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An Analysis of Interest Rate Spread in the Banking Sector in Bangladesh

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This paper uses a bank profit maximisation model based on empirical industrial organisation approach to explain the interest rate spread (IRS) in the banking sector of Bangladesh using panel data of 48 banks covering the period of 2004 to 2008. The analysis shows that the higher the non-interest income as a ratio of total assets of a bank, the lower its spread. Similarly, market share of deposits of a bank, statutory reserve requirements, and NSD certificate interest rates affect the IRS. The analysis in terms of bank groups shows that IRS is significantly influenced by operating costs and classified loans for state owned commercial banks (SCBs) and specialised 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). The analysis brings out several systemic actions and measures at the bank level to improve earnings and profitability of the banks which are sustainable tools of reducing the IRS.

I. INTRODUCTION

The difference between lending and deposit interest rates, known as the interest rate spread (IRS), is an important determinant of the efficacy of the financial system in a country. There are, however, alternative ways of measuring IRS in the

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literature, such as the difference between interest income received and interest paid by a bank as a ratio of total assets or difference between the ratio of interest received and all interest bearing assets and the ratio of interest paid and all interest earning liabilities. A high IRS acts as an impediment to the expansion of financial intermediation necessary for growth and development of an economy. It is often argued that the higher the IRS, the higher would be the cost of credit to the borrowers for any given deposit rate. Alternatively, a high IRS could mean unusually low deposit rates discouraging savings and limiting resources available to finance bank credit.[1] In a country like Bangladesh, a high IRS raises the cost of credit restricting the access of potential borrowers to credit markets thus reducing investments and limiting growth potential of the economy. Moreover, problems become more acute for small businesses, household enterprises and rural industries which are vital to promoting equitable growth and reducing poverty in low income countries.

From the perspective of the banks, IRS shows the additional cost of borrowing that the banks take on to perform intermediation activities between borrowers and fund lenders. The IRS is also a premium for the risk that the banks undertake; it compensates for loan defaults and for risk related to cost of funding. As such, IRS as a measure of bank efficiency and determinant of intermediation cost and profitability of the banks has drawn increasing attention of researchers and policymakers in recent years in Bangladesh.

It has been observed that the financial systems in developing countries exhibit larger IRS than those in developed countries (Hanson and Rocha 1986, Morris *et al.* 1990, Fry 1995, Randall 1998, Barajas, Steiner and Salazar 2000, Saunders and Schumacher 2000).

[1]As mentioned above, there are many alternative ways of measuring IRS. For instance, the banks may compute spread as the difference between their cost of funds and loan rates. In this respect, cost includes the need to set aside required reserves that earn no interest, hold excess reserves, and low yielding reserves for SLR. In measuring IRS, all alternative approaches are valid since the cost of "inferior" assets on lending rates should appear somewhere. It is important, however, to avoid confusion regarding which spread is being considered. A related concept is the net interest margin (NIM) defined as the difference between interest expenses and interest income per unit of total bank assets. The NIM is treated as an important indicator of intermediation efficiency and the expectation is that NIM would decline as the banking industry matures and competition strengthens.

Researchers have attributed the existence of high IRS in developing countries to several factors, such as high operating costs, financial repression, lack of competition and market power of a few large dominant banks enabling them to manipulate industry variables including lending and deposit rates, high inflation rates, high risk premiums in formal credit markets due to widely prevailing perception relating to high risk for most borrowers, and similar other factors (see, Agu 1992, Aryeetey, Hettige, Nissanke and Steel 1997, Barajas *et al.* 1999, Brock and Rojas-Suarez 2000, Smirlock 1985, Mujeri and Islam 2008).

Since independence in 1971, IRS has remained high in Bangladesh relative to both world and regional standards. The policymakers and private businesses in particular have repeatedly expressed their concern over the persistence of high IRS in the banking sector. The concern emerges from the apprehension that high IRS acts against stimulating private investment and hence economic growth in the country and is a reflection of inefficiencies in the banking system. It has been argued that high cost of borrowed fund has been filtering out economically viable projects and reducing their expected returns with consequent adverse impact on private investment. On the other hand, low deposit rates are discouraging savings mobilisation.

Despite the removal of restrictions and reforms in the banking sector to facilitate the adoption of a market oriented interest rate policy, interest rates are yet to become fully responsive to the market. The Bangladesh Bank as the regulatory authority of the country's banking and financial system has been urging the banks to reduce the IRS in a rational manner. Despite these efforts, the IRS has remained high in the banking sector of the country.

There exist only a few studies on IRS in Bangladesh, especially on identifying the factors behind the existence of high IRS in the country's banking sector (see, Ahmed and Islam 2006, Mujeri and Islam 2008). Moreover, no credible statistical analysis has been undertaken to identify the factors that influence IRS in Bangladesh. In the present paper, we have used available empirical industrial organisation approach in explaining IRS in the banking sector of Bangladesh.[2]

[2] The approach was initially designed to examine competitiveness in the banking sector. Among others, Shaffer (1989, 1993) applied it to the USA and Canada. Later on, the methodology was adapted to study IRS in several countries. See, Barajas *et al*. (1999), Chirwa and Mlachila (2004).

The reduced form equation estimated on the basis of a bank profit maximisation model seeks to provide explanation on the existence of high IRS in the banking sector of Bangladesh.

The paper is organised as follows. After the brief introduction of this section, Section II provides an overview of IRS and related banking sector indicators, especially since the introduction of banking sector reforms in the 1990s. Section III identifies some factors that might be important in determining IRS in Bangladesh. The methodology and the estimating model including the empirical results are given in Section IV. Finally, Section V provides the conclusion and policy implications.

II. BANKING SECTOR AND IRS IN BANGLADESH: AN OVERVIEW

For sustaining high economic growth, an important prerequisite for policy is to ensure the required flow of saving into productive investments that depends on the development of appropriate financial institutions capable of generating adequate quantity and quality of investment resources. In this context, an efficient financial system has two important roles: first, transfer capital from savers to investors; and second, direct loanable funds to productive and profitable investments, and enhance growth by pooling risks and facilitating transactions.

Bangladesh's financial system is dominated by banks where the banking sector accounts for around 96 per cent of total assets of the financial sector. At present, there are 48 banks comprising four state owned commercial banks (SCBs), five specialised banks (SBs), 30 private commercial banks (PCBs), and nine foreign commercial banks (FCBs) operating in the country (Table I). After independence, all commercial banks (except the foreign owned banks) were nationalised and the government imposed controls over deposit rates in order to keep the lending rates low. Afterwards, six private commercial banks were allowed to operate in 1983 and the number of private banks has now risen to 30.

For most of the period after independence, Bangladesh inherited a repressed financial system in which the banks and other financial institutions were used as cheap sources of credit for export processing and import substituting industrialisation. During the period, measures like control over interest rates, selective credit allocations, rules and regulations suppressing the development of money and capital markets, and maintenance of overvalued domestic currency contributed to financial repression, inefficiencies in investment, and non-repayment of loans by the borrowers (Rahman 2007).

TABLE I
SOME INDICATORS OF BANGLADESH'S BANKING SYSTEM

Indicators	1975	1980	1985	1990	1995	2000	2005	2008
Number of banks:	12	14	21	24	31	49	49	48
Nationalised banks	6	6	4	4	4	4	4	4
Specialised banks	2	2	2	3	5	5	5	5
Private banks	..	..	8	10	13	27	30	30
Foreign banks	4	6	7	7	9	13	10	9
Number of bank branches:	1,611	3,820	4,943	5,539	5,813	6,065	6,412	6,886
Nationalised banks	1,442	3,375	3,346	3,545	3,611	3,616	3,393	3,386
Specialised banks	155	426	944	1,145	1,164	1,185	1,340	1,362
Private banks	...	...	632	827	1,016	1,231	1,638	2,082
Foreign banks	14	19	21	22	22	33	41	56
Financial deepening (% of GDP):								
Narrow money (Ml)	6.4	8.7	8.8	6.3	8.6	8.4	9.6	10.9
Broad money (M2)	10.0	16.4	21.9	22.2	27.7	31.5	40.9	45.6
Monetary assets (M3)	10.3	16.6	22.0	22.5	28.5	31.9	42.1	46.5
Interest rate (%):								
Deposits	3.5	4.3	8.1	9.1	4.86	7.21	5.62	6.95
Advances	11.3	11.0	14.5	14.8	12.22	13.86	10.93	12.29
Bank Rate	8.00	10.50	11.25	9.75	6.00	7.00	5.00	5.00
Inflation rate (average)(%)	67.2	18.5	10.9	3.9	8.87	2.79	6.48	9.94

Source: *Annual Reports,* Bangladesh Bank and *Economic Trends,* Bangladesh Bank.

