South Indian Bank	Private	6
Indusind Bank	Private	6
IDBI Bank	Private	6
Kotak Mahindra Bank	Private	6
Citi Bank	Foregin	6
HSBC	Foregin	6
Standard Chatered Bank	Foregin	6

Appendix C

Banks Worldwide and Interest Application Frequency

Country	Bank	Account type	Interest calculated	Payment frequency	Link
USA	Bank of america	ragular saving	daily	monthly	https://www.bankofamerica.com/deposits/savings/regular-savings-account.go
USA	Chase	Chase plus saving	monthly	monthly	https://www.chase.com/index.jsp?pg_name=ccpmapp/individuals/savings/page/chase-plus-savings-rates
USA	wellsfargo	saving	daily	monthly	https://www.wellsfargo.com/savings_cds/way2save
USA	centralpacific	saving	daily	monthly	https://www.centralpacificbank.com/Personal/Products/Savings.aspx
USA	NBT Bankcorp	saving	daily	quarterly/monthly	http://www.nbtbank.com/home/personal-banking/savings/Savings-Accounts/personal-savings.html
USA	Americafirst	saving		monthly	https://www.americafirst.com/rates/savings-rates.cfm?rateGroup=1
Canada	BMO bank of monetral	saving		daily	http://www.bmo.com/home/personal/banking/bank-accounts/premium-rate-savings
Canada	CIBC	saving	daily	monthly	https://www.cibc.com/ca/chequing-savings/premium-growth-acct.html
Canada	Desjardins	saving		monthly	http://www.desjardins.com/en/particuliers/produits_services/comptes-services-relies/comptes/epargne-stable.j
UK	HSBC	saving		monthly	http://www.hsbc.co.uk/1/2/savings-accounts/regular-savings-accounts
UK	halifax	saving		monthly	http://www.halifax.co.uk/savings/accounts/regular-saver/
UK	Natwest	saving	monthly	monthly	http://www.natwest.com/personal/savings.ashx
Australia	Bank of Melbourne	saving		monthly	http://www.bankofmelbourne.com.au/personal/bank-accounts/savings-accounts/incentive-saver
Australia	HSBC	saving	monthly	monthly	http://www.hsbc.com.au/1/2/personal/savings/high-interest
Australia	BOQ	saving	daily	monthly	http://www.boq.com.au/personal_everyday_bonus.htm
FRANCE	Credit mutual	saving		fortnight	https://www.creditmutuel.fr/cmcee/en/bank/personal/savings-investments/index.html
FRANCE	many banks in france	saving		fortnight	http://www.french-property.com/guides/france/finance-taxation/banking/savings/regulated-savings-accounts/
GERMANY	ABN amro	saving		monthly/depends	https://www.abnamro.nl/en/personal/savings/spaarrente.html
GERMANY	Allied Irish Bank	saving		monthly/depends	http://www.aib.ie/personal/savings/aib-saver-account
CHINA	bank of china	saving		monthly/depends	http://www.boc.cn/en/pbservice/pb1/200806/t20080626_1323990.html
CHINA	bank of comm	saving		weekly	http://www.bankcomm.com/BankCommSite/en/detail.jsp?id=121418880210008type=CMS.STD&category=ROOT?
New Zealand	HSBC	saving	daily	monthly	http://www.hsbc.co.nz/1/2/personal/savings-and-transactional-accounts/savings-cheque-account
HONGKONG	hang seng	saving		monthly	http://bank.hangseng.com/1/2/rates/interest-rates
Bahrain	HSBC	saving	daily	monthly	http://www.us.hsbc.com/1/2/home/personal-banking
Saudi Arabia	riyad bank	saving	daily	depends	http://www.riyadbank.com/English/PersonalBanking/SavingsAccount.html