Asymmetries in the Lending-Deposit Rate Spread:
The Case of Bangladesh[†]

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The asymmetric behavior of the Bangladeshi commercial banks' lending-deposit rate spread over the period 1999:11 to 2008:01 is documented. Perron's endogenous unit root tests indicate lending-deposit rate spread experienced a structural break in May 2004. Empirical results reveal that the lending-deposit rate spread adjusts to the threshold faster when the deposit rates fall relative to the lending rates than when the deposit rates rise. This result contradicts those reported by Thompson (2006) in the U.S. with respect to the prime rate and the one-month CD rate, but supports the consumer reaction hypothesis as articulated by Stiglitz and Weiss (1981). The empirical results reveal the bi-directional Granger Causality between the lending rate and the deposit rate. The results suggest that the lending rate adjusts to the long-run equilibrium faster when a shock widens than when it narrows the basis. The deposit rate responds to widening but not narrowing of the basis.

Key Words: Asymmetry; Lending Rate; Deposit Rate, Lending-Deposit Rates Spread.

JEL classification codes: C22; G21.

Introduction

Commercial banks' behavior in setting their deposit and lending rates significantly influences the effectiveness of the monetary authority in its monetary policymaking[1]. As suggested by Thompson (2006), banks may set their lending rates as some markup or premium over their deposit rates. If the premium is perceived to be too high or too low, the market force will discipline banks to adjust back to some equilibrium spread.

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The evidence of asymmetric rate setting behavior in the banking industry supports the literature hypothesizing the asymmetric effects of the monetary policy on the output. There are three main theoretical explanations for the commercial bank interest rate asymmetries, which are the bank concentration hypothesis, consumer characteristic hypothesis, and consumer reaction hypothesis[2].

The bank concentration hypothesis posits that banks in more concentrated markets are slower to adjust deposit rates upward and faster to adjust them downward while exhibiting the opposite behavior regarding the lending rates (Neumark and Sharpe, 1992, Hannan and Berger, 1991). The consumer characteristic hypothesis asserts that the greater the proportion of unsophisticated consumers relative to sophisticated consumers in the market together with the potential search and switching costs, the greater the banks' ability to adjust interest rates to their advantage (Calem and Mester 1995, Hutchison 1995, Rosen 1995).

However, the asymmetric adjustment in lending rates may actually benefit the consumers. As articulated by Stiglitz and Weiss (1981), that the presence of asymmetric information may create an adverse selection problem in lending markets such that higher interest rates will tend to attract riskier borrowers. Therefore, banks would be reluctant to raise lending rates, even if the market rates rises. The expected cost to the banks of not raising the lending rates, when their marginal cost of fund increases, will be offset by the benefits from not encouraging the higher risk consumers to borrow.

Additionally, the asymmetries in the returns on financial market instruments are neither new nor novel. They have been studied extensively and documented in the literature of the indirect financing segments of the financial industry in developed economies. Arak et al., (1983), Goldberger (1984), Forbes and Mayne (1989), Levine and Loeb (1989), Mester and Saunders, (1995), Dueker, (2000), and Tkacz (2001) have reported asymmetries in the U.S. prime lending rate in the past. Thompson (2006) found asymmetries in the US prime lending-deposit rate spread. Cook and Hahn (1989), Moazzami (1999), and Sarno and Thornton (2003) found asymmetries in U.S. Treasury securities in their studies. Frost and Bowden (1999) and Scholnick (1999) reported asymmetries in mortgage rates in New Zealand, and Canada. Heffernan (1997) and Hofmann and Mizen (2004) indicated asymmetric behavior of retail rates in the United Kingdom. Hannan and Berger (1991), and Neumark and Sharpe (1992), Diebold and Sharpe (1992) examine various deposit rates for the same behavior.

The Bangladeshi Banking Sector

After independence of the country, the then government nationalizes commercial banks (except a few foreign banks) reorganizes them into six distinct banks by Bangladesh Bank nationalization order 1972. As saving and investment is very low, to channelise saving and investment through the formal sector and to expand banking services in the remote areas of the country, nationalization of the banking sector is one of the major objectives at that time. Bank branches have expanded particularly in the rural areas. Expansion of bank branches reduces transaction costs associated with the transfer of funds, savings, demand deposit and also time deposit. The then government takes the supply leading strategy. But due to monopoly in the banking business, massive corruption, managerial inefficiency limits the desired goal of the supply leading strategy. Government of early eighties decides to initiate denationalization and privatization program. Default culture has become prominent in the economy.

