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**A Comparative Analysis of Interest Rate
Spread in the Banking System**

**Dr. Md Ezazul Islam
Md. Habibour Rahman**

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**Chief Economist's Unit (CEU)
Bangladesh Bank
Head Office, Dhaka, Bangladesh**

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Dr. Md Ezazul Islam (DGM), Mr. Md. Habibour Rahman (JD)*

Introduction

Financial sector spread measures the effectiveness of the bank's intermediation function in borrowing and lending money and also the intensity of competition among banks (Rose, 2002). Bangladesh Bank is keen on minimizing intermediation cost because the lower spread indicates an efficient and a competitive financial system.

In a liberal interest rate regime, banks are allowed to set deposit and lending rates except for pre-shipment export credit and agriculture loans¹. BB monitors interest rate spread and the Statistics Department of BB calculates the spread as difference between weighted average lending and deposits rate (WAIS). However, this methodology is sometimes called into question which prompted us to carry out a study comparing various potential methods. Also BB on various occasions has asked banks to limit spreads below 5%. This is also controversial since some banks have large pool of low cost deposits which they mobilized by investing huge amounts on technology, infrastructure and service and brand reputation. As such there is one view among bankers is that the ability to retain market share while keeping higher spreads in their banks is due to the overall service package which they provide, and hence should not be capped.

Apart from the above mentioned WAIS method, there are different methods of spread measurement. These are: (1) interest income and expense method: difference between yield on interest earnings assets and yield on interest bearing liabilities; (2) business spread method: percentage change of total yields on interest + non interest earning to

* The authors are Deputy General Manger and Joint Director of the Chief Economist Unit, Bangladesh Bank. The views expressed in the paper are authors own and do not reflect that of Bangladesh Bank. Authors are grateful to Dr. Hassan Zaman, Chief Economist, Bangladesh Bank and Dr. Akhtaruzzaman, Economic Adviser, Bangladesh Bank for their comments and suggestions.

¹ See BRPD Circular No.-02, January 4, 2012.

total asset and total interest expense to total liabilities; and (3) net interest margin to net assets of banks.

The objectives of the present study are: (i) to calculate interest rate spread by taking all above methods for last five years of types of banks, and (ii) to compare the spreads of different methods for policy purpose.

The spread in the banking system depends on many factors, i.e., overall efficiency in financial markets, market regulation (CRR, supervision, and, credit allocation etc.), market segmentation and the extent of competition. The major factors for high spread in the financial system of Bangladesh are discussed in different studies summarized below.

Mujeri and Younus (2009) find that deposit rate, market share of deposits of a bank, NSD certificate interest rates, and statutory reserve requirements impact positively on spread while non interest income as a ratio of total asset impacts negatively on spread. They also find that that IRS is significantly influenced by operating costs and classified loans for state owned commercial banks (SCBs) and specialized banks (SBs); while inflation, operating costs, market share of deposits, statutory reserve requirements, and taxes are important for the private commercial banks (PCBs). On the other hand, non-interest income, inflation, market share, and taxes matter for the foreign commercial banks (FCBs).

Hossain, M.(2010) identifies that high administrative costs, high non-performing loan ratio and some macroeconomic factors are the key determinants of persistently high spread and margins in private banks.