Interest Rate Reforms

Bangladesh began to implement financial sector reform measures in the 1980s and the interest rates were partially deregulated in November 1989 to introduce flexibility in determining deposit and lending rates. As a part of the process, Bangladesh Bank started to set the ceilings and the floors and individual banks were allowed to set their interest rates within the stipulated band.[3] In April 1992,

[3]Further flexibility was introduced in June 1992 when the banks were allowed to differentiate interest rates to individual borrowers to include any risk premium of lending to priority sectors (agriculture, small and cottage industries, and exports). Besides, the rate structure was simplified by reducing the number of lending categories from 29 to 12.

the interest rate bands for lending were removed for all sectors except agriculture, small industries, and exports while, for deposits, the ceilings were removed but the floors were retained. In this context, it is important to recognise that although deregulation of interest rates is often considered a major element of financial sector reforms, market determined interest rates are necessary but not sufficient for developing an efficient financial system. The structural characteristics of the financial market are also important that, for example, play key roles in reducing moral hazard and adverse selection problems. Moreover, the issue of leaving the determination of interest rates solely to the market in an underdeveloped financial system as in Bangladesh is subject to controversy. In this respect, a consensus seems to be emerging that interest rates in an underdeveloped financial system should not be left fully to market forces due to high chances of market failures resulting from information asymmetries, moral hazards, and high transaction costs, especially for monitoring and transferring information. In an underdeveloped financial market, a gradual approach to interest rate deregulation is suggested in order to avoid instability.

Movements in Deposit and Lending Rates

Since the implementation of reforms, interest rates in Bangladesh's financial sector have largely been freed relative to the administered interest rate regime of the preceding period under which the level as well as the structure of interest rates were controlled in order to limit the cost of financial intermediation and ensure a reasonable structure of lending and deposit rates. Moreover, with upward adjustments in nominal interest rates and reduction in the inflation rate, the real deposit and lending rates have become positive in recent years. The movements in lending and deposit interest rates (in nominal and real terms) since the 1980s are shown in Figures 1 and 2. In general, nominal interest rates were fixed at relatively low levels in the 1970s (the nominal deposit rate varied between 3.51 per cent in 1975 and 4.27 per cent in 1979, while the nominal lending rate was 11.28 per cent in 1975 and 11.12 per cent in 1979) and the interest rates maintained a slowly rising trend throughout the 1980s.

With liberalisation in the banking sector policies, interest rates started to decline in 1992 which continued till 1996. Afterwards, another trough in interest rates can be noticed in 2004.[4] For real interest rates, significant fluctuations can

[4]It may be mentioned that the structure of lending rate became highly complex, especially during the 1980s, due to introduction of more exceptions and special lending categories giving rise to proliferation of rates and varied degree of subsidisation across

be noticed with real deposit rate becoming negative for a number of years in the 1980s and remaining very low in recent years. Having no clear guidelines to set the nominal interest rate structure prior to the 1990s, the complexity and rigidity of the administered lending and deposit rates significantly undermined domestic savings mobilisation and efficient credit allocations in the economy. In the case of IRS, the policy thrust was to keep it low in order to ensure low cost of credit, although IRS remained high in practice.[5]

With liberalisation toward a market oriented interest rate policy under the Financial Sector Reform Program (FSRP) in the 1990s, the banks were allowed to set lending and deposit interest rates within bands set by the Bangladesh Bank; later on, the bands were removed allowing the banks to set interest rates along the lines of market conditions. Finally, other restrictions were removed in 1999 enabling the banks to enjoy greater flexibility in setting interest rates.[6] Despite these developments, IRS remained high with no perceptible change relative to earlier years.

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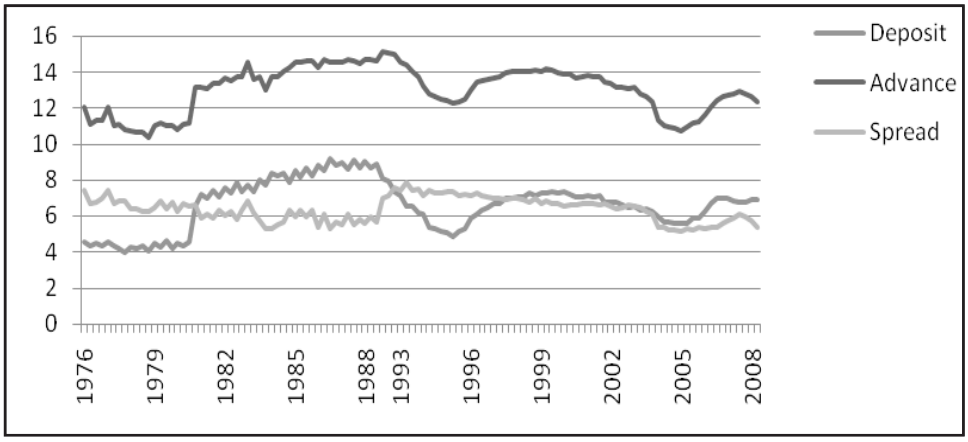
sectors. As a result, the interest rate and credit structure became distorted. Moreover, real deposit rate remained negative, particularly for most of the period of the 1980s, due to high rate of inflation.

[5]According to Wahba and Mohieldin (1998), the desired IRS can be calculated using the formula : (LR-DR) = $\{^{k}/(1-k)\}$ DR, where LR is the lending rate, DR is the deposit rate, and k is the required reserve ratio. Using the methodology, the desired IRS comes to an average of 1.03 for the 1970s, 1.92 for the 1980s, 1.76 for the 1990s, and 1.53 over the period 2000-2007. As against this, the actual IRS was 7.03, 6.13, 6.95, and 6.06 respectively during the four periods. This shows that the difference between the actual IRS and the desired IRS has somewhat narrowed down in recent years (an average of 4.53 during 2000-2007 relative to 5.19 in the 1990s). It should, however, be mentioned that the above concept of desired IRS considers the required reserve ratio only and does not take into account other factors that the banks consider in setting the deposit and lending rates and hence the IRS in the real world.

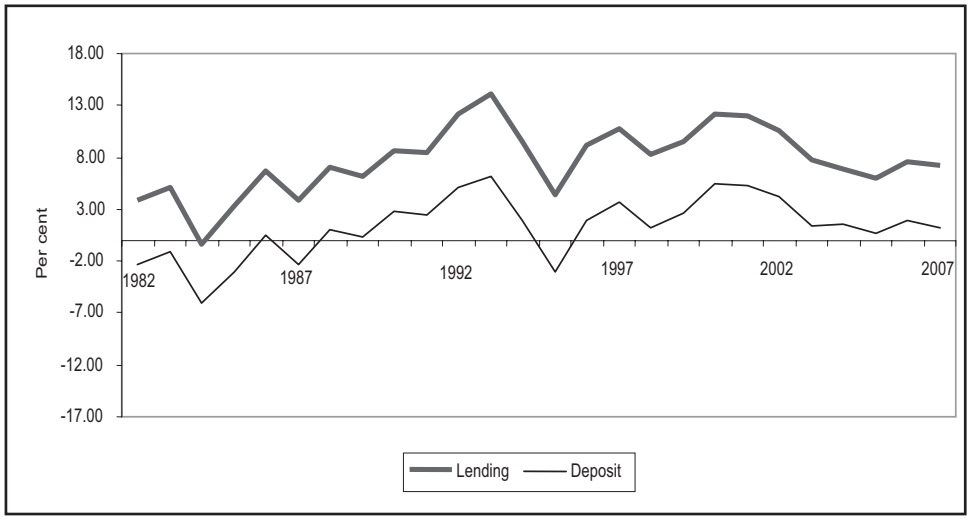
[6]For details, see Financial Sector Review, 1(1), May 2006, Bangladesh Bank. It should, however, be emphasised that despite the removal of all formal restrictions, lending and deposit rates are still not fully responsive to market conditions due to the practice of directed lending to specific sectors (e.g. state owned enterprises especially in energy and civil aviation sectors) mediated through the state owned commercial banks and the specialised banks as well as the existence of other imperfections in the banking sector.