The financial sector is controlled under the strict directives of government and Bangladesh Bank till December 1989. Under the controlled economy, low level of saving and investment, inadequate capital, inappropriate technology, negative real rate of return, chronic deficit in the balance of trade, smuggling, and low level of monetization are occur. As such financial repression syndrome was created in the economy. Financial sector reform program has been starting in 1990. This includes liberalization of interest rates, convertibility of 'taka', introduction of 91 days bill, recapitalization of banks, new procedure of loan classification, and introduction of repo/reverse repo in the money market, strengthening of money and capital market.

Since 1974 bank rate policy was often used to support Bank of Bangladesh's administered interest rate policy. In the early years of Bangladesh, bank rate, reserve ratios and moral suasion (known as open mouth operation) were important instruments to control money supply. Especially, moral suasion, though not desirable, was the most effective tool. In earlier days, Bangladesh used a crude tool as the central bank changed reserve requirement on many times; its efficiency is also countable. With the introduction of Financial Sector Reform Program in 1990, the Bangladesh Bank almost closed both the refinance and rediscount windows, resulting practical postponement of bank rate policy, with a view to developing an inter-bank market. Nevertheless the central bank kept the bank rate between 5-8 percent. Any bank that needed finance started approaching to the inter-bank market instead of Bangladesh Bank's windows. Thereby, bank rate policy, though intentionally, lost its creditability. The current decade witnessed some major policy shift as the Bangladesh Bank introduced repurchase agreement (Repo) in July 2002 and Reverse Repo in April 2003 and reintroduced Bangladesh

Bank Bill in 2006. These were introduced as indirect monetary policy tool for day-to-day liquidity management in response to temporary and unexpected disturbances in the supply of and demand for money. The initiatives of the central bank to face the situation through reform measures since 1990, no doubt, have improved the capital adequacy, governance, regulation and supervision, legal and payment situations in the economy.

Despite the aforementioned changes and improvements, the banking sector has developed to become the dominant financial intermediary in Bangladesh's financial system due to an under-developed money and capital market, limited availability of financial instruments and lack of confidence in the financial system as a whole. Bangladesh Bank cannot still independently determine monetary policy. Government is still playing important role in the financial sector as borrowers from the banking system. In Bangladesh, there is a very limited scope for individuals to invest in the capital market and lack of alternative opportunities for investment compelled them to invest mainly in bank deposits, post offices, saving certificates and Government bonds, and so on. Ali (2003) observed that old and outdated banking procedures, lack of coordination between proper manpower planning and bank schemes, lack of market research for customer psychology analysis, scarcity of financial derivatives, inefficient banking services, and lack of long term planning, and so on, are creating bottlenecks preventing local banks from attaining international standards. Though reform measures in the financial sector were initiated in the nineties, the overall performance of the banking sector is not satisfactory.

The initiative to expand bank branches to reduce transaction costs and to provide opportunity to hold interest-bearing deposit in the country fails as many branches of the commercial banks cannot work properly and losses incurring, these branches were closed down. This seemingly failure may be attributable to the following factors. Bank management does not properly assessed risks as well as the costs of the various types of bank sources of funds. While managing their financial assets, banks were not cautious about handling funds with the utmost care. Lack of ethics in the banking sector is a part of wider and long lasting socio-economic and political problems of Bangladesh. Loopholes in the banking sector are a part of the overall corruption that plagued almost all segments in the country. There is a dilemma between the making money and business ethics. Unhealthy competitions among different banks are causing immoral practices lacking ethics in doing banking business. Variation of higher interest rate and profit paid to the client sometimes involve bankers in immoral practices. In the name of trade unionism, especially nationalized commercial banks, trade union leaders create unethical work culture in Bangladesh. Normally they do not work and put pressure on management to take undue advantages. These operational characteristics of banking industry result in adverse financial viability of many

branches of commercial banks. At the same time, since the government wants to privatize all government owned banks in phases, the government ordered to limit their credit expansion and other functions, squeezed branches and asked them to transform into limited companies.

The above described institutional arrangements in financial sectors should not be unexpected in a poor developing country such as Bangladesh. As the consequences of extensive government interventions in the form of licenses and permits as well as directives, the ownerships of private institutions and controls of public institutions are given to a few individuals who are well-connected politically, resulting in monopoly and oligopoly behavior implicitly or explicitly. The monopolistic and oligopolistic market structures coupled with the political connections of a few powerful individuals and corruptions would invariantly lead to cartels and price fixing. These factors would hinder the effectiveness of the national economic policy actions and result in asymmetric adjustment in product and service pricings, and an unfair distribution of national income in favor of the few. Naturally, these above phenomena would also result in higher lending rates, lower deposit rates and hence higher lending-deposit rate spread in the banking industry.

The aforementioned discussions imply the hypothesis of an asymmetric co-integrating relationship and the Granger causality between the stock prices and the money supply. To formally investigate these possibilities, this study extends Thompson's analysis, (2006), to the emerging Bangladeshi banking system to investigate the following questions. First, has the lending deposit rate spread encountered a structural break? Second, whether asymmetries in the lending-deposit rate spread present in the Bangladeshi banking industry? Third, if asymmetries are present, how did the Bangladeshi lending rate and deposit rate spread respond to such asymmetries?