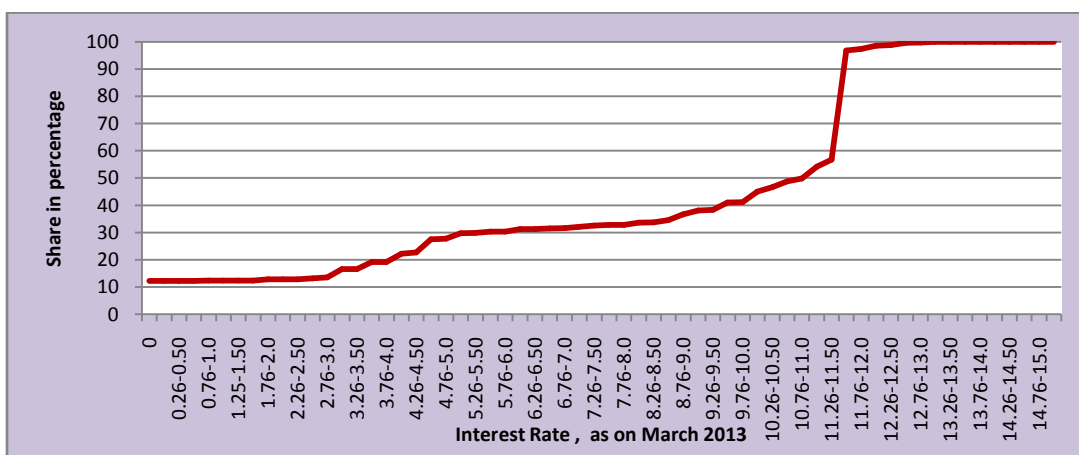
Economic literature on finance indicates that the simplest loan pricing model (cost-plus loan pricing model) assumes that the rate of interest charged on any loan includes four components: i) the cost to the bank of raising adequate funds to lend; ii) the bank's non-fund operating cost (including wages and salaries, the cost of material and physical facilities); iii) necessary compensation paid to the bank for the degree of default risk

inherent in a loan, and iv) the desired profit margin on each loan that provides the bank's stock holders with an adequate return on their capital.

The analysis of market share of financial intermediation in the banking system shows that PCBs and FCBs appear as a market leader over SOBs and SBs to intermediate financial sources (both deposit and advances). The share of PCBs and FCBs deposit in total deposit was 32.0 percent in 1990 which increased to 38.2 percent in 2000 and sharply increased to 69.0 percent at the end of March 2013. The share of advances to total advances rose for PCBs and FCBs to 72.12 percent at the end of March 2013 from 35.4 percent in 1990. Hence to a certain extent, the pricing of loan and deposit depends on price setting by PCBs and FCBs. So the higher lending rate and lower deposit rate offered by some PCBs and FCBs lead to high spread in the banking system of Bangladesh.

Data plot from March 2013 against interest rate show that about 57 percent share of deposit in total deposit is collected at 12.16 percent interest rate and only 7 percent share of deposit is interest free (Chart 1).

