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Cost-Based Pricing of Banking Asset: Bangladesh Perspective

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ABSTRACT

The interest rate offered by the banks against their lending and their different influencing factors are matters of immense importance for a growing economy like us. There are several factors that influence the asset price like demand for and supply of fund, cost of collecting and maintaining fund, market competition, etc. The study focuses on the status of different cost components of the asset price of commercial banks of Bangladesh. The paper is shaped to determine the asset price for scheduled commercial banks in Bangladesh and to sketch the inter-group comparison among them. It covers forty three commercial banks grouping in terms of ownership structure. The results show the average asset price of 15.97% and the state owned commercial banks are in good position in terms of cost of doing business and base rate but, they have the highest level of risk premium that squeezing the profit margin.

Keywords: Assets Price, Base Rate, Cost Efficiency, Profitability, Risk Premium

BACKGROUND

The financial system of Bangladesh is dominated by the banking financial institutions (BFIs) and thus, the surplus units of the economy are heavily dependent on the indirect finance. So, the interest rate offered by the banks against their lending is a matter of immense importance for a growing economy like us. It is also very important to understand the factors that influence the lending rate. There are several factors that influence the interest rate policy of the banks. These factors

include demand for and supply of investable fund, cost of collecting and maintaining fund, market competition, different regulations, economic policy etc. But the most influential factor of fixing a price is the cost of generating assets. These cost components include the interest against the deposits, the administrative cost of generating assets and maintaining them properly and other costs. According to Madura (1998), the loanable funds theory suggests that the market interest rate is determined by the factors that control the supply of and demand for loanable funds. Besides, there is a possibility of defaults and thus, banks are to charge additional amount for mitigating the risk.

Other key factors for determining interest rate are banks' profitability and efficiency. The continuous trend of expanding bank activities in recent years and expansion in high interest bearing assets' portfolio have a direct positive impact on the banks' profitability and efficiency. The degree of competition in the banking system is also considered a very important factor—which influences the banks' interest rate policy. The factors affecting lending rates are initially examined by defining a set of variables which are directly related to bank balance sheets and bank characteristics. It is also expected to have a strong influence of deposit rates, bank assets, market share, bank liquidity, capital adequacy, the share of foreign capital etc on lending rates. Along with these, non-performing loans in the balance sheet of domestic banks are usually treated as one of the main determinants of high lending rates. Banks with a higher proportion of non-performing loans also tend to offer less favorable terms. Lown and Peristiani (1996) found that during the 1990 credit slowdown, undercapitalized banks charged higher than average rates for consumer lending relative to better capitalized institutions.

There are different cost components in asset pricing, like operating cost, financing cost, cost of capital etc. Of these, operating costs play an important role in the interest rate policy of the banks. The decrease in the cost of financing (deposit rate) will certainly cause a decrease in the price of asset. It has been observed that, capital-constrained banks tended to cut back on lending activities which may increase their ultimate pricing for loan and have to offer at comparatively higher rate. Hassett and Hubbard (1998) found that, all else being equal, firms citing high costs of obtaining external financing use higher "hurdle rates" for investment projects than do other firms. This study tends to assess the

The minimum rate of return on a project or investment required by a manager or investor. In order to compensate for risk, the riskier the? project, the higher the hurdle rate. http://www.investopedia.com/terms/h/hurdlerate.

structure and status of cost specially the components of price of banking assets in Bangladesh. Although the other factors are very influential for the pricing of banking assets or the lending rates but they have been disregarded. The cost components are quite different across banks in Bangladesh. This is why the lending rate is a much debated issue in the country. The business bodies, government, central bank and other parties are very much concerned about the existing lending rates but the issue is less studied. So, this study is an effort to get the proper insights regarding the cost components that directly influence the asset price (AP) offered by the commercial banks against their different assets.