Figure 1 : Trends in Nominal Deposit and Lending Rates and IRS



Source: Statistics Department, Bangladesh Bank.

Figure 2: Trend in Real Deposit and Lending Rates



Source: Scheduled Banks Statistics and Bangladesh Bank Quarterly, various issues, Bangladesh Bank.

Changes in IRS

In recent years, IRS has showed a somewhat declining trend (Table II). The spread between weighted average lending and deposit rates of all banks declined

by 1.91 percentage points between June 2001 and March 2009, while the average deposit rate increased by 0.49 percentage points and the lending rate declined by 1.42 percentage points over the same period. The IRS, however, differs across different bank groups. The IRS was the highest for FCBs at 9.48 in March 2009, followed by 4.58 for PCBs, 3.63 for SCBs, and the lowest of 2.99 for SBs. Moreover, one can notice differing trends in movement of IRS across bank groups over the years. While the IRS of SBs has generally followed a declining trend, IRS for other groups shows mixed trends along with significant year to year fluctuations and a rising tendency for FCBs.[7]

TABLE II
RECENT MOVEMENTS IN IRS IN BANGLADESH

Period	Weighted average of all banks			IRS by bank groups			
	Deposit rate	Lending rate	IRS	SCBs	SBs	PCBs	FCBs
Jun 2001	7.03	13.75	.6 72	5.98	4.86	8.96	7.88
Jun 2002	6.74	13.16	6.42	5.74	5.11	7.23	7.83
Jun 2003	6.30	12.78	6.48	6.14	6.01	6.63	7.62
Jun 2004	5.65	11.01	5.36	4.88	3.64	5.58	7.22
Jun 2005	5.62	10.93	5.31	5.14	3.58	4.85	8.33
Jun 2006	6.68	12.06	5.38	5.37	3.64	5.05	8.52
Jun 2007	6.85	12.77	5.92	6.04	2.94	5.05	8.76
Dec 2007	6.73	12.77	6.04	5.95	2.95	5.70	8.83
Jun 2008	6.95	12.29	5.34	4.48	3.19	5.09	8.91
Dec 2008	7.31	12.31	5.00	3.96	3.12	4.70	9.33
Mar 2009	7.52	12.33	4.81	3.63	2.99	4.58	9.48

Source: Statistics Department, Bangladesh Bank.

[7]Overall, it appears that the FCBs gained the most from high IRS that resulted from low deposit rates, high lending rates, and their better quality of loan portfolio. On the other hand, SCBs and SBs incurred larger losses or earned lower profits. For details, see Table V.

How does the IRS in Bangladesh compare with IRS in other countries? Such comparison is difficult to make since consistent data on IRS are not available across different countries. The data given in Table III show that the IRS was highest in Pakistan in June 2009, followed by IRS in Bangladesh, Sri Lanka and India. The movements of IRS since 2003 show relatively wide fluctuations in Pakistan and a steady rising trend in Sri Lanka till 2006 after which it declined. In India, IRS declined till 2008 after which it slightly increased. In the case of Bangladesh, a rising trend can be seen between 2004 and 2007, followed by a decline in 2008 and a rise in 2009.

TABLE III
TRENDS IN IRS OF SELECTED SOUTH ASIAN COUNTRIES

Year	Pakistan	India	Sri Lanka	Bangladesh
2003	6.63	6.09	3.68	6.11
2004	5.46	5.17	4.86	5.27
2005	6.83	4.50	5.93	5.38
2006	6.43	4.75	7.14	5.61
2007	5.14	4.25	6.69	5.98
2008	5.39	3.75-2.50	6.32	4.36
2009 (June)	6.74	4.50-4.00	5.08	5.50

Source: Publications of respective central banks.
Note: IRS of Bangladesh for 2009 refers to end May 2009.

III. SOME FACTORS AFFECTING IRS IN BANGLADESH

Conceptually, the IRS reflects the cost of intermediation activities including operating costs and liquidity risks that the banks bear in linking the savers and investors. In addition, banks in Bangladesh incur several other costs which are relatively high, such as cost of non-performing loans (NPLs), administrative and incidental costs including expenses that the banks incur in setting up new branches and attracting and retaining skilled personnel, advertising, and other expenditures that the banks undertake to increase market share and business.[8] Such conditions are not uncommon in low income countries with underdeveloped financial markets where IRS remains high due to many factors, including high

[8]Some of these costs are unusually high in Bangladesh including the cost of NPLs. Similarly, incentive packages given to bank executives are high caused by the short supply of and strong competition for skilled personnel among the banks. Also, there exist

operating costs of banks, absence of competition in the banking system, high inflation and corporate tax rates, and other characteristics of the financial system.

In Bangladesh, the financial system has been undergoing rapid transition where institutions and instruments are being developed and strengthened. However, the financial market is still segmented which, along with other limitations, undermines the economy's allocative efficiency and productivity. These characteristics of the country's financial system have impact on the banks in setting deposit and lending rates and consequently the IRS. A liberalised, well-regulated, and competitive environment in the financial sector is critical to realising a developed and matured financial market with diversified products which can ensure a rational level of IRS.

For identifying the factors that contribute to the persistence of high IRS, it is important to focus on variables which influence the decisions of the banks regarding the levels at which the deposit and lending rates would be set.[9] In practice, such factors could cover elements which are both internal and external to the banking sector. It is likely that the IRS in Bangladesh is indicative of interactions of three sets of factors: (i) high costs of intermediation as a consequence of large non performing loan (NPL);[10] (ii) practice of setting higher than competitive deposit interest rates, resulting in high lending rates and

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strong tendencies among the banks (especially PCBs) to spend lavishly in setting and decorating new bank branches to attract customers. It is also argued that the cost of non-interest bearing assets like cash reserve requirement (CRR) and the cost of under-remunerated assets such as statutory liquidity ratio (SLR) contribute to high IRS in Bangladesh. While this may be partly true, such ratios are higher in India than in Bangladesh but IRS, as shown in Table III, has remained consistently lower in India than in Bangladesh.

[9]The IRS did not change much since the 1980s. The average value of IRS was 6.13 in the 1980s, 6.95 in the 1990s, and 6.06 during the period 2000-2007.

[10]This argument applies more to SCBs and SBs and not to all PCBs or FCBs. The past interventionist policies did not affect all banks in a similar manner. It affected the first and second generation banks which entered the market prior to the 1990s. This includes SCBs, SBs, and some PCBs which accumulated large classified loans and are currently constrained to maintain capital adequacy levels in accordance with tighter Bangladesh Bank rules. These banks therefore have a tendency to recover the losses at least partly through imposing higher loan charges. However, new generation PCBs and FCBs do not

hence IRS[11]; and (iii) existence of forces favouring high IRS in a segmented and non-competitive banking sector.[12] Some studies suggest that high IRS in Bangladesh is due to high state control of lending, absence of risk management practices, huge accumulation of bad loans, and limited technical skills, particularly in the arena of risk management.