Chart 1: Deposit distribution against interest rate by PCBs

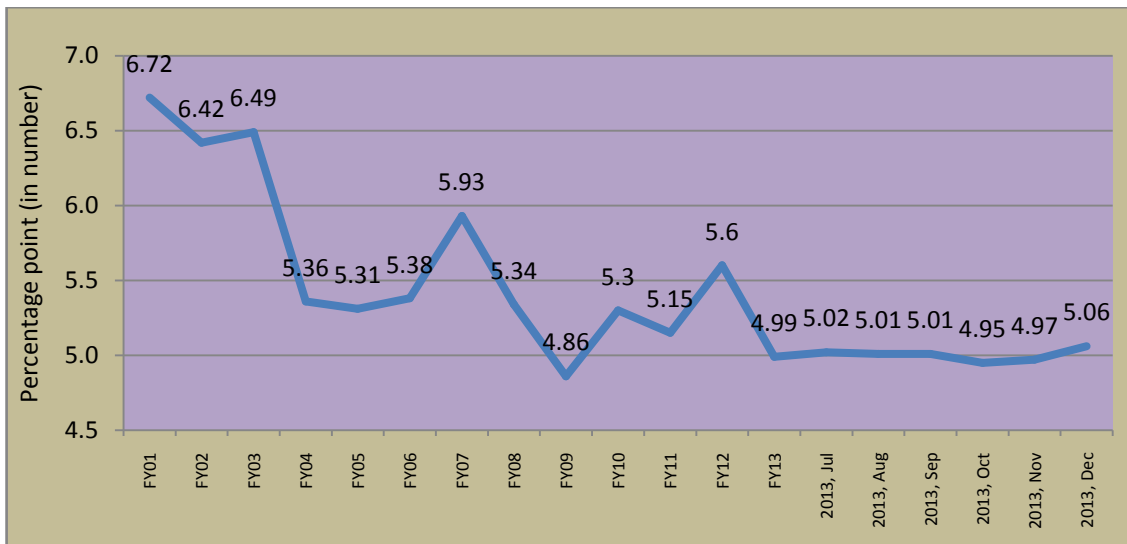


Source: Authors own calculation based on data available in Scheduled Bank Statistics, March 2013.

Trend in Spread in the Banking System Based on WAIS Method

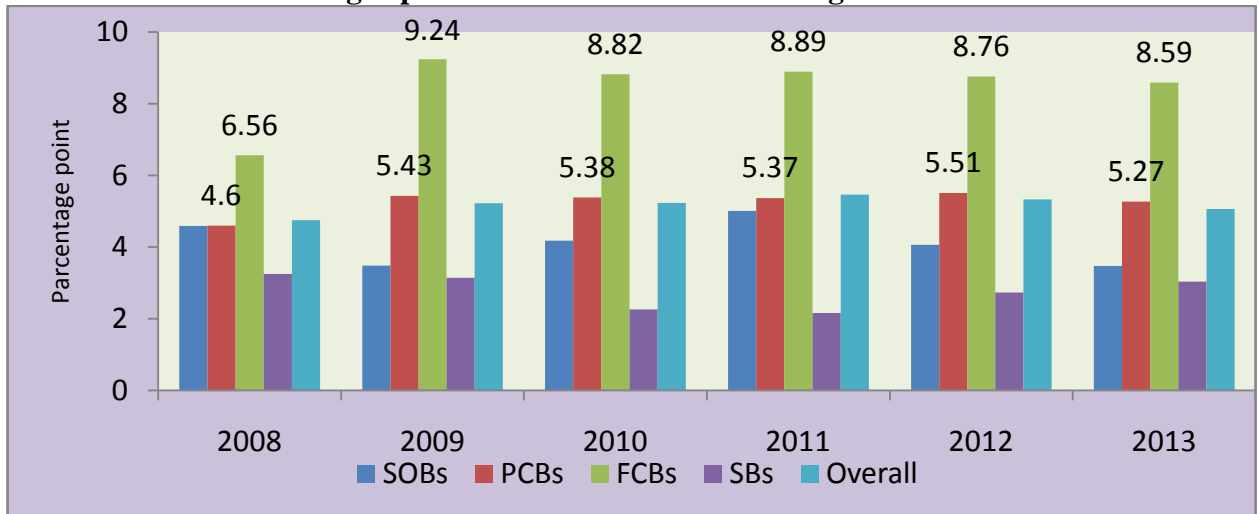
Historical data using the WAIS method indicates that the annual average spread in the banking system was more than 5 percentage point since FY 01 up except in FY09. The spread was 6.72 percentage points in FY01 which gradually came down to 4.86 percentage point in FY09 and again it increased to 5.60 percentage points in FY12. The last few months show that spreads are generally declining (Chart 2). FCBs have the highest spreads (Chart 3).

Chart 2: Trend in overall spread in the banking system of Bangladesh



Source: Statistics Department, Bangladesh Bank.

Chart 3: Trend in high spread in PCBs and FCBs during 2008-June 2013.