OBJECTIVE

As the pricing of an asset of a commercial bank depends on lots of factors, there is a chance of variation of asset price of the banks. Among others, the most influential factor of fixing asset price is the cost. The cost components include the interest against the deposits, the administrative cost and other costs. Considering the significance of the cost components, in this study, the effort was to determine and develop a comparative scenario in banking sector of Bangladesh in regard of their pricing. Thus, the paper is shaped with the following objectives:

- a) to determine the asset price for scheduled commercial banks in Bangladesh.
- b) to sketch the inter-group comparison among the scheduled commercial banks in terms of asset pricing.

LITERATURE REVIEW

The Bangladesh Bank introduced the flexible interest rate in 1989 allowing banks' freedom in setting both lending and deposit rates (Jesmin, 2005). Thus, now banks are permitted to set their lending rate based on market mechanism. For example, an increase in investment demand causes interest rate to rise (Kamal, 2012). Accordingly, the loan interest rate charged by a bank to a borrower should reflect the bank's cost of funds and the risk characteristics of the borrower. Any change in borrower's risk will affect the risk premium in the loan (asset) price. As per Bangladesh Bank (1993) a loan pricing methodology must past three tests, specifically, it must accurately reflect the bank's true cost of funding, be risk based and realistically capture the bank's cost of servicing. Rose (1996) stated that there

are different methods of loan pricing like cost-plus loan pricing, cost-benefit loan pricing and customer profitability analysis. James and Frank (1995) propose likely loan-pricing model based on options theory. Chen (2002) put forward some ideas about the choice of loan pricing model for market oriented interest rate. Carvallo and Kasman (2005) noted that the liberalization of financial markets at a global scale, the increasing use of advanced technology, and the information revolution have put competitive pressure on banking firms both domestically and internationally and this profoundly influences the operating cost of the banks. This competitive pressure is particularly important for banks in the emerging markets, as they constitute the main financial intermediaries to channel savings and investment. In this content, the competitive advantage is enhanced if banks can function efficiently. In addition, Rajan (1992) argues that by monitoring borrowers, banks gain an information advantage that, allows them to impose higher interest rates and investigate whether the banks with large losses increased interest rates on their loans to bank dependent borrowers by more than they increased interest rates for borrowers that were not dependent on them.

According to Peter and Paul (1989), borrower's interest rate on loans which is determined by the credit score and classification procedure. The approach follows here for assigning a specific interest rate to each credit class is to specify a base rate and an interest rate range around the base rate. In this connection, the bank's loan pricing methodology should have two principal components; (i) base rate and (ii) risk adjustments (Bangladesh Bank, 1993). Here, base rate includes marginal cost of fund, cost of loan servicing and profit margin (Bangladesh Bank, 1993). Berger, Hunter, and Stephen (1993) note that if banks are efficient, then it can expect improved profitability, greater amounts of funds intermediated, better prices and service quality for consumers, and greater safety and soundness. According to Boot, Greenbaum, and Thakor (1993), banks that need to rebuild their capital structure are likely to sacrifice reputational capital by reneging on their implicit commitment to not exploit their monopoly power over borrowers.

According to Bangladesh Bank (1993), loan price, the bank must charge on a particular loan to achieve the bank's targeted loan portfolio return, will be linked to the bank's overall return targets. Again, loan price will form the basis for relationship pricing as well as support and reinforce the implementation of credit management in the bank and will allow management to truly evaluate the cost of the trade-offs between current profits and market share at the customer level

(Bangladesh Bank, 1993). Berger and Gregory (1995) find that borrowers in longer-term relationships with their banks not only pay lower rates, they are less likely to pledge collateral. Boot and Thakor (2000) contrast "relationship banking" with "transaction banking." The study also argues that, the relationship loans are more costly to produce than transactions loans, which would imply higher rates and/or fees on such loans. Blackwell and Winters (1997) report similar findings for the influence of "relationship" on loan rates. Nomis Solutions, Inc. (N/A) suggests customer value pricing, a different way for loan pricing. It states that by identifying the needs of different customers and incorporating that information throughout all interactions, a bank should be able to simultaneously improve customer service and satisfaction as well as increase its own revenue and profitability through optimized pricing for customer value. Calomiris and Pornrojnangkool (2006) argue that banks price loans and underwriting services in a strategic way to extract value from their relationships. They also state that universal banks enjoy cost advantages in lending irrespective of relationship benefits and part of the advantages borrowers enjoy from bundling products within a banking relationship may include a reduced demand for borrowing, which takes the form of reduced demand for lines of credit.