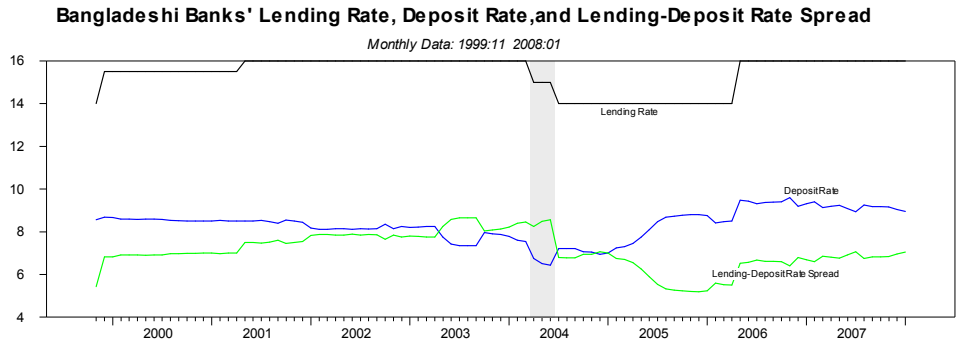
The remainder of this paper is organized as follows: The next section describes the data for this study; the following section briefly describes the methodology that will be used in the investigation; the next section reports the empirical test results for co-integration allowing for asymmetric adjustment to a threshold; the section that follows presents the results of the co-integration and asymmetry tests; the next section examines the results of the asymmetric error-correction model to determine the Granger causality between the lending and deposit rate; the section that

follows further discusses the characteristics of the Bangladeshi economy the empirical findings, and policy implications; and the final section provides some concluding remarks.

Data, Methodology, and Results

This study of the Bangladeshi banks' lending-deposit rate spread utilizes monthly data from the International Financial Statistics, published by the IMF, over the period 1999:11 to 2008:1 for which monthly data were available. The lending-deposit rate spread (SP_t) is defined as the difference between the commercial banks' lending rates and their deposit rates. Figure 1 displays the behavior of the respective lending rates, the deposit rates, and their spreads over the sample period.

Figure 1



As shown in Figure 1, the deposit rates were fairly stable while the lending rates gradually increased from the beginning of the sample period to early 2004. Due to the credit rationing policy was initiated to control inflationary measures for which lending was discouraged thorough raising lending rate. Bank rate was also raised from mid-2004 to early 2005, narrowing lending-deposit rate spread. One of the reason for narrowing lending-deposit rate is non-performing loans to net assets for the banking system have fallen from 30.74% in 1999 to 9.15% at the end of December, 2005 (Mian, 2005). However, Mian's observation is not applicable from 2006. At that time inflation rate was also started to raise and NPLs also have been started raising. They have gradually moved upward and then leveled over the remainder of the sample period. The descriptive statistics of the lending-deposit rate spread sample mean is 7.09 percent with the spread ranging from 5.19 to 8.65 percent. Moreover, as evidenced in Figure 1, it is very likely that the Bangladeshi commercial banks' lending-deposit rate spread experienced a structural shift over the sample period.

To discern this possibility and to allow for the possibility of endogenous breaks in the spread, following Perron's (1997) endogenous unit root test function, the intercept, slope, and the trend function are specified and estimated to test the hypothesis that the Bangladeshi lending-deposit rate spread has a unit root.

$$SP_t = \mu + \theta DU + \alpha t + \gamma DT + \delta D(T_b) + \beta SP_{t-1} + \sum_{i=1}^{k} \psi_i \Delta SP_{t-i} + \varepsilon_t \qquad (1)$$

where $DU = 1(t > T_b)$ is a post-break constant dummy variable; t is a linear time trend; $DT = 1(t > T_b)t$ is a post-break slope dummy variable; $D(T_b) = 1(t = T_b + 1)$ is the break dummy variable; and ε_t are white noise error terms. The null hypothesis of a unit root is stated as $\beta = 1$. The break date, T_b, is selected based on the minimum t-statistic for testing $\beta = 1$ (see Perron, 1997, pp. 358-359).

The estimation results of Perron's endogenous unit root tests are summarized in Table 1. The post-break intercept dummy variable, DU, is negative while the post-break slope dummy variable, DT, is positive, both are insignificant at any conventional level. However, the break dummy variable, $D(T_b)$, is statistically significant at 1 percent level. The results of this test suggest that the commercial banks' lending-deposit rate spread followed a stationary trend process with a break date of May 2004 corresponding to the intensifying of the ongoing initiatives of the Bangladesh Bank to persuade commercial banks to reduce non-performing loans as well as reduce interest rate and also to tighten the discipline in the financial markets. These efforts include the introduction of instruments, floated currency, revised T-bills, and T-bonds rates, lowered repo/reserve repo rates. Especial importance is several meetings held by the Governor of Bangladesh Bank with top management and directors of the boards of commercial banks to persuade them to lowering lending rate.