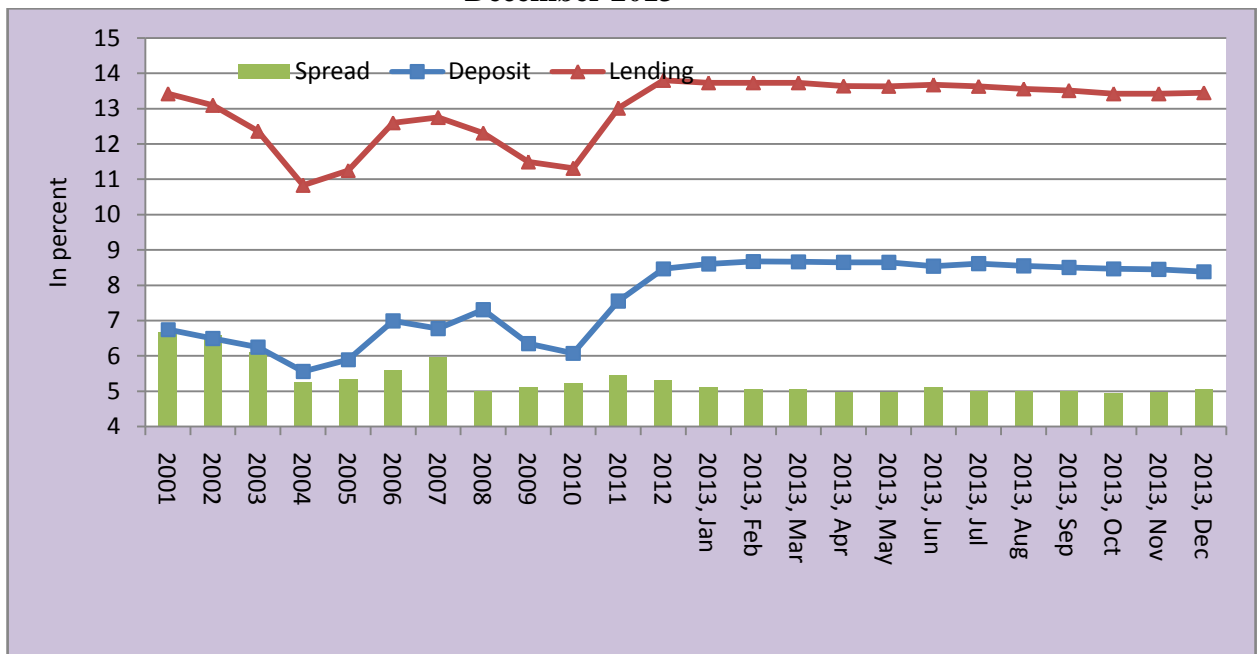


Source: Statistics Department, Bangladesh Bank.

Overall Trend in Deposit and Lending Rates

Chart 4 plots overall deposit and lending rates in the banking industry which indicate an increasing trend since 2011.

Chart 4: Trend in Overall Deposit and Lending Rates of Industry during 2001-December 2013