A survey of the Prime Lending Rate (PLR) in select countries shows that in most of the countries (e.g. Japan, Russia, Hong Kong, Singapore, Taiwan, etc.) a cost plus approach is followed for determining the PLR (Reserve Bank of India, 2009). It is also argued that lending rates have to be necessarily based on the cost structure of each individual bank (Reserve Bank of India, 2009). Repullo and Suarez (2004) state that requiring banks to hold capital increases their funding costs and these additional costs are transferred to the borrowers in the form of higher loan rates. Olin Business School (N/A) states that banks may increase the interest rates on their loans to bank-dependent borrowers by more than they do on their loans to borrowers that have access to the bond market. According to Diette (2000), a very simple loan-pricing model assumes that the rate of interest charged on any loan includes four components like (i) the funding cost incurred by the bank to raise funds to lend; (ii) the operating costs of servicing the loan; (iii) a risk premium to compensate the bank for the degree of default risk inherent in the loan request; and (iv) a profit margin on each loan that provides the bank with an adequate return on its capital. Strahan (1999) says that riskier borrowers are to pay more for their loans. Today, almost all banks use a risk-based approach to set loan and deposit rates but the problem is that the measurement of risk is based on historical data (www.pricegain.com).

In Bangladesh, the lending rate bands were removed from all but three sectors namely agriculture, export and small industry sectors in 1992 (Islam & Begum, 2004). Under the deregulated interest rate regime, Bangladesh Bank influences lending rate, deposits and call money rate through monetary instruments only (Islam & Begum, 2005). According to Islam and Begum (2004), the simplest loan pricing model includes four components: (i) the cost to the bank for raising fund; (ii) the banks' operating cost; (iii) necessary compensation paid to the bank for the degree of default risk inherent in a loan request and (iv) the desired profit margin. Rahman and Hossain also consider four components, vis-à-vis cost of fund (COF), cost of administration (COA), cost of capital (COC) and risk premium (RP), for pricing banking assets under the cost-plus method. They opine that COF and COA are actual costs of the investment products and COC and RP remains for the owners. Omar, Noor and Meera (2010) argue that Islamic finance has been using conventional finance benchmarks, such as BLR, KLIBOR, LIBOR, etc. Banks charge higher interest rate based on the perceived riskiness of the cash flows (Rahman & Hossain). Therefore, the present study used the cost-based approach for pricing of banking assets which includes COF, COA, COC and RP.

METHODOLOGY

A total number of forty seven scheduled banks are operating in Bangladesh. Out of these four specialized banks are operating their activities for facilitating the specific sectors of the economy and thus, the pricing policy of this group is different. Remaining forty three banks are doing business commercially. They are to offer price to the deficit units competing with each other. Hence, the present study considers all of forty three commercial banks grouping in terms of ownership structure (Table I). Both primary and secondary data have been collected for this study. Different banks officials have been interviewed to know the current banking practice in regard of pricing their products.

As a source of secondary data annual reports of the banks for the year 2010, different publications of Bangladesh Bank and different websites have been consulted. There are different approaches for determining the price of banking assets like cost-based pricing, price leadership model, mark-up market pricing model, etc. The cost-based pricing approach is used by the researchers for the current study. Here, cost is indicated as base rate (BR). BR consists of cost of doing business (CDB) and cost of capital (COC). Here the COC has been included in the

formula of asset price for incorporating the desired rate of return of the general investors. As lending the major activity of a bank so, the COC must be included in the asset price to generate sufficient carnings to pay off the expectations of the general investors. CDB includes cost of fund (COF), which is incurred against deposits, and cost of administration (COA), which is incurred for generating and maintaining assets properly. Risk premium (RP) is charged for taking risk of default. Thus, the asset price (AP) of the banking industry is determined by the following ways:

Here, banking assets indicate loans and advances, for the conventional banking, or investment, for Islamic banking. The term interest is used as a synonym of profit under Islamic banking concept whereas borrowing indicates placement from others. The cost of fund (COF) is calculated as interest paid on deposits divided by deposits & borrowing after adjusting cash reserve requirements (CRR). Because, banks can invest their residual fund available after maintaining CRR with Bangladesh Bank. As per Bangladesh Bank guidelines banks had to maintain 5% cash reserve requirement (CRR) up to May 14, 2010 (Bangladesh Bank, 2005) and it was 5.5% from May 15, 2010 to December 14, 2010 (Bangladesh Bank 2010). After that, it became 6% of total demand and time liabilities. To simplify the calculation, the study adjusts CRR as 5.5%. In consequence, cost of fund is determined by the following formula:

$$COF = \frac{Interest\ paid\ on\ deposits\ and\ borrowing}{Deposits\ and\ borrowing} \times \frac{100}{Percentage\ of\ loanable\ fund}$$

Because of unavailability of sophisticated database, it is not possible to determine the administrative cost of generating a single loan. Therefore, the study follows average method allocating total operating expenses based on proportional interest revenue to total revenue. For that reason, COA is calculated using the following formula:

Though foreign and state owned banks in the sample are not listed in the capital market, for easing the intergroup comparison, we have considered the same expected rate of return (ERR) as applicable for shareholders' of the listed banks. The ERR calculation has some good methodologies like the Gordon model or the Dividend Discount Model (DDM), Capital Assets Pricing Model (CAPM), Free Cash Flow (FCF), Realized Gain Approach etc. All these models have serious limitations due to several assumptions behind them. These models also require a sound market index. But, the Dhaka Stock Exchange (DSE) indices are not sound or properly calculated. Because, in the past, many of the adjustments were not done properly. For example, few years back the DSE index was up by about 800 points in a single day. It is practically impossible to identify each and every distortion and adjust the index accordingly. It is always better to use stock return estimated from return index. But, unfortunately there is no stock return index in our country. In addition, the stock market of Bangladesh is yet to be developed at a stage where the models can be used successfully. Besides, the information from the capital market sources are not truly reflecting the expectations of the general investors as there are big market manipulating cartel. So, the information from the capital market cannot depict the real expectations of the general and institutional investors. This is why the opinions of a good number of shareholders' have been considered in determining the ERR. The pool of investors includes both the institutional investors and general investors. In this connection, the ideas of ERR have been gathered through unstructured opinion survey of the investors involved in the capital market. Although the investors in the capital market are less interested about the return provided by the issuing company, rather they are more interested in the capital

gains. During survey, we have found that some investors are expecting more than 150% return from their investment. To rationalize the expected return we have disregarded the extreme values and collect about 174 expectations of the general investors. Then by averaging the expectations we found that the average rate is about 30.91%. For the convenience of the calculation we have considered the expected return as 30%. Therefore, we calculate COC by using the following way:

$$COC = \frac{Total\ Equity \times ERR}{Total\ loans\ and\ advances} \times \frac{Total\ interest\ revenues}{Total\ revenues}$$

The risk premium is calculated on the basis of bad and loss loans i.e., the amount of bad and loss loans divided by total loans and advances. The formula can be expressed as follows:

Table I: Group of Scheduled Banks in Bangladesh and Sample Banks

S/N	Group of Banks	Number of Banks		
		Population*	Sample	
A	State Owned Commercial Banks (SOCB)	4	4	
В	Specialized Banks (SB)	4	0	
C	Foreign Private Commercial Banks (FPCB)	9	9	
D	Local Private Commercial Banks (LPCB)	23	23	
Е	Private Islamic Commercial Banks (PICB)	7	7	
	Total	47	43	

^{*}Source: Bangladesh Bank (2011)

ANALYSIS AND FINDINGS

There are different strategies for pricing the banking assets among them the cost based pricing is well practiced in the banks of Bangladesh. Usually, banks calculate their weighted average cost of funds and then add the other components. But, the cost based pricing has major limitation of not considering the market forces or the factors beyond the control of the banks such as inflation, competition, and other macro economic factors. In this study, we have focused on the status of cost components of the asset price. This part of the article describes the position of different cost components of asset price of commercial banks in Bangladesh.