Table 1: Perron's Endogenous Unit Root Test, 1999:11 to 2008:1

$$SP_t = 2.078 - 1.144DU + 0.008t + 0.002DT + 0.939D(T_b) + 0.703SP_{t-1} + \upsilon_t$$

(6.166[a]) (-1.878) (2.858[a]) (0.452) (3.349[a]) (13.967[a])

Number of augmented lags: $k = 0$ Break Date: May 2004 $t(\alpha = 1)$ = -5.90[b]

Notes: Critical values for t-statistics in parentheses: Critical values based N = 100 sample for the break date (Perron, 1997). "[a]" and "[b]" indicate significance at 1 and 5 percent levels, respectively.

An important implicit assumption of Dickey-Fuller standard unit root tests and their extension is that the adjustment process is symmetric. If the adjustment process is asymmetric, then the implicitly assumed restrictive symmetric adjustment is indicative of model misspecification. The rationale for incorporating possible asymmetry in the adjustment of the lending-cost of fund spread can be attributed to the various aforementioned hypotheses and the characteristics of the Bangladeshi banking industry. In accordance with the bank concentration and consumer behavior hypotheses, lending-deposit rate spread may widen if banks are slow to adjust their lending rates downward in response to falling deposit rates. On the other hand, the customer reaction and adverse selection hypotheses suggest that the lending-deposit rate spread may narrow if banks are slow to adjust their lending rates upward in response to rising deposit rates.

Enders and Granger (1998) and Enders (2001) developed the threshold autoregressive (TAR) model that tests for asymmetries and unit roots. The threshold autoregressive model allows the degree of autoregressive decay to depend on the state of the lending-cost of fund rate spread, (i.e."deepness" of cycles). For instance, if the autoregressive decay is fast when the spread is above the trend and slow when the spread is below the trend, troughs will be more persistent than peaks. Likewise, if the autoregressive decay is slow when the spread is above trend and fast when the spread is above trend, peaks will be more persistent than troughs. In this model's specification, the null hypothesis that the lending-deposit rate spread contains a unit root can be expressed as $\rho_1 = \rho_2 = 0$, while the hypothesis that the spread is stationary with symmetric adjustments can be stated as $\rho_1 = \rho_2$.

In light of the above findings of a stationary lending-deposit rate spread using Perron's (1997) test, the Bangladeshi lending-deposit spread is regressed on a constant, linear trend, and an intercept dummy (with values of zero prior to 2004:5 and values of one for 2004:5 and then after), with the saved residuals, denoted by $\hat{\varepsilon}_t$. The following model is estimated using the residual series.

$$\Delta\hat{\varepsilon}_t = I_t\rho_1\hat{\varepsilon}_{t-1} + (1-I_t)\rho_2\hat{\varepsilon}_{t-1} + \sum_{i=1}^{p}\alpha_i\Delta\hat{\varepsilon}_{t-p} + \hat{u}_t \qquad (2)$$

where $\hat{u}_t \sim i.i.d.(0,\sigma^2)$, and the lagged values of $\Delta\hat{\varepsilon}_t$ are meant to yield uncorrelated residuals. As defined by Enders and Granger (1998), the Heaviside indicator function for the model is given as:

$$I_t = \begin{cases} 1 & if\ \hat{\varepsilon}_{t-1} \geq \tau \\ 0 & if\ \hat{\varepsilon}_{t-1} < \tau \end{cases} \qquad (3)$$

The threshold value, τ, is endogenously determined using the Chan (1993) procedure which obtains τ by minimizing the sum of squared residuals after sorting the estimated residuals in an ascending order, and eliminating 15 percent of the largest and smallest values. The elimination of the largest and the smallest values is to assure that the $\hat{\varepsilon}_t$ series crosses through the threshold in the sample period.

The estimation results of the model are summarized in Table 2. With the calculated statistic Φ_μ = 20.773, the null hypothesis of a unit root ($\rho_1 = \rho_2 = 0$) is rejected at the 1 percent significance level (i.e. the spread is stationary). As to the speed of adjustment, based on the test statistic F = 10.871, the null hypothesis of symmetry, $\rho_1=\rho_2$, is rejected at any conventional significance level. Thus, the empirical results indicate that adjustments around the threshold value of the Bangladeshi lending-deposit rate spread are asymmetric. In fact, the point estimates suggest that the spread tends to decay at the rate of $|\rho_1| = 0.813$ for $\hat{\varepsilon}_{t-1}$ above the threshold, $\tau = 0.209$, and at the rate of $|\rho_2| = 0.255$ for $\hat{\varepsilon}_{t-1}$ below the threshold. Both ρ_1 and ρ_2 are statistically significant at 1 percent level. Furthermore, the estimates of ρ_1 and ρ_2 satisfy the stationary (convergence) conditions[3].