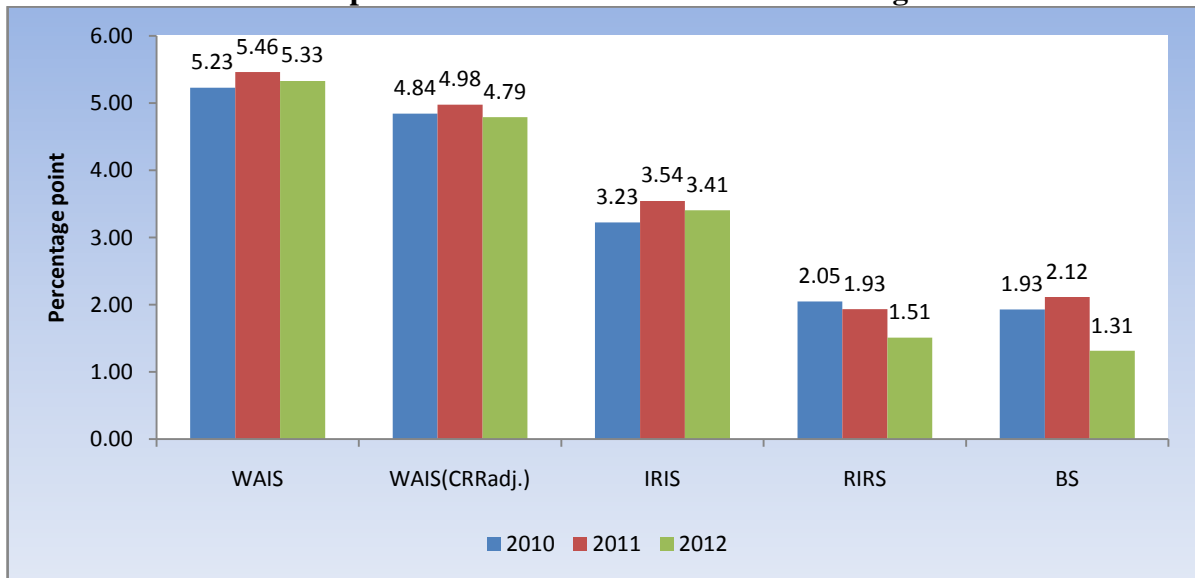


Source: Authors' own calculation, based on data available in Statistics Department

Comparative Analysis of Spread Based on Different Methods

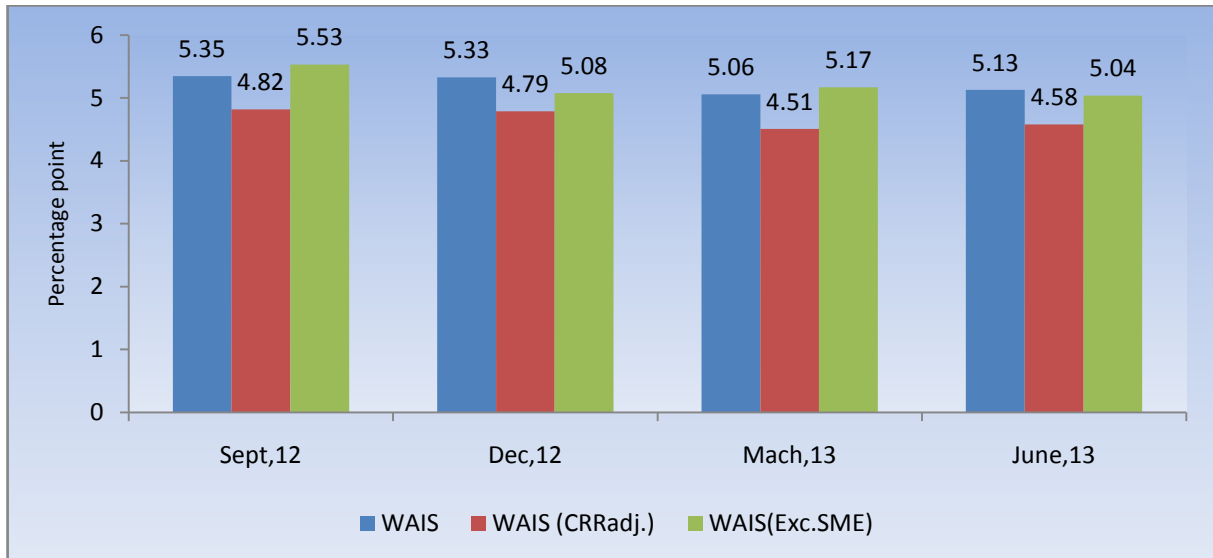
Interest rate spreads based on different methods, i.e., Weighted Average Interest Rate Spread (WAIS), Interest Income and Expenses Method (IRS), Revised Interest Income and Expenses Method (RIRS), Total Income and Expenses Method (BS) are given in Chart 5-6 and Table 3-4. In addition two variations of WAIS are given, one which excludes the bank’s SME portfolio as these have higher administrative costs and therefore disadvantage those with higher share of these, as well as WAIS without the Cash Reserve Requirement portion. The calculation methodology are given in Annexure I. Data indicate that spread on the basis of WAIS is higher than that of others methods during 2010-2012 (Chart 5 and Table 4).