The Table II presents the descriptive statistics of the cost components. If the cost of fund is considered, the average rate of interest the commercial banks are paying around 6% and it ranges from 1.25% to 11.13%. Both of these extreme values lie with two FPCBs. The Woori Bank has the lowest and National Bank of Pakistan has the highest COF. The cost of administration (COA) is almost uniform across banks as it is evidenced by the value of mean, median and the very low standard deviation. The highest value of COA (5.15%) lies with another FPCB, Bank Alfalah Ltd. In regard to the cost of capital (COC), the average is 4.24% with 6.62% of variation. But, the highest level of COC can be found in case of a foreign bank. Another important component of the asset price of a bank is the risk premium or the percent of asset price required to cover the loss due to bad debts. In Bangladesh, average risk premium is 4.35% but the highest single value of risk premium is 59.20% indicating the non-performing loan (NPL) of the same percentage lies with the problem Islamic bank, ICB Islamic Bank Ltd.

Table II: Descriptive Statistics

					⇒	
	N	Mean	Median	SD	Minimum	Maximum
COF	43	0.0570	0.0632	0.0177	0.0125	0.1113
COA	43	0.0232	0.0224	0.0088	0.0082	0.0515
CDB	43	0.0802	0.0823	0.0172	0.0285	0.1196
COC	43	0.0424	0.0266	0.0662	-0.1126	0.3355
BR	43	0.1226	0.1118	0.0701	-0.0604	0.4042
RP	43	0.0435	0.0188	0.0933	0.0000	0.5920
AP	43	0.1661	0.1348	0.0905	0.0859	0.5316
ROA	43	0.0180	0.0198	0.0172	-0.0729	0.0510
ROE	43	0.2113	0.2104	0.1454	-0.0012	0.9116

Source: Researchers' own analysis

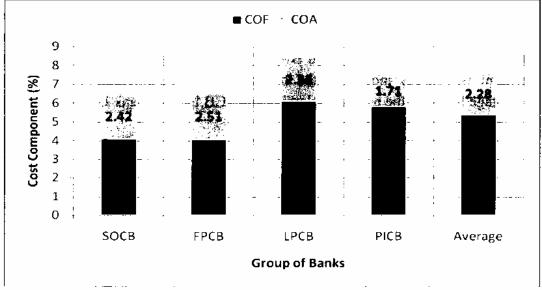
Table III represents the comparative picture of cost of doing business (CDB) of banks grouped in different groups. The local private commercial banks (LPCB) have the highest level of cost of doing business (8.46%) among the groups. The private Islamic commercial banks (PICB) have the second highest level of cost of doing business.



Table III: Cost of Doing Business (CDB) of Banks in Bangladesh

	COF	COA	CDB
State Owned Commercial Bank (SOCB)	0.0412	0.0242	0.0655
Foreign Private Commercial Bank (FPCB)	0.0407	0.0251	0.0658
Local Private Commercial Bank (LPCB)	0.0612	0.0234	0.0846
Private Islamic Commercial Bank (PICB)	0.0582	0.0171	0.0753
Average	0.0536	0.0228	0.0764