Costs of Liquidity

As discussed in the previous section, high IRS in Bangladesh has a long history that dates back to the initial years after Independence. Traditionally, the financial policies including monetary policy have been influenced significantly by fiscal activism in Bangladesh. Since the 1970s, the interventionist policies, especially the state control on lending, led to the emergence of many evils in the banking sector. The Bangladesh Bank followed an administered interest rate

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have such pressures. In a competitive banking market, simultaneous operation of these two types of banks would have constrained the capacity of the banks with serious capital adequacy problems to maintain high IRS due to potential threat of losing the market share in lending operations. This, however, does not appear to be a problem for relevant banks in Bangladesh as the banking system is still segmented.

[11]This refers to the argument that the banks are often forced to follow the practice of setting deposit rates reflecting non-market rates of return in order to attract and retain deposits. The competition emerges largely from national savings directorate (NSD) certificates, which is the principal device of public (non-bank) borrowing for financing budget deficits. The interest rate on three-year NSD certificate has been 11.5 per cent since December 2005 while the same on five-year certificate is 12 per cent. On the other hand, deposit rates show wide variations across different bank groups. In December 2007, deposit rates were 4.93 per cent for SCBs, 6.71 per cent for SBs, 8.19 per cent for PCBs, and 5.05 per cent for FCBs. This can be compared with the lending rates in the same period, which was 10.88 per cent for SCBs, 9.66 per cent for SBs, 13.89 per cent for PCBs, and 13.88 per cent for FCBs. As such, IRS varied from 5.95 for SCBs, 2.95 for SBs, 5.70 for PCBs, and 8.83 for FCBs. It can be seen that PCBs offered the highest deposit rate and their lending rate was also the highest.

[12]This argument rests on the presumption that each bank group (SCBs, SBs, PCBs, FCBs) holds a distinct segment of the credit market, the demand features of which are catered by the specific group only. The persistence of wide differences among the lending rates of different bank groups and the capability of sustaining high lending rate (and IRS) by a specific group (e.g. FCBs) lends some support to this assertion.

policy until the end of the 1980s to limit the cost of financial intermediation and direct credit to priority sectors. A number of exceptions were introduced and special lending categories were identified for directing credit, leading to centrally administered rather than market driven allocation of credit. Moreover, the banking system accumulated a huge amount of classified loans due to various reasons including politically motivated loan disbursement to unviable projects and build up of bad loans due to corruption, low technical skills especially in risk management, and inefficient portfolio management.[13] This led to high ratios of NPLs and, with limited supply of funds, higher cost of capital to prospective borrowers.[14]

Under the FSRP of the 1990s, a market oriented interest rate policy was introduced with interest rate bands for different categories. In August 1999, interest bands on agriculture and small and medium enterprise (SME) loans were removed and the banks were allowed to set both lending and deposit rates in line with market conditions, which were previously determined by the Bangladesh Bank. Despite liberalisation, interest rates are not fully responsive to market conditions as yet due to several rigidities in the banking system, including directed lending to priority sectors and to state owned enterprises (SOEs), especially by the SCBs. At present, Bangladesh Bank uses market oriented instruments (SLR and CRR) and employs repo, reverse repo, and Bangladesh Bank bill rates as policy instruments for influencing financial and real sector prices. Recent evidence also shows the existence of a close link in movement of different money market rates and a converging tendency of the market clearing rates toward Bangladesh Bank's policy rates.[15]

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[13]Despite significant reforms, the gross classified loans in total loan outstanding stood at 32 per cent in 1995 which declined to 14 per cent in September 2007. It may be mentioned that Bangladesh had a non performing loan to total loan ratio of 13.2 per cent in 2006 compared with 3.5 per cent for India and 8.3 per cent for Pakistan. *See, Financial Sector Review*, 3(1), December 2007, Bangladesh Bank.

[14]In 2006, while the total NPL ratio was 13.2 per cent, the ratio stood at 22.9 per cent for SCBs, 33.7 per cent for SBs, 5.5 per cent for PCBs, and 0.8 per cent for FCBs. This shows the high share of poor quality assets especially of SCBs and SBs. With high NPL ratio, the banks fail to maintain the required level of provisions against their NPLs. For instance, the provision maintenance ratio in 2006 was 29.5 per cent for SCBs, 61.5 per cent for SBs, and 82.2 per cent for PCBs. Only in the case of FCBs, the ratio was 140.9 per cent. These no doubt have implications for high IRS that exists in the country.

[15]See, *Monetary Policy Review*, 3(1), October 2007, Bangladesh Bank.

Besides, the deposit rates in the banking sector remain highly insensitive to the market due to significant public sector borrowing through NSD certificates and similar instruments offering non-market yields. Some analysis shows that a rise in three-year NSD certificate rate triggers shifts in the weighted average deposit rate, savings deposit rate, and the rate on fixed deposit with one-year to less than two-year maturity in the positive direction.[16] The deposit rate and the quarterly import growth are also observed to influence the lending rates offered by the scheduled banks. Thus several factors exist that create distortions in the interest rate structure of the banking system in the country.

As for the banks, high IRS is seen as a premium for bearing credit risk which is perceived high in view of the long default culture in the country's banking system. Obviously, the single most important source of the risk is the possibility of loan default. In addition, there exist several other sources of perceived risk, such as funding longer term credit with short term deposits by the banks in the absence of a well-functioning and vibrant capital market that precludes better risk sharing, and potentially higher future interest rates with rising rate of inflation.[17]

Moreover, the perceived risk of an individual bank depends on many other factors, such as its risk aversion behaviour, its share of transaction in the credit market, and the degree of volatility of interest rates in the financial market. Necessarily, IRS would be higher in a market where interest rate volatility is high and mechanisms to hedge interest rate uncertainty are absent. Under the circumstances, setting a high IRS is considered as a convenient mechanism for the banks to screen out borrowers who are considered high-risk although the mechanism has not worked out well as revealed by the high rate of loan defaults in the banking sector.

Interest and Non-interest Income and Expenditure

The actual IRS consists of the impact of different components that the banks consider in setting the margin, such as reserve costs, loss provision, and the target level of profitability. In addition, the banks are likely to consider operating costs

[16]See *Financial Sector Review,* 1(1), May 2006.

[17]The capital market has played a minor role in investment financing in Bangladesh even in recent years. The provisional figure for FY07 shows that the amount of industrial term loans disbursed by banks and financial institutions stood at Tk 124.0 billion compared with only Tk. 3.1 billion by new capital issues through private placements and public offerings in the capital market. See Bangladesh Bank, *Annual Report 2006-2007*, Dhaka.

(non-interest costs) as well as non-interest income flows (e.g. commission and fee income) in setting the IRS. Obviously, low operating and reserve costs could induce the banks to reduce the spread. On the other hand, inefficiencies in bank operations and adverse economic and market conditions are likely to contribute to high overhead costs. This shows that differences in IRS across banks may be the reflection of conscious choice regarding whether to bear high overhead costs and set high IRS on the one hand or ensure efficiency and better performance and operate under low IRS on the other. Moreover, variations in IRS over different banks reflect relative costs of portfolio choices and credit allocations of the banks.

The balance sheets and income statements of the banks can provide important clues relating to areas where actions could be targeted to yield positive results in reducing the IRS. In general, the banks could be induced to lower IRS if non-interest income increases. Similarly, the banks are likely to keep IRS high if they suffer or foresee credit losses, increasing operating expenses, and are obliged to maintain high return on capital. High interest rates or inflation expectations are also likely to lead to high IRS. Moreover, the ability to deploy short term surplus funds and/or raise funds in the event of liquidity crisis can have important implications on the level of IRS set by the banks. Table IV shows recent changes in the values of some indicators having implications on IRS in the banking sector.