Chart 5: Trend in spread based on different methods during 2010-2012



Source: Department of Off-site Supervision and Statistics Department, BB.

Chart 6: Trend in spread based on WAIS, CRR adjusted WAIS and Excluding SME WAIS during September, 2012-June 2013.



Source: Department of Off-site Supervision and Statistics Department, BB.

Table 1: Interest rate spread in different methods Period: December'2010

	WAIS	WAIS (CRRadj.)	WAIS (exc.SME)	IRIS	RIRS	BS
December 2010						
SoB's	4.18	3.86	n.a	2.86	1.93	2.20
PCB's	5.38	4.95	n.a	3.59	2.72	3.64
FCB's	8.82	8.63	n.a	2.88	1.15	1.49
SB's	2.26	1.81	n.a	3.57	2.39	0.38
December 2011						
SoB's	5.01	4.63	n.a	2.41	2.04	2.42
PCB's	5.37	4.82	n.a	3.15	2.24	2.33
FCB's	8.89	8.60	n.a	6.19	1.32	1.59
SB's	2.16	1.66	n.a	2.43	2.13	2.13
December 2012						
SoB's	4.06	3.60	3.78	1.41	1.01	1.98
PCB's	5.51	4.92	5.37	3.64	2.27	1.90
FCB's	8.76	8.40	8.14	6.71	1.55	1.38
SB's	2.73	2.11	2.14	1.86	1.22	0.00

Source: Department of Off-site Supervision and Statistics Department, BB.

Table 2: Trend in Overall Interest Rate Spread in Different methods during 2010-2012

	2010	2011	2012
WAIS	5.23	5.46	5.33
WAIS(CRRadj.)	4.84	4.98	4.79
WAIS(Exc.SME)	n.a	n.a	5.08
IRIS	3.23	3.54	3.41
RIRS	2.05	1.93	1.51
BS	1.93	2.12	1.31

Source: Department of Off-site Supervision and Statistics Department, BB.

Conclusion

Calculation of interest rate spreads based on different method, i.e., three types of Weighted Average Interest Rate Spread (WAIS), Interest Income and Expenses Method (IRS), Revised Interest Income and Expenses Method (RIRS), Total Income and Expenses Method (BS) was conducted.

Our analysis suggests that WAIS method excluding SME is the best method for monitoring interest rate spreads on a monthly basis. This is because the spread formula measures intermediation costs, data can be found monthly, and excluding SME's leads to better comparisons of intrinsic bank efficiency. IRS, RIRS and BS are not the best measure for spread because they can only be calculated quarterly and indicate different components of bank business performance rather than efficiency of intermediation. However, BB can publish IRS, RIRS and BS statistics along with WAIS for greater data transparency.

Many countries use the banking spread indicator for monitoring efficiency of overall sector but not as a regulatory tool compelling banks to reduce spreads below a certain threshold. Further study is required to assess the merits of having a target spread level as a regulatory tool compared with having it only for monitoring purposes.

References

Mujeri, Mustafa, K. and Younus, Sayera (2009). An Analysis of Interest Rate Spread in the Banking Sector in Bangladesh. *The Bangladesh Development Studies*, Vol. XXXII, No.4, December 2009, Dhaka.

Hossain, Monzur (2010). Financial Reform and Persistently High Bank interest spread in Bangladesh: Pitfalls in institutional Development? MPRA PAPER No.24755, Posted 4, September 2010, 01:57 UTC.

BB: Bangladesh Bank, Scheduled Bank Statistics, March 2013.

BB: Bangladesh Bank, Major Economic Indicator (various issues).

BB: Bangladesh Bank, Banking Regulation and Policy Department, Circular Letter No.1, January 22, 2012.