Table 2: Unit Root and Tests of Asymmetry, 1999:11 to 2008:01

ρ_1	ρ_2	τ	$H_0 : \rho_1 = \rho_2 = 0$	$H_0 : \rho_1 = \rho_2$	Aic
-0.813*	-0.255*	0.209	$\Phi_\mu = 20.773^*$; $Q_{LB(6)}$ =7.168[0.306]	F = 10.871*	64.72

Notes: The null hypothesis of a unit root, $H_0 : \rho_1 = \rho_2 = 0$, uses the critical values from Enders (2001, p. 259, Table 2 for four lagged changes and n = 100). * indicates 1% level of significance. The null hypothesis of symmetry, $H_0 : \rho_1 = \rho_2$, uses the standard F distribution. τ is the threshold value determined via the Chan (1993) method. $Q_{LB(6)}$ denotes the Ljung-Box Q-statistic with 6 lags.

With regard to the adjustment process, given $|\rho_1| > |\rho_2|$, the Bangladeshi lending-deposit rate spread adjusts to the threshold value faster when the deposit rates fall relative to the lending rates, widening the spread, than when the deposit rates rise, narrowing the spread. This result contradicts those reported by Thompson (2006) in the U.S. with respect to the prime rate and the secondary market one-month CD rate, but seems to support the consumer reaction hypothesis as articulated by Stiglitz and Weiss (1981).

Results of the Asymmetric Error-Correction Model

Given the presence of asymmetric adjustments in the Bangladeshis lending-deposit rate spread as suggested be the above estimation results, an asymmetric error correction model can be specified and estimated to capture the short-run and long-run dynamics with respect to the lending rate (LR_t) and the deposit rate (DR_t).

$$\Delta LR_t = \alpha_0 + \rho_1 I_t \hat{\varepsilon}_{t-1} + \rho_2 (1 - I_t)\hat{\varepsilon}_{t-1} + A_{11}(L)\Delta LR_{t-i} + A_{12}(L)\Delta DR_{t-i} + u_{1t} \quad (4)$$

$$\Delta DR_t = \widetilde{\alpha}_0 + \widetilde{\rho}_1 I_t \hat{\varepsilon}_{t-1} + \widetilde{\rho}_2 (1 - I_t)\hat{\varepsilon}_{t-1} + A_{21}(L)\Delta LR_{t-i} + A_{22}(L)\Delta DR_{t-i} + u_{2t} \quad (5)$$

where $u_{1,2t} \sim i.i.d.(0, \sigma^2)$ and I_t is set in accordance with equation (3).

The estimation results of the asymmetric error correction model are reported in Table 3. In the summary of the estimation results, $A_{ij}(L)$ represents the first-order polynomials in the lag operator L. The F_{ij} represents the calculated partial F-statistics with the p-value in squared brackets testing the null hypothesis that all coefficients of A_{ij} are equal to zero. The t-statistics are reported in parentheses with "*" indicating the 1 percent significant level. Q(6) is the Ljung-Box statistics and its significance is in squared brackets, testing for the first six of the residual autocorrelations to be jointly equal to zero. ln L is the log likelihood. The overall, F-statistic with "*" indicates the significance level of 1 percent.

An analysis of the overall empirical results indicates that the estimated equations (4) and (5) are absent of serial correlation and have good predicting power as evident by the Ljung-Box statistics and the overall F-statistics, respectively. The partial F-statistics indicate bi-directional Granger-causality between Bangladeshi lending and deposit rates. These results imply that the Bangladeshi lending rate and deposit rate adjustments affected each other's movements, which parallel those reported by Thompson with respect to the prime lending rate and the one-month CD rate in the US banking industry, i.e., there is evidence of Granger-bidirectional causality.