The table shows that, between June 2005 and June 2007, the weighted average lending and deposit rates increased; but the lending rate increased faster so that the IRS widened over the period. In December 2007, the lending rate fell marginally but the deposit rate declined more causing the IRS to increase further. The gross NPL significantly declined after June 2006 reflecting lower credit losses and consequently higher returns on assets. On balance, the impact of these improvements should be to lower the IRS. The credit-deposit ratio, on the other hand, remained relatively stable over the period, so that rising interest rates resulted in a higher cost of unutilised funds.[18]

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[18]During end June 2007, total excess liquidity as a share of deposits for all banks was 7.5 per cent. The ratio was 7.6 per cent for SCBs, 1.5 per cent for SBs, 7.0 per cent for PCBs, and a high of 14.3 per cent for FCBs.

TABLE IV
SOME INDICATORS RELATED TO IRS IN BANGLADESH

	June 2005	June 2006	June 2007	Dec 2007	Dec 2008
Lending rate (per cent)	10.93	12.06	12.77	12.77	12.31
Deposit rate (per cent)	5.62	6.68	6.85	6.73	7.31
Interest rate spread (per cent age points)	5.31	5.38	5.92	6.04	5.00
Credit-deposit ratio (per cent)	0.84	0.86	0.84	0.83	0.82
Risk weighted capital-asset ratio (%)	7.11	8.02	6.48	7.37	10.05
Gross NPL (%)	15.79	16.59	13.96	13.23	11.12
Return on assets (%)	0.60	0.79	-	0.89	1.16

Source: Scheduled Banks Statistics and Bangladesh Bank Quarterly, various issues, Bangladesh Bank.

Several measures of earnings and profitability along with IRS for different bank groups (SCBs, SBs, PCBs, FCBs) are given in Table V. It shows increasing interest and non-interest income for all bank groups as share of total assets, but similar shares for expenditure have also increased. The return on assets, however, shows increasing trend (except for SCBs and SBs). The reduction in costs and/or increase in other income, especially non-interest income, should therefore have a positive impact on reducing the IRS. In this respect, the FCBs have a significantly higher non-interest income to asset ratio (nearly 4 per cent) compared with around 3 per cent for the PCBs and slightly higher than 2 per cent for the NCBs.

For increasing non-interest income, it is important for the banks to target on providing value added services. For example, the traditional fee and commission based income streams can be broad based to cover both modern and expanding consumer, corporate, and investment banking services. In addition, many areas in retail banking may be tapped covering advisory and asset management services including sale of insurance and mutual fund products, payment products, electronic bill payments, credit and smart cards, and other prospective areas. In the corporate sector, fee based revenue arising out of traditional trade finance can be significantly enhanced through capital raising and similar other activities, such as syndicated loan, primary capital market offering, securitisation, and debt and equity placements. As the capital market develops, secondary market broking,

international fund raising, and corporate trust services can also emerge as useful sources of raising non-interest income.

Access to Information and Distribution of Market Power

Within the structure and the level of efficiency at which the banks operate at present, imperfect access to information has significant influence on IRS especially through its effect on the cost of credit. Thus, ensuring greater access to credible information could play an important role in reducing uncertainty in the credit environment and thereby reduce the IRS. Obviously, interest rate volatility and broader socioeconomic uncertainty contribute to widening of IRS. This indicates that reducing such uncertainties and removing the asymmetric access to information constitute important elements of an effective IRS management policy.

Similarly, operating costs including non-interest expenditure which contribute to high IRS are linked, among others, to market power and the market share of individual bank/bank group that affect its cost of doing business. For efficiently managing operating costs, it is important for the banks to bring greater efficiency in bank operation, especially relating to management of personnel, processes, and technology. By making judicious choices with respect to these elements, the banks can significantly improve productivity in different operations and achieve substantial reduction in operating costs.

It would also be important for the banks to manage interest rate volatility through adopting best practices in fund management. Regular monitoring of risk elements and asset-liability gaps, for example, enables the banks to better manage liquidity risks that can contribute to lowering the IRS. Similarly, introduction of hedging mechanisms can play useful role that may start with short-term derivatives, such as forward rate agreements and interest rate swaps before moving to sophisticated options and longer dated transactions.

TABLE V

EARNINGS AND PROFITABILITY BY BANK GROUPS IN BANGLADESH

	December 2005	December 2006	December 2007	December 2008
Interest rate spread				
SCBs	5.41	5.63	5.95	3.96
SBs	3.66	3.19	2.95	3.12
PCBs	5.07	5.45	5.70	4.70
FCBs	7.87	8.12	9.07	9.33
Interest income - asset ratio (%)				
SCBs	5.59	5.19	4.26	3.84
SBs	2.65	3.24	3.46	3.92
PCBs	7.81	8.17	8.34	8.74
FCBs	7.37	4.84	7.63	8.53
Interest expenditure - asset ratio (%)				
SCBs	4.03	4.04	3.46	3.07
SBs	1.79	2.35	78	3.08
PCBs	5.23	5.96	3.78	6.03
FCBs	2.63	4.84	3.30	3.80
Non interest income - asset ratio (%)				
SCBs	1.41	2.02	2.37	2.90
SBs	0.37	0.58	0.81	0.85
PCBs	2.07	2.77	3.07	3.07
FCBs	3.23	2.35	3.80	3.62
Non interest expenditure - asset ratio (%)				
SCBs	1.61	1.76	1.59	1.57
SBs	1.08	1.24	1.27	1.36
PCBs	1.96	2.11	2.14	2.10
FCBs	2.21	1.42	2.13	2.28
Return on assets (%)				
SCBs	-0.10	0.00	0.00	0.70
SBs	-0.13	-0.15	-0.27	-0.60
PCBs	1.06	1.07	1.28	1.37
FCBs	3.09	3.34	3.10	2.94

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

As mentioned earlier, the distribution of market power and segmentation of the market give the banks added leverage in setting the deposit and lending rates. Table VI shows the shares in total deposits and total advances by the four bank groups in the country. In the case of deposits, the share of SCBs has consistently declined over the 1990 and 2007 period and its market share has been captured by the PCBs. The interest rate offered by the PCBs also remained significantly higher than that by the SCBs. On the other hand, the FCBs, despite paying the lowest interest rate to the depositors, have succeeded in retaining their market share almost intact.

TABLE VI

SHARES IN TOTAL DEPOSITS AND TOTAL ADVANCES BY BANK GROUPS

	SCBs		SBs		PCBs		FCBs	
	Share	Int. rate	Share	Int. rate	Share	Int. rate	Share	Int. rate
Deposits								
1990	63.4	9.29	4.6	11.52	24.8	9.13	7.2	6.58
1995	61.7	4.80	6.0	6.50	27.5	4.92	4.8	2.67
2000	55.8	7.65	6.0	8.94	30.3	6.70	7.9	4.74
2005	42.1	4.63	6.2	5.45	45.1	6.83	6.7	3.75
2007	35.4	4.96	5.7	6.50	52.2	8.44	6.7	4.81
2008	31.2	4.96	5.4	7.02	55.6	8.91	7.82	5.25
Advances								
1990	52.0	14.06	21.5	15.37	29.4	16.44	6.0	15.54
1995	52.4	11.28	18.0	12.76	25.0	14.00	4.6	11.00
2000	48.5	13.47	17.1	13.63	29.2	14.82	5.2	12.80
2005	36.0	9.77	9.5	9.03	47.5	12.08	7.0	11.68
2007	28.8	11.00	8.8	9.44	54.6	13.43	7.8	13.57
2008	24.08	8.92	7.04	10.14	61.6	13.61	7.3	14.58

Source: Scheduled Banks Statistics, various issues, Bangladesh Bank.

