

EFFICIENCY OF COMMERCIAL BANKS IN BANGLADESH-A DATA ENVELOPMENT ANALYSIS

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Abstract: This paper develops a general idea to measure the efficiency of a bank in different segments such as- efficiency in management, efficiency in earnings, efficiency in cost control, efficiency liquidity, efficiency in debt & leverage and efficiency in market operation by using Data Envelopment Analysis (DEA). Moreover, we combined all the layers to measure the overall efficiency or ranking of the banks in an economy. Using the data from 2002 to 2011 of 35 commercial banks in Bangladesh, our result reveals that third generation local commercial banks are most efficient along with a foreign commercial bank operating in Bangladesh. It has also been found that these banks maintained their consistency in efficiency during the period of 2002-2011. The study also suggests that there is an intensive competition existing among the second and third generation banks as their efficiency score increased gradually.

Keywords: DEA, Banking Efficiency, Commercial banks in Bangladesh

JEL Classification Codes: G21, C67

INTRODUCTION

One of the major challenges the Central Bank of Bangladesh has been facing is: how to improve the efficiency of the banking sector in Bangladesh? In 1986, the Government formed a national commission to find out the solutions to increase efficiency in operation and management of the financial sector in Bangladesh. In addition, in 1991 a taskforce was formed to formulate strategies

to promote and develop the banking sector in the country. In the same period, the World Bank has conducted several studies on banking sector reform in Bangladesh and provided few suggestions to Bangladesh Bank (the central bank of Bangladesh). Bangladesh Bank has adopted those suggestions and reforms such as; strengthening the role of the central bank in supervision and regulation (Khanam & Nghiem, 2004).

Efficient and effective utilization of resources is the key objective of every bank. This objective has always been important in banking, but a number of recent events are helping to lay greater emphasis on banking efficiency. Increasing competition for financial services, technological innovation, and banking consolidation, for example, are all focusing more attention on controlling costs in banking, and providing services and products efficiently. Increasing competition from non-banking institutions as well as banking institutions, expanding into new markets, is putting strong pressure on banks to improve their earnings and to control costs. Efficiency is clearly a critical factor for remaining competitive. A number of recent statistical studies have shown that the most efficient banks have substantial cost and competitive advantages over those with average or below average efficiency (Richard et al. 2009)

Technological innovation, in the form of improvements in communication and data processing, is also bringing added emphasis to efficiency. Such improvements are giving banks and other financial

institutions opportunities to raise productivity and to deliver different services through electronic means. Even the smallest banks are automating more and more of their operations; and banks and non-bank firms of all sizes are finding cost-effective ways to introduce new products and compete more directly with each other. Much of the consolidation movement is also being spurred by the hope of increasing efficiency. Organizations commonly view acquisitions as a way to spread the costs of backroom operations and product development over a larger base and to design more efficient branch delivery systems by eliminating overlapping offices, personnel, and other duplicative resources and services.

Efficiency measurement is an important benchmark of performance and sustainability of a financial institution in the financial sector. The long run sustainability of an economic unit depends upon its economic efficiency. Efficiency measurement also helps a bank to see and compare its performance with other banks locally and internationally or in the different geographical and political regions. Efficiency can be determined in a number of ways such as service quality, profitability, cost minimization, employee performance, branch coverage etc. There are a number of established measures or approaches to estimate the efficiency levels of banking sector including: (i) scale of efficiency, which refers to relationship between the level of output and the average cost; (ii) scope of efficiency, which refers to relationship between average cost and production of diversified output varieties; and (iii) operational efficiency, a wide concept sometimes referred to as x-efficiency, which measures deviation from the cost efficient frontier that represents the maximum attainable output for the given level of inputs (Leibenstein, 1966).

Unfortunately, research works on the efficiency of the banking sector in Bangladesh are quite a few. Therefore, it becomes really difficult to get to know about the efficiency of Bangladeshi banking sector and help the investors to make right decisions. Insufficient research works conducted by fewer personnel and institutions could not provide the whole scenario of the efficiency of banking sector in Bangladesh.

The main objective of this study is to explain the efficiency of the banking sector in Bangladesh. This study concentrates on measuring the efficiency of management, efficiency in earnings, efficiency in cost controls, efficiency in liquidity management, efficiency in leverage and debt coverage and the market efficiency of the listed commercial banks in Dhaka Stock Exchange (DSE). The rest of the paper is organized as follows: Section 2 reviews the earlier

studies on the measurement of banking efficiency; section 3 describes the methodology, including the estimation of efficiency measure and CCR and BCC models. Section 4 refers to data, variables and section 5 demonstrates the result of the study. Finally, section 6 addresses summary and conclusion.

EARLIER STUDIES

Only a few relevant works have been reviewed in order to understand efficiency differences among private, public and foreign banks in Bangladesh. Yasmeen (2006), conducted a study to find out the technical efficiency and productivity growth of various banks in Bangladesh. She examined four ratios: two for input and two for output by taking the data from 2003-2007 of 35 banks. The findings also provided some indication on the likelihood of dynamic convergence of these banks' performance as well as the challenges that these banks faced amid rising competition. Another work had been carried out by Khanam & Nghiem (2004), on the efficiency of commercial banks in Bangladesh and the data consist of only one year on 48 banks. They considered seven ratios of which five were inputs and two were outputs. They also found that the technical efficiency score of banks in the sample is 84 percent (income based model)¹ and 80 percent (user-cost model)², which is consistent with results from a parametric approach called parametric linear programming. However, the evidence on relationship between foreign ownership on bank efficiency is not significant for the income-based model.

Uddin and Suzuki (2011) had undertaken a study to investigate the performance of commercial banks in Bangladesh after the implementation of a significant financial reform. They considered data from 2001-2008 of 38 banks including state owned, private owned, Islamic and foreign banks and they had considered three inputs and two outputs to measure the efficiency