Different Methods of Spread

A. Weighted Average Interest Rate (WAIS) Method:

Spread based on weighted average method is defined as the difference of weighted average lending and deposit rates. Weighted average interest rate for deposit and lending are calculated on the basis of the following formula.

$$WAIS = \frac{\sum (Amount \times Rate)}{\sum Amount}$$

Spread = WAIRA - WAIRD

B. Interest Income and Expenses Method (IRS):

To determine the Interest Rate Spread (IRS) on the basis of total yield on Income and expenses method, the detailed methodology is as below:

Interest income from Advances = I_a

Interest income from Investment = I_i

Interest income from Money at Call = I_m

Total interest income (T_1) = $I_a + I_i + I_m$(i)

Total Advances = t_a

Total Investment = t_i

Total Money at Call = t_m

Total Earning Asset (T_a) = $t_a + t_i + t_m$(ii)

Percentage yield on earning Asset (P_i) = $(T_1 / T_a) \times 100$(iii)

Interest expenses for Deposits = I_d

Interest expenses for Borrowings = I_b

Total interest expenses (T_2) = $I_d + I_b$ (iv)

Total Deposits = t_d

Total Borrowings = t_b

Total interest bearing Liabilities (T_l) = t_d+t_b (v)

Percentage cost of Interest bearing liabilities (P_c) = $(T_2/T_l) \times 100$(vi)

Interest rate spread (IRS) = $P_i - P_c$(vii)

C. Revised Interest Income And Expenses Method (RIRS):

To determine the Revised Interest Rate Spread (IRS) on the basis of total yield on Income and expenses method, the detailed methodology is as below:

Interest income from Advances = T_1

Total Advances excluding actual provision = T_a

Percentage yield on earning Asset (P_i) = $(T_1/T_a) \times 100$

Interest expenses for Deposits = T_2

Total Deposits excluding DMB* = T_l

*DMB: Deposits of deposit Money Bank

Percentage cost of Interest bearing liability (P_c) = $(T_2/T_l) \times 100$

Interest rate spread (IRS) = $P_i - P_c$

D. Total Income and Expenses Method (BS):

Percentage Yields on Earning = $\frac{\text{Total Income}}{\text{Total Assets}} \times 100$

Percentage Cost of liability = $\frac{\text{Total Cost}}{\text{Total Liabilities}} \times 100$

Business Spread = Percentage Yields on Earning - Percentage Cost of Liability.