For advances, the changes are similar. The SCBs and the SBs lost their market share significantly, while the PCBs more than doubled the market share between 1990 and 2007. This substantial gain took place despite substantially higher interest rates on advances (the rate was the highest among all bank groups since the 1990s) charged by the PCBs relative to the SCBs and the SBs. On the other hand, FCBs continued to maintain, and succeeded in increasing in recent years, the market share as a group despite charging higher interest rates on advances relative to SCBs and SBs. The above trends seem to suggest the existence of

segmented market and non-competitive outcomes especially in the distribution of advances by different bank groups. It seems non-interest considerations play a more important role in mobilising deposits and providing advances than the interest rates of different bank groups.

IV. STATISTICAL ANALYSIS OF IRS IN BANGLADESH

In this section, we develop a simple model to analyse IRS in Bangladesh. In the literature, the determinants of IRS have often been modeled within a framework incorporating profit maximising behaviour of the banks. In these models, though bank behaviour varies in terms of competitive process, scale economies and other aspects, the banks seek to maximise profits using portfolio choices defined in terms of a feasible set of assets and liabilities with interest rates set by the bank.[19] In practice, the empirical specification of the determinants of IRS has been set using two different approaches. One approach adopts the accounting identity of bank balance sheets, while the other applies behavioural assumptions of the banking firm (Demirgüc-Kunt and Huizinga 1999, Randall 1998, Barajas *et al.* 1999). In this paper, we adopt the second approach which implies that IRS in Bangladesh is determined by bank and market characteristics, operational expenses, and regulatory and macroeconomic environments. With bank specific data for the period 2004 to 2008, we identify the determinants of IRS in all banks as well as for different bank groups (SCBs, SBs, PCBs, and FCBs) in the country.

Relatively few studies are available that examine the causative factors behind IRS in developing countries. None of these, however, use data from Bangladesh. There are several studies (e.g. Crowley 2007, Chirwa and Mlachila 2004, Ramful 2001, Brock and Rojas-Suarez 2000, Saunders and Schumacher 2000, Demirgüç-Kunt and Huizinga 1999, Barajas *et al.* 1999, Randall 1998, Angbazo 1997) that have examined the relationship between IRS and bank specific, macroeconomic, and regulatory variables in developed and developing countries.

Crowley (2007), while examining IRS in several African countries, finds higher spreads associated with lower inflation, a greater number of banks, and greater public ownership of banks. The study shows that poor governance, weak regulatory frameworks and property rights, and higher required reserve ratios are associated with higher spreads. The study by Chirwa and Mlachila (2004) shows

[19] For an extensive survey of models of banking firm, see Santomero (1984), Freixas and Rochet (1997).

that the spread increases significantly following banking sector liberalisation in Malawi and panel regression results suggest that the observed high spreads is due to high monopoly power, reserve requirements, central bank discount rates, and inflation. Ramful (2001) reports that interest rate spread in Mauritius is used not only to cover the costs of operating expenses and required reserves but also reflects the prevalence of market power and compensates for the quality of loans.

Brock and Rojas-Suarez (2000) applied a two-step procedure for a sample of five Latin American countries (Argentina, Bolivia, Colombia, Chile, and Peru) and their results give positive coefficients for capital ratio, cost ratio, and liquidity ratio. As for the effects of non-performing loans, the evidence is mixed. Saunders and Schumacher (2000) used Ho and Saunders two step method to a sample of banks of seven OECD countries (Germany, Spain, France, Great Britain, Italy, United States and Switzerland). The purpose was to decompose the determinants of bank net interest margins into regulatory, market structure and risk premium components. For almost all countries, banks are seen to increase margins to finance implicit interest payments. Besides, coefficients for the opportunity cost of reserves are positive and significant in most countries. The bank capital ratios are also significant and positive. The results of cross-country second step regression show that the spread increases with rising segmentation and restriction probably due to monopoly power and volatility of interest rate.

Demirgüç-Kunt and Huizinga (1999), while investigating the determinants of bank interest margins using data for 80 countries during 1988-1995, find positive influence on bank interest margin of the ratio of equity to lagged total assets, ratio of loans to total assets, foreign ownership dummy, bank size as measured by total bank assets, ratio of overhead costs to total assets, inflation rate, and short-term market interest rate. Barajas *et al.* (1999) examined the determinants of high intermediation spread of the Colombian banking sector and found that although the average spread did not change between the pre-liberalisation (1974-1988) and post-liberalisation (1991-1996) periods, its composition changed. Their results suggest that progress in reducing operational costs and financial taxation and improved loan quality are the determinants of interest rate spread in Colombia. Randall (1998) reports that, for the Eastern Caribbean countries, the impact of loan loss provisioning has been to reduce bank interest margin. The results of the study by Angbazo (1997) for the pooled sample of US banks using annual data for 1989-1993 suggest that the proxies for default risk, opportunity cost of non-interest bearing reserves, leverage, and management efficiency are statistically significant and positively related to bank interest margins. The ratio of liquid assets to total liabilities, a proxy for low liquidity risk, is inversely related to the bank interest margin.

Model Specification and Variables

We begin with the following specification of the empirical model:

$$IRS_{jt} = f(BSV_{jt}, BIV, RMV, u_t) \quad (1)$$

where IRS_{jt} is the interest rate spread of bank j at time t; BSV_{jt} is the vector of bank specific variables for bank j; BIV is a vector of relevant bank industry variables; RMV is a vector of regulatory and macroeconomic variables; and u is the error term.

In the literature, there are alternative ways of measuring the dependent variable, IRS_{jt}. In this paper, we start with two rather broad definitions of interest rate spreads.[20] In the first definition, interest rate spread (IRS1) has been defined as the difference between interest income received by a bank and interest paid by it over the year taken as a ratio of total assets. The second definition (IRS2) takes it as a difference between two ratios: (i) ratio of interest received and all interest bearing assets; and (ii) ratio of interest paid and all interest earning liabilities. Thus

IRS1= (interest received-interest paid)/total assets
IRS2= (interest received /all interest bearing assets) - (interest paid/all interest earning liabilities)

For both of the above definitions, almost all coefficients turned out insignificant during the analysis, indicating that these are not appropriate for calculating IRS in Bangladesh. As an alternative, our first preference was to use weighted average lending and deposit rates; unfortunately, these are not available at the individual bank level. Therefore, we have used the difference between the lending rate for large and medium industries and the interest rate on deposits

[20]The most common measure of IRS, as referred in the introduction of the paper, is the interest rate margin defined as the difference between interest income and interest expenses as a percentage of total earning assets. The narrow and wide definitions usually result by excluding and including fees and commissions relating to loan and deposit transactions. The inclusion of fees and commissions reflects full cost to borrowers and reduces the income of depositors. See Brock and Rojas-Suarez (2000).

(three months but less than six months) at the individual bank level as the measure of IRS in the statistical analysis.[21]

The vector of bank specific variables (BSV_{jt}) includes five commercial bank-specific variables that are hypothesised to influence the interest rate spread. First, classified loan as a share of total outstanding loan (CL) which is taken as an indicator of the quality of assets. The indicator reflects the response of the banks to charge operational expenses to tackle deteriorating loan quality as well as the risk premium charged by the banks to compensate for the foregone interest revenue. Thus we expect a positive relationship between interest rate spreads and CL reflecting the tendency of the banks to shift the cost of non-performing loans to borrowers. Second, we include the operating cost (OC) taken as the annualised ratio of operating cost (including wage bill) to total assets. The expected sign of the coefficient in this case is positive. Third, the market share (MS) of each bank in the deposit market has been included. This indicator acts as a proxy for the existence of economies of scale and efficient market. If these considerations are important for the banks, then there should be a negative relationship between the market share and interest rate spreads. The fourth variable is the ratio of non-interest income to total assets (NII) and the expected sign of the coefficient in the model is positive. Finally, we have taken interest rate on deposits (DR).