Table 3: Asymmetric Error Correction Model, TAR, 1999:11 to 2008:01

$$\Delta LR_t = -0.016 - 0.150 I_t \hat{\varepsilon}_{t-1} - 0.360(1 - I_t)\hat{\varepsilon}_{t-1} + A_{11}(L)\Delta LR_{t\,t-i} + A_{12}(L)\Delta DR_{t\,t-i} + u_{1t}$$

(-0.577) (-2.313**) (-5.024*) F_{11}=4.497[0.037] $F_{21[}$ =9.057[< 0.001]

Q(6) = 7.054[0.277] ln L = 11.903 F-statistic =10.913*

$$\Delta DR_{t\,t} = -0.035 + 0.201 I_t \hat{\varepsilon}_{t-1} - 0.054(1 - I_t)\hat{\varepsilon}_{t-1} + A_{21}(L)\Delta LR_{t\,t-i} + A_{22}(L)\Delta DR_{t\,t-i} + u_{2t}$$

(-1.575) (3.837*) (-0.964) F_{21}=15.038[<0.001] F_{22}=4.493[<0.001]

Q(6) =5.054[0.537] ln L = 28.499 F-statistic =8.086*

In addition to testing the short run dynamic Granger-causality, the asymmetric error correction model also allows for documenting how the Bangladeshi lending and deposit rates adjust to the long run threshold after a shock. With regard to the long run adjustments, both ρ_1 and ρ_2 are statistical significant at 5 percent and 1 percent levels, respectively, and $|\rho_2| > |\rho_1|$ in equation (4) indicate that the lending rate adjusts to the long-run equilibrium faster when he shock narrows than when it widens the basis. However, the estimations results of equation (5) show that only $|\widetilde{\rho}_1|$ is statistically significant at 1% level, suggesting that only the deposit rate responds when the basis is widening but not when it is narrowing.

The above discussion on asymmetric adjustment of the lending-deposit rate spread may help explaining these asymmetric behaviors of the lending rate, the deposit rate, and the bi-directional Granger-causality in the previous paragraph. More specifically, when a shock widens the spread management of lending institutions would try to increase the loan originations to maximize "other benefits" while maintaining the old spread. Facing high elastic demand for loans precipitated by high rate environment, the management may achieve this objective by lowering the lending rate moderately – just enough-- to attract the number of new loans and to raise the deposit rate to acquire funds to finance these new originated loans at moderately lower lending rate. This phenomenon is consistent with empirical findings of asymmetric adjustments of the lending rate and lending-deposit rate spreads and the Granger-bidirectional causality.

Nature of the Bangladeshi Economy, Empirical Findings, and Policy Implications

As aforementioned the consequences of extensive government interventions in the form of licenses and permits as well as directives, the ownerships of private institutions and controls of public institutions are given to a few individuals who are well-connected politically, resulting in monopoly and oligopoly behavior implicitly or explicitly. The monopolistic and oligopolistic market structures coupled with the political connections of a few powerful individuals and corruptions would invariantly lead to cartels and price fixing. Naturally, these above phenomena would also result in higher lending rates, lower deposit rates and hence higher lending-deposit rate spread in the banking industry. Actually, interest rate spread in Bangladesh is not only high in

comparison to International standard but also in terms neighboring countries Sri Lanka, India and Pakistan. Due to high interest rate spread industrialization process of the country has been affected.

As to the Bangladeshi corrupted business environment and for whatever it is worth, the Transparency International ranked Bangladesh as the 147th, 147th, and 162th, most corrupted country out of 180 nations that it studies, 1st being the least corrupted, in the world in 2009, 2008, and 2007, respectively (see Transparency International 2007, 2008, and 2009.) Moreover, Ali (2006) found that 75% of the unethical practices in the banking sector are owing to the personal gain, 20% is due to the business interest of banks such as charging high interest rate in the call money market or discrimination of charging commission or service charges from one customer to another. Only 5 % of unethical practices are owing to social reasons such as waiver of interest up to Tk. 10,000 against agricultural loan. Though this waiver is done due to the Government decision, it creates inequality among those persons who have taken loans. When such waiver is made those who are not benefited get jealous and their interest is not protected. Moreover, when big defaulters get a lump sum amount of waiver for rescheduling, those who are regularly paying interest think that they are being deprived!

One of the consequences of corruption is that the pervasive default culture in the Bangladeshi economy, as evidenced by huge amount of nonperforming loans, which prevented reductions in loan pricing. This is because cost of fund is high. Through moral suasion, Bangladesh Bank has been requesting reduction in lending-deposit rate spread in veil because with the exception of few public banks, other banks want to earn super normal profit resulting in high lending rate. Lack of ethics in the banking sector is a part of wider and long lasting socio-economic and political problems in the country. Loopholes in the banking sector are a part of the overall corruption that plagued almost all segments in the country. There is a dilemma between the making money and business ethics. Corruption is the buyer-seller collusion resulting higher business cost structures and raising simulated shortage in general, and the banking sector, in particular.

As to the predicament of the Bangladeshi higher lending-deposit rate spread Farasuddin (2005), Mujeri and Islam (2008) argued that the high interest rate spread that exists in Bangladesh's banking sector is largely the outcome of inefficiencies and lack of competition in the banking system. As such, ensuring a rational lending-deposit rate spread requires effective measures to address these weaknesses. In real terms, the deposit rate is low (1.2 percent in 2007)

so that the scope of lowering lending-deposit rate spread through reducing the deposit rate is likely to be counterproductive.