Source: Researchers' own analysis



Source: Researchers' own analysis

Figure I-Cost of Doing Business (CDB) of Banks in Bangladesh

Interestingly, the state owned commercial banks have almost similar level of CDB as of foreign commercial banks. The overall CDB of the banking industry in Bangladesh is 7.64% indicating cost efficiency in generating and maintaining assets. The breakup of the cost of doing business is very clearly presented in the Figure I. The lowest level of cost of fund remains with the foreign private commercial banks (FPCB). The next group is the state owned commercial banks (SOCB) and both the groups are well below the industry average. The private Islamic commercial banks (PICB) of the country are going hand to hand with the industry average CDB and they have the lowest level of cost of administration and it is far below the industry average indicating cost efficient management of the operation. During the observed period the local private commercial banks (LPCB)

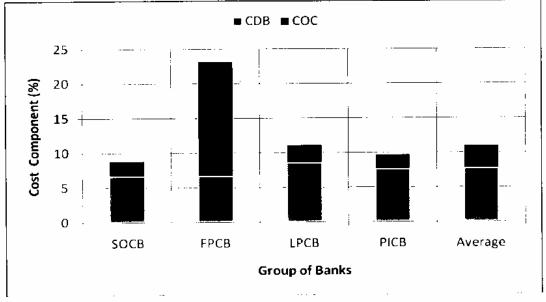
have the highest COF but they were very near to the industry average COA. Therefore, it is evidence that SOCB is the most cost efficient in terms of CDB.

The base rate has been calculated by adding the cost of doing business with the cost of capital. This component is very important as it relates the interest of owners. Through lending activities the banks have to generate certain cash flow to pay off the investors' expectations otherwise there will be decline in the values of the bank. Another important part of this component is the BASEL II requirement of the banks to maintain adequate capital, compels the banks to raise higher amount of capital for enhancing their shock absorption capacity against credit risk and others. Due to this, there is higher capital requirement and that propels the investors' requirement for return from the banking business.

Table IV: Base Rate (BR) for the Scheduled Commercial Banks in Bangladesh

	CDB	COC	BR _
State Owned Commercial Bank (SOCB)	0.0655	0.0232	0.0887
Foreign Private Commercial Bank (FPCB)	0.0658	0.1666	0.2324
Local Private Commercial Bank (LPCB)	0.0847	0.0269	۵.1115
Private Islamic Commercial Bank (PICB)	0.0753	0.0215	0.0969
Average	0.0764	0.0341	0.1105

Source: Researchers' own analysis



Source: Researchers' own analysis

Figure II - Base Rate (BR) for the Scheduled Commercial Banks in Bangladesh

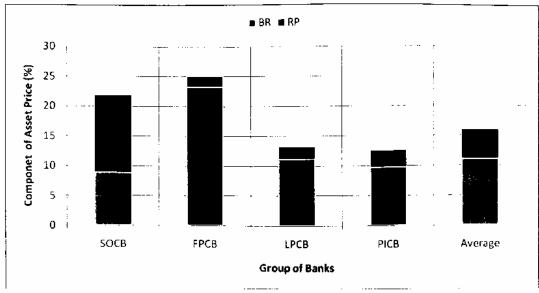
Table IV shows the status of base rate of the groups of banks. Among them, the FPCB has the highest base rate (23.24%) as their capital is costlier than the local banks. LPCB has the second highest level of base rate (11.15%). On the other hand, SOCB has the lowest level of base rate (8.87%) during the period indicating better condition to earn large profits. The average BR is 11.05%. The picture is clearer with Figure II. The cost of doing business for the LPCB is above industry average signifying higher cost for doing business. The Islamic banks have the lowest level of COC (2.15%) indicating the owners of the Islamic banks of the country expecting more realistic return from the banking business compared to other investment opportunity in Bangladesh. The asset price of the groups of banks is depicted in the Table V. This table clearly shows the status of the cost components of asset price of different groups of banks doing commercial banking in Bangladesh.