In the case of bank industry variables, we have included the statutory reserve requirements (SRR). The reserve ratio acts as a financial tax on the banking industry as the fund held for such purposes earn no or a lower interest rate than the opportunity cost of the funds. The National Savings Directorate (NSD) certificate rate is also included since it seems to influence the interest rates of the banks and hence the interest rate spreads.[22]

The regulatory and macroeconomic environment in Bangladesh has been characterised by considerable instability and changes throughout the period. To capture the effect of changes in the macroeconomic environment on interest rate

[21]In this context, it is important to note that high deposit rate may not lead to high IRS unless lending rate is set at a relatively high level at the same time. The converse is true for low deposit rate. As the data in Table I indicate, low deposit rate in the post liberation period was associated with high IRS as lending rate on advances was higher.

[22]Although NSD certificate rate is more likely to affect the deposit rate as the banks may try to attract funds away from NSD certificates, the inclusion of NSD certificate rate may be rationalised by the argument that it may also have some influence on IRS through its impact on raising the lending rate.

spreads in the model, we have included the inflation rate (INF) as measured by the change in the consumer price index and the growth rate of real GDP. Another variable is the ratio of taxes paid by the banks to net income before provision and tax (TAX).

In addition, the annualised ratio of provisioning for bad debts to total loans has been used as an indicator of the quality of assets of a bank although the results are not uniformly reported.

The model equation thus turns out as follows:

$$IRS_{jt} = \alpha_0 + \alpha_1 CL_{jt} + \alpha_2 OC_{jt} + \alpha_3 MS_{jt} + \alpha_4 NII_{jt} + \alpha_5 DR_{jt} + \alpha_6 NSD_t + \alpha_7 INF_t + \alpha_8 TAX_t + \varepsilon_t \quad (2)$$

We also tried a dummy variable to capture the unobservable and/or excluded effects of ongoing financial sector reforms which took a value of zero for the PCBs and a value of one for the SCBs. However, it was not significant and the results are not reported.

Data and Methodology

As reported earlier, annual data of all 48 banks for the sample period (2004-2008) have been used to estimate the model using pooled OLS and fixed effect model with panel data. Due to non-availability of weighted average deposit and lending rates for individual banks, the difference between interest rate on deposits for three months but less than six months and the lending rate for large and medium scale industries of individual banks has been used to calculate the IRS. As indicated, two broad definitions of IRS were used to see the robustness of the measure of the spread. Although different banks close their financial year in different months of the year, this difference has been ignored in the analysis for the sake of simplicity. The estimation of the regression equations has been carried out using the SAS package.

In practice, panel data models are estimated using pooled OLS, fixed effects or random effects techniques. The random effects estimator is used if the specific component is assumed to be random with respect to the explanatory variables. On the other hand, the fixed effects estimator is used if the individual component is not independent with respect to the explanatory variables (Greene 2000). The fixed effects model is compared with the pooled OLS estimation using the F-statistic to test the restrictions. If the null hypothesis of no fixed effect is not rejected by the F-test, this means that the least squares dummy variables model is not different from the pooled OLS model. In such a case, bank-specific and period-specific parameter estimates do not give significant information.

In order to distinguish between fixed effects and random effects models, the Hausman test is performed. The random-effect model requires the assumptions that individual error components are uncorrelated with each other and with the explanatory variables in the model. In our case, the Hausman test fails to reject the null hypothesis of no random effects. Therefore, the model has been estimated using pooled OLS initially, followed by estimation with fixed effects method to see the robustness of the results using fixed effect techniques for all 48 banks.

Empirical Results

Table VII compares the results derived from pooled OLS and fixed effects model using annual data for the sample period for all 48 banks in Bangladesh.[23] The results show that most coefficients have expected signs, especially for the fixed effects model. The deposits rate (DR) variable is significant and positive for both the models, which implies that the higher the deposits rate, the higher is the spread. The non-interest income (NII) variable is significant and has the expected negative sign in the fixed effects model. This implies that the higher the banks' non-interest income as a ratio of total assets, the lower will be the spread. The market share of deposits (MS) also seems to matter for the banks. It is highly significant and appears with the expected positive sign in the fixed effects model. The positive and significant relationship between market share and spread indicates that large banks have the power to charge higher interest rates on their loans, while small banks are forced to accept a narrower margin. The statutory reserve requirement (SRR) with the central bank emerges as one good reason for having higher spread in Bangladesh. The NSD certificate rate (NSD) is another important variable for the banks to maintain higher spread. Taxes, classified loans or provisioning for bad debts, and operating cost did not appear significant in the regression for all banks.

In order to explore the issue further, the model has been estimated using data for different bank groups separately. In view of the limited number of observations for SBs, the group was merged with SCBs and the regression was carried out for three groups-SCBs (including SBs), PCBs, and FCBs.

[23]Only the coefficients of significant and/or important variables are provided in this and the following tables.

TABLE VII
RESULTS OF EMPIRICAL ESTIMATION: ALL BANKS

Variable	OLS			Fixed effects model		
	Estimated coefficient	t-value	Significance level	Estimated coefficient	t-value	Significance level
DR	0.88	35.31	0.0001***	0.96	40.11	0.0001***
NII	0.09	1.88	0.0624*	-0.09	-1.72	0.0885*
MS	-0.08	-3.88	0.0002***	0.36	5.07	0.0001***
SRR	0.02	2.41	0.02**	0.03	3.70	0.0003***
NSD	0.21	0.48	0.63	1.38	3.82	0.0002***
CL	-0.02	-4.32	0.001***	-0.002	-0.27	0.7861
Lag Spread	0.07	1.86	0.06	-0.05	-1.54	0.1256
Adj.R^2		0.9092			0.9733	
Root MSE		0.65			0.43	

Source: Authors' calculation.

Note: For variable definition, see text. ***indicates significant at 1% level, ** at 5% level, and * at 10% level.

Table VIII gives the estimated results of pooled OLS since the F-test for no fixed effect was found not significant, implying that fixed effects model is not appropriate for estimation in the present case. As expected, classified loan as a share of total outstanding loan (CL) turns out to be significant at 5 per cent level for SCBs (and SBs), indicating that classified loan is one of the driving force behind higher IRS for SCBs in Bangladesh. On the other hand, classified loan does not seem to matter much either for PCBs or FCBs. The PCBs and FCBs seem to take inflation (INF) into account while setting the spread. Non-interest income (NII) is significant for FCBs. This is expected since a large share of income of FCBs comes from non-interest income and also FCBs have the highest spread across all bank groups. Operating cost (OC) is significant at 1 per cent level for PCBs, while it is significant for SCBs at 5 per cent level. The statutory reserve requirement (SRR) is significant at 1 per cent level for PCBs only. Finally, tax matters for PCBs and FCBs. For PCBs, higher the tax higher the spread, while for FCBs, it works in the opposite direction implying that the higher the tax, lower the spread. This implies that reducing the tax only helps lowering spread for PCBs. The coefficients of deposits and NSD rates were not significant and hence are not reported. Real GDP growth variable turns out significant only for SCBs (and SBs) and hence is not reported. The above results across different bank groups bring out differing perspectives of specific groups

especially relating to their past history of performance, differing cost of intermediation activities including operating costs and liquidity risks, and market share and business environments.

TABLE VIII

RESULTS OF EMPIRICAL ESTIMATION: DIFFERENT BANK GROUPS

	SCBs and SBs		PCBs		FCBs	
	Estimated	Sign. level	Estimated coefficient	Sign. level	Estimated coefficient	Sign. level
NII	-0.04	0.8621	-0.11	0.5391	0.87	0.0009***
INF	0.03	0.5611	0.45	0.0001***	0.20	0.0666*
OC	1.08	0.0409**	0.84	0.0038***	-0.82	0.1037
MS	-0.02	0.6387	0.62	0.0006***	0.71	0.0621**
SRR	0.01	0.3958	0.12	0.0013***	-0.30	0.3952
CL	0.02	0.0325**	0.03	0.1061	-0.06	0.2730
TAX	0.01	0.3874	0.0003	0.0457**	-0.05	0.0199**
Adj.R^2	0.59		0.45		0.47	
Root MSE	0.55		1.65		1.40	

Source: Authors' calculation.