Annexure Table II: Comparison WAIS with Excluding SME WAIS for Individual Bank

Name of Bank	Spread (WAIS)		Spread (Excluding SME)		Difference	
	Mar'13	June'13	Mar'13	June'13	Mar'13	June'13
	1	2	3	4	5=3-1	6=4-2
SOBs	3.55	3.34	3.61	3.4	-0.06	-0.06
AGRANI BANK LIMITED	4.13	3.69	4.03	3.83	0.1	-0.14
JANATA BANK LIMITED	3.43	3.51	3.37	3.68	0.06	-0.17
RUPALI BANK LIMITED	5.09	4.54	5.07	4.32	0.02	0.22
SONALI BANK LIMITED	2.89	2.59	3.07	2.64	-0.18	-0.05
SBs	2.47	1.63	0.96	0.09	1.51	1.54
BANGLADESH KRISHI BANK	1.84	0.33	1.78	0.31	0.06	0.02
RAJSHAHI KRISHI UNNAYAN BANK	0.97	1.32	0.7	1.15	0.27	0.17
BASIC BANK LTD.	4.57	4.63	4.75	4.68	-0.18	-0.05
BANGLADESH DEVELOPMENT BANK LTD.	-0.1	-1.25	-0.43	-1.55	0.33	0.3
FCBs	8.55	8.71	7.89	7.79	0.66	0.92
STANDARD CHARTERED BANK	9.78	10.32	8.52	8.53	1.26	1.79
STATE BANK OF INDIA	5.09	6.26	4.98	6.18	0.11	0.08
HABIB BANK LTD.	5.41	2.32	5.34	2.48	0.07	-0.16
CITI BANK NA	8.35	9.83	8.36	9.84	-0.01	-0.01
COMMERCIAL BANK OF CEYLON LTD	6.3	6.88	6.27	6.87	0.03	0.01
NATIONAL BANK OF PAKISTAN	1.93	1.43	2.86	2.17	-0.93	-0.74
WOORI BANK	10.16	8.95	9.7	8.25	0.46	0.7
HSBC	8.43	8.03	8.23	7.78	0.2	0.25
BANK AL-FALAH LTD.	4.93	4.48	4.82	4.44	0.11	0.04
PCBs	5.65	5.68	5.74	5.68	-0.09	0
AB BANK LTD.	5.37	5.19	5.43	5.19	-0.06	0
ISLAMI BANK BANGLADESH LTD.	3.97	3.77	5.54	5.19	-1.57	-1.42
NATIONAL BANK LTD.	7.33	6.35	7.33	6.35	0	0
THE CITY BANK LTD.	6.94	6.53	6.51	5.76	0.43	0.77
IFIC	6.36	6.95	5.97	6.45	0.39	0.5
UNITED COMMERCIAL BANK LTD.	7.24	7.29	6.8	6.91	0.44	0.38
PUBALI BANK LTD	5.84	6.87	5.89	6.96	-0.05	-0.09
UTTARA BANK LTD.	6.15	6.02	4.69	4.61	1.46	1.41
EASTERN BANK LTD.	5.53	5.26	4.39	4.06	1.14	1.2
NCCBL	4.95	5.03	4.8	5.35	0.15	-0.32
PRIME BANK LTD.	6.25	6.22	6.18	6.03	0.07	0.19
SOUTHEAST BANK LTD.	4.83	4.86	4.59	4.7	0.24	0.16
DHAKA BANK LTD.	5.72	5.6	5.71	5.6	0.01	0
AL-ARAFAH ISLAMI BANK LTD.	4.36	4.56	3.91	4.17	0.45	0.39
SOCIAL ISLAMI BANK LTD.	5.92	5.15	5.7	4.82	0.22	0.33
DUTCH-BANGLA BANK LTD.	8.45	8.76	8.22	8.43	0.23	0.33
MERCANTILE BANK LTD.	3.58	4.58	3.4	4.47	0.18	0.11
STANDARD BANK LTD.	5.79	5.75	5.75	5.63	0.04	0.12
ONE BANK LTD.	5.66	5.71	5.53	5.69	0.13	0.02
EXIM BANK LTD.	5.33	5.41	4.8	5.34	0.53	0.07
BANGLADESH COMMERCE BANK LTD.	3.6	5.14	3.61	5.11	-0.01	0.03
MUTUAL TRUST BANK LTD.	6.25	5.9	6.13	5.95	0.12	-0.05
PREMIER BANK LTD.	5.86	5.03	5.67	4.81	0.19	0.22
FIRST SECURITY ISLAMI BANK LTD.	4.8	5.72	5.15	6.17	-0.35	-0.45
BANK ASIA LTD.	6.34	5.9	6.16	5.78	0.18	0.12
TRUST BANK LTD.	4.05	4.82	3.98	4.78	0.07	0.04
SHAHJALAL ISLAMI BANK LTD.	4.88	4.98	4.66	4.7	0.22	0.28
JAMUNA BANK LTD.	6.06	6.11	5.71	5.76	0.35	0.35
BRAC BANK LTD.	9.35	9.43	7.33	6.86	2.02	2.57
ICB ISLAMIC BANK	3.09	2.42	2.97	2.13	0.12	0.29
NRB COMMERCIAL BANK LTD.		4.13		4.15		-0.02
SOUTH BANGLA AGRICULTURE AND COMMERCE BANK LTD.		5.98		5.98		
MEGHNA BANK LTD.		0.31		2.75		-2.44
UNION BANK LTD.		2.42		2.23		0.19
THE FARMERS BANK LTD.						
Grand Total	5.26	5.18	5.17	5.04	0.09	0.14

Source: Statistics Department, Bangladesh Bank.