Table V: Asset Price (AP) for the Scheduled Banks in Bangladesh

	BR	RP	AP
State Owned Commercial Bank (SOCB)	0.0887	0.1303	0.2190
Foreign Private Commercial Bank (FPCB)	0.2324	0.0184	0.2508
Local Private Commercial Bank (LPCB)	0.1115	0.0211	0.1326
Private Islamic Commercial Bank (PICB)	0.0969	0.0285	0.1254
Average	0.1105	0.0492	0.1597

Source: Researchers' own analysis

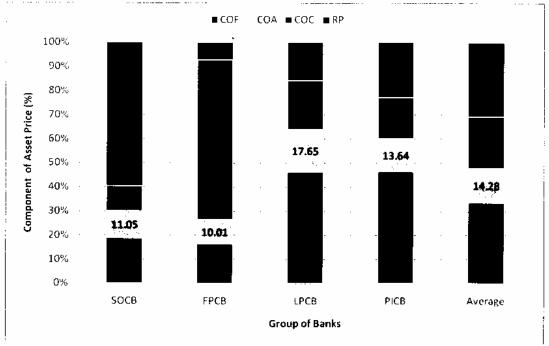
It was early mentioned that the SOCB has better scopes of earning profit. In the above table, the picture is not so encouraging because the SOCB has the highest level of risk premium requirement squeezing the profit margin. The reason is the high level of NPL in the credit portfolio. So, the SOCBs have to earn marginal interest rate of 21.90% to stay profitable and meeting the return requirement of the owners.



Source: Researchers' own analysis

Figure III - Asset Price (AP) for the Scheduled Banks in Bangladesh

Figure III depicts the same as Table V. The FPCB has the lowest level of risk premium requirement because of their very low level of NPL. However, due to very high level of COC asset price of the group is the highest (25.08%). The LPCB and the PICB are going hand to hand as their asst prices remain at 13.26% and 12.54% respectively. The average asset price of the banking industry found as 15.97%. The SOCB and FPCB are above the industry average AP whereas the LPCB and PICB are below the industry average AP. The actual rate of interest in the year 2010 published by Bangladesh Bank shows consistency with the calculation of the study. If the cost of doing business is considered, the industry average has been calculated as 7.64% while the actual weighted average of interest rate remained between 11% to 12% (www.bangladesh-bank.org). The consolidated presentation of different cost components across different groups of banks are shown in Figure IV. Out of total AP, SOCB is to charge 59.59% for RP, whereas FPCB is to charge 66.43% for COC. On the contrary, LPCB and PICB are to charge for COF 46.15 and 46.41% respectively of total AP.



Source: Researchers' own analysis

Figure IV - Matrix of Asset Price Components for the Scheduled Banks in Bangladesh

CONCLUSION

The current study focuses on the status of different cost components of the asset price of commercial banks of Bangladesh. As all the commercial banks in the country have been considered in the study, for better comparison the banks have been grouped on the basis of ownership structure. The interesting finding of the study is that the commercial banks are capable of generating good amount of profit if costs of doing the banking business are taken into consideration. But, demand for and supply of loanable fund, competition and other market forces have serious impact on the profit of a commercial bank. Therefore, in Bangladesh the lending interest rate offered by the commercial banks can cover all costs related to lending. But, if the expectation of the owners is considered the lending rates are not sufficient to meet up that. One disturbing fact is that the expectation of the general investors is abnormally high in the context of Bangladesh. The return expected by them is not realistic compares to the other available investment opportunities.

It is very important to note that banks should price their assets based on proper market survey, customers' expectations and investors' expectation. For example, if it is possible to find the administrative cost of generating a single loan it will be easier to calculate the cost of lending. Nevertheless, most of the banks of the country are not using the sophisticated database which can be used for finding out the cost of a single loan origination. Thus, it can be said that there are certain assumptions behind calculation of administrative costs of lending. Regarding this fact the recommendation is that the banks should try to adopt procedures to indentify individual loan origination cost. For better pricing of the assets banks can establish research cell for collecting and analyzing market information for proper pricing of their assets. The Findings of the study can be different if the individual banks are rigorously studied. However, due to lack of access to internal information it is not possible here. Another important point needs to mention that the there are other methods of calculating the cost components of pricing and the result can be different in that case. Lastly there is enough scope of further study on the issue because in Bangladesh, the bank interest rate is a much debated issue but less studied.

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