Besides the above characteristics of the Bangladeshi economy in the literature, the empirical findings of this study suggest new adverse predicaments for the authorities. First, the above empirical result of this study contradicts those reported by Thompson (2006) in the U.S. with respect to the prime rate and the secondary market one-month CD rate, but seems support the consumer reaction hypothesis as articulated by Stiglitz and Weiss (1981). To possibly explain the empirical findings, it is important to note that the consumer reaction hypothesis is hypothesized in the high interest rate environment and to understand the rationale for banks to behave as such in such an environment. Interest rate is the price of using financial capital or funds, and microeconomic theory demonstrates that in the relatively high price range, the demand for the underlying product is more elastic. Stated differently, in the relatively high lending rate environment such as the case of Bangladesh, the demand for loans are relatively more elastic.

Customarily, originating loans would provide some non-interest income to the originating institutions, and in a fairly corrupted environment, there may be some "other benefits" to both the originating institutions and possibly their management as well. Naturally, it is easier to ask for and the borrowers are more likely to agree to provide "other benefits" in the declining lending rate environment than in the rising rate. Certainly, a decline in deposit rate widens the spread, which allows lending institutions to originate loans at lower lending rate and still maintain the old spread. This coupled with the high elasticity of demand precipitate a significant increase in demand for loans which in turn will create opportunities for lending institutions and their management to generate lucrative "other benefits" and hence the observed quicker responses. Asymmetrically, in the rising rate environment, the new loans must be generated at higher lending rate and the possibly negative attendant impacts on "other benefits" do not provide attractive opportunities for lending institutions and their management, and hence the observed slower responses. As aforementioned, Bangladeshi banking industry is operating in the high rate, corrupted environment, when deposit rate changes causing changes in the spread, lending institutions must weigh the marginal non- interest benefits to both the originating institutions and their management against marginal loss in interest income in originating new loans at the new lending rate to restore the spread to the threshold. This benefit maximizing process in the face of highly elasticity of demand for loans precipitated by high rate environment would be a very plausible explanation of the empirical findings of the above pattern of the asymmetric adjustment process Bangladeshi banking industry

As the following phenomenon in the US financial industry indicates, the above explanation of the Bangladeshi lending-deposit rate spread adjustment is not far fetching. Due the increases in the economies of scopes and the economies of scales, as the results of the recent consolidation in the fairly transparent environment, the US banking industry exhibits the similar tradeoff between marginal non-interest income and marginal cost of originating new loans at lower lending rate to maximize its profit. More specifically, The passage of the Gramm-Leach-Bliley in 1999 allowing formations of financial holding companies which allows a company to own a bank, a securities firm, and an insurance company. The establishments of these financial holding companies broaden the economies of scopes and the economies of scales of institutions in the US financial sector leading to the so called "one stop shopping" in the industry. In this new modus operandi, financial holding companies combine the services that were provided by three separate entities together under the same roof, whereby they can increase the economies of scopes and the economies of scales of their operations. These, in turns, increase their per customer average non-interest income many folds; therefore, the US banking reduces their lending rates to compete for customers.

It is theoretically well articulated and supported by empirical studies that investment in physical capital or otherwise is inversely related to the level of market interest rates. Moreover, the positive relationships between investments and economic growth as well as social progress are well established. National economic policy consists of two components: Monetary policy and fiscal policy. These to policies must be coordinated to achieve overall economic goals because their adjustment processes operate in different time frames. To this end, whatever reasons causing high market rates would definitely hinder the economic growth, industrialization, as well as social progress of the country. Bangladesh is, no doubt, one of the vivid examples of these phenomena in the world! It is a very difficult to address these issues using only one component without free market disciplines! Bangladeshi banking sector has gone through several restructuring and reforms, but cannot overcome any of the problems. The main reason is the nexus between bureaucrats, politicians, civilians, bankers. They are playing prisoner's dilemma game whose winning strategy is not to disclose the corruption but to participate in the process. How else can the fact of slow economic development and social progress in the last 39 years, including a period under military rulers, be explained?

Clearly, the root causes of the Bangladeshi banking sector problem are the lack of market economy and hence its disciplines as well as the coordinating support of the fiscal policy. Excessive government intervention and political connections, economic and political

corruptions, inefficiency and ineffectectiveness, backwardness and excessive government intervention and political connections is the vicious circle that inhibits economic development, industrialization, and social progresses in poor and developing countries in general, and in Bangladesh in particular. The desired characteristics of the economy have been elusive for Bangladesh due to the political will, or lack thereof. The competitiveness and the transparency of the market economy will reduce the lending-deposit rate spread. Ahmed and Islam (2006) commented that lowering of the high banking spreads would require substantial improvement in the current situation of limited competition, overstaffing, high administrative costs, the burden of non-performing loans (NPLs), and above all, congruence between monetary and fiscal policy stances. These cannot be achieved in the absence of the infrastructure of the market economy. With a market economy structure, the following changes will significantly improve the banking sector, economic growth, industrialization, and social progress. But first and foremost is still the free market discipline.