Note: For variable definition, see text. ***indicates significant at 1% level, ** at 5% level, and * at 10% level.

One implication of the above results is that the banks need to increase their non-interest income in order to create a more efficient and competitive banking system having lower intermediation spreads. The positive and significant relationship between market share and spread indicates that large banks charge higher interest rates on their lending deposits while small banks accept a narrower margin. The NSD certificate interest rate is another important variable contributing to higher spreads in Bangladesh. Thus the analysis shows the importance of both systemic actions and actions at the bank level to address specific weaknesses hindering the operational efficiency and performance of the banks.

In this context, the challenge of the local banks (SCBs, PCBs, and SBs) is to improve their earnings and profitability as the sustainable tool of reducing the IRS. The FCBs, on the other hand, have maintained high levels of IRS although these banks have enjoyed good earnings and profitability largely due to their more efficient operation and risk management, success in preserving market segmentation, and imperfect distribution of market power in the banking sector. Thus the need is to continue with the implementation of the financial sector reform programmes with emphasis on several key aspects as mentioned below.

Developing alternative risk assessment mechanism

Since no efficient risk assessment mechanism exists, the banks tend to set and maintain high IRS so that it can screen out high-risk borrowers. It is important therefore for the Bangladesh Bank to assist in developing institutions that would employ modern and efficient techniques of measuring and disseminating risk profiles of potential borrowers to the banks. Such efforts should also include appropriate legal and other measures for adopting rigorous accounting standards by the firms, implementing fair disclosure regulations, setting up of credit bureaus and credit rating agencies with professional competence, installing mechanisms for wide sharing and exchange of credit information among banks and other stakeholders, and other measures for ensuring transparency and accountability in the banking sector.

Ensuring better liquidity management

Under the market-oriented practice adopted by the Bangladesh Bank, unilaterally imposed regulatory mechanisms are unlikely to contribute toward reducing the IRS in a sustained manner. Raising reserve ratios and/or increasing bank equity, for example, would more likely to induce the banks to increase IRS to cover the higher cost of loanable funds. On the other hand, measures like introduction of deposit insurance should contribute to reducing the IRS. Similarly, other plausible measures of reducing interest rate volatility and IRS include introducing refinance facility and market stabilisation funds, ensuring greater predictability of Bangladesh Bank's stand on inflation and monetary policy, and creating higher capability to procure funds and wider access to international markets for funding and hedging the interest rate risks.

Improving institutional efficiency

Since the financial sector reform programme aims at bringing a competitive and liberalised environment leading to more integrated and efficient functioning of the financial markets, it is important for Bangladesh Bank to adopt deposit and lending rates (and hence IRS) of different bank groups as important indicators, monitor their movements regularly, and adopt appropriate measures to bring convergence toward competitive rates except for risk and other real differences. For ensuring such a competitive level of IRS, the banking sector needs to move toward achieving a level of institutional efficiency that would ensure effective competition, efficient banking operations, and credible risk and portfolio management within an environment characterised by high standards of regulation and supervision by Bangladesh Bank.

Strengthening local banks

As the present analysis shows, the local banks (SCBs, PCBs, and SBs) are weak compared with the FCBs on most counts of earning and profitability indicators and hence face unfair competition. For these banks, the better return on capital is mainly due to their small paid up capital relative to total equity.[24] It is important therefore for the Bangladesh Bank to use its regulatory power to strengthen the capital base of the local banks. This is necessary to strengthen the local banks especially in view of the increasing competition that the local banks will have to withstand as the banking sector opens up through reform and liberalisation enabling greater participation of the foreign banks.

Accessing information

Access to credible and timely information on financial and credit market issues is critical to maintaining a rational level of IRS. For this, it is important to install mechanisms for ensuring both greater transparency and accountability. In addition, measures are needed to reduce the current asymmetry in access to information for the banks and other stakeholders. This needs the setting of required standard of disclosure in the accounting framework and the corporate governance hierarchy including a code of conduct for the corporate entities covering both financial and management information.

For effective implementation of such a framework, the Bangladesh Bank may consider establishing a credit information bureau (CIB) in addition to the current practice of publishing bi-annual reports. The bi-annual report provides defaulter listings which identify the actual defaulters. From the IRS perspective, it is important to generate information on the likelihood of default of the potential borrowers as well. The proposed CIB would provide such information on potential borrowers of the banks. It should function like an autonomous corporate entity which will provide relevant credit information on individual/corporate borrowers to help assess creditworthiness by the banks. Based on such information, the banks may be allowed to charge differential lending rates akin to price discrimination based on credit rating (rather than charging the same rate to all borrowers despite their different credit ratings). On its part, the CIB will generate credible credit ratings using financial and related data on individuals

[24] This partly reflects the government's initial policy of providing incentives to establish private banks with relatively small amount of capital. The banks, however, succeeded in building up equity from retained earnings that could be adversely affected with reduced earnings through lower IRS.

and businesses from different data providers including businesses, utilities, public agencies, and legal institutions. In this context, the Bangladesh Bank could consider the implementation of regulations similar to US Fair and Accurate Credit Transactions Act that would safeguard the rights of borrowers in terms of access to and use of negative and/or disputed information.

The prime objective of reducing IRS in the country is to lower the lending rates in order to stimulate investment and bring higher economic growth. For realising such outcomes, it is important to recognise two important factors. First, as a component of the monetary policy instruments, the desired impact of changes in lending rates on investment needs the market to respond which, in a country like Bangladesh, takes longer time. Second, lowering lending rates alone may not be adequate to stimulate investment if other determinants such as macroeconomic and related policies, expectations of the investors, legal and institutional framework, and socio-political regime are not conducive to ensuring an investment-friendly environment in the country.

V. CONCLUDING REMARKS

The study identifies several determinants underlying the persistence of high IRS in the banking sector in Bangladesh. The analysis shows that non-interest income of banks is important and the higher the non-interest income as a ratio of total assets of a bank, the lower will be its spread. Similarly, the market share of deposits of a bank is a significant determinant of the spread. The statutory reserves requirements and the high NSD certificate interest rates also contribute to higher interest rate spreads in the banking sector in Bangladesh. The analysis in terms of bank groups shows that interest rate spreads are significantly influenced by operating costs and classified loans for SCBs and SBs, while inflation, operating costs, market share of deposits, statutory reserve requirements, and taxes are important for the PCBs. On the other hand, non-interest income, inflation, market share, and taxes matter for the FCBs.

Evidence in the paper shows that inefficiencies and inadequate competition among the banks is a significant source of high IRS in the country's banking sector. In recent years, average deposit rate of the banks in real terms has fallen sharply due to high inflation so that the scope of lowering IRS through reducing the deposit rate would be counterproductive. Any effort to reduce the deposit rate may adversely affect deposit mobilisation by the banks. Moreover, since returns on alternatives to institutional savings are high, particularly in the present situation of rising inflation, any move to depress the return on savings by the

banks would further strengthen the trend of holding savings in non-financial assets, especially in urban real estate and rural agricultural land, creating destabilising forces in these markets. It is important therefore for the banks to improve their performance efficiency as the most important tool of reducing the IRS.

It is also important to recognise that within the market determined interest rate policy regime currently pursued by the Bangladesh Bank, the banks are free to set both lending and deposit rates in line with market conditions. In such a situation, tools available to Bangladesh Bank for influencing the interest rate structure is somewhat limited in number so that it would be useful to urge the banks as well to become more aware of and responsive to their corporate social responsibility. In order to be effective, such efforts should be supplemented by sharing of credible research results and information on market conditions and public policy concerns so that the banks can foresee macroeconomic and related financial developments and take appropriate decisions. Obviously, coercive action is not consistent with the fundamentals of a market economy and reducing the IRS is to be achieved through using market responsive instruments by the Bangladesh Bank. Moreover, a more coordinated use of fiscal policy is essential so that the burden of reducing the IRS does not fall on monetary measures alone.

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