First, in the market economy, banking business and bank management would be efficient. Undesirable phenomena such as unethical behavior, crimes and irregularities like money laundering, black-marketing, profiting and loan defaulting are fairly easy to detect and rectify by effective rules, regulations and supervision in a market economy. Additionally, sound banking business can be established so that banking sector can be free from all sorts of political interference. Political pressure for disbursing loan could be stopped. Defaulters would be disciplined.

Additionally, code of conduct, audit and monitoring systems, de-politicizing the process of appointment of the directors to curb their excessive power to sanction loans and advances can be established to assure efficiency and effectectiveness. Manpower planning process can be established in the banking industry to improve productive human resources to prepare the sector for the global challenges. In the banking sector an ombudsman may be appointed. The ombudsman can act as independently to investigate any complaints regarding banking services and must work freely and independently. Better banking services, diversified banking products would be the natural consequence of competitive financial industry. Operational and administrative expenditure may be reduced through implementing contemporary banking and competent management structure. Improved customer relationship management system to retain existing customers of the bank can be established in a market economy.

Concluding Remarks

This study extends the work of Thompson (2006) to the Bangladeshi banks' lending-deposit rate spread, which is defined as the difference between the lending rate and the deposit rate. The Perron's (1997) unit root test allowing for endogenous structural break indicated a break date of May 2004 corresponding to the intensifying of the ongoing initiatives of the Bangladesh Bank to persuade commercial banks to reduce non-performing loans as well as reduce interest rate and also to bring financial discipline. These efforts include the introduction of instruments, floated currency, revised T-bills, and T-bonds rate, lowered repo/reserve repo rates. Especial importance is several meetings held by the Governor of Bangladesh Bank with top management and directors of the boards of commercial banks to persuade them to lowering lending rate. Additionally, the empirical results reveal asymmetric adjustment in the spread. In fact the Bangladeshi lending rate-deposit rate spread adjusts faster toward the threshold value when the spread is widening (i.e. decreasing the deposit rate) than when the spread is narrowing (i.e. increasing the deposit rate). These findings are opposite to those reported by Thompson (2006) regarding the responses of the US prime lending rate and the one month CD rate to their spread. This finding, however, support the consumer reaction hypothesis as articulated by Stiglitz and Weiss (1981).

With regard to the short-run and long-run dynamics of the Bangladeshi lending and deposit rates, the empirical estimations of the asymmetric error-correction model reveal that the lending rate and the deposit rate affect the movement in each others' rates. These bi-directional Granger Causality findings parallel those reported by Thompson (2006) with respect to the prime lending rate and the one-month CD rate. The estimation results further suggest that the lending rate adjusts to the long-run equilibrium faster when a shock narrows than when it widens the basis. However, the estimation results seem to indicate that the deposit rate only responds when the basis is widening but not when it is narrowing.

The findings of structural break in the banking industry in May 2004, the asymmetric adjustment behaviors of the lending rate, the deposit rate and their spread are the contributions of this study to the literature pertaining to the Bangladeshi banking industry. Being aware of these asymmetric behaviors may assist the Bangladesh Bank to design and implement its monetary policy more effectively over different phases of business cycles because counter-cyclical monetary -- expansionary or contractionary-- policies cause market rates to move in different directions. More specifically, the asymmetric adjustment in the market requires different doses of policy action to achieve the same objective depending upon the policy are expansionary or contractionary.

As to the policy implication, it is argued that very little more economic growth and social progress can be achieved in the absence of the infrastructure of the market economy. With a market economy structure, the aforementioned changes will significantly move Bangladesh to prosperity. Even in the age of globalization with many opportunities and challenges, unless there are changes in political will to serve as the engine of changes, the prospect for Bangladeshi prosperity seems as elusive as ever, and Bangladesh will be Bangladesh as history has unkindly illustrated, unfortunately!

Endnotes;

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[1] Sellon (2002) provides a nice overview of the impact of the changing U.S. financial system on the interest rate channel for monetary policy transmission.

[2] Scholnick (1999) provides the survey on these three types of explanations for commercial banks interest rate asymmetries in the literature.

[3] As shown by Petrucelli and Woolford (1984), the necessary and sufficient condition for the basis to be stationary is: $\rho_1 < 0$, $\rho_2 < 0$ and $(1+\rho_1)(1+\rho_2) < 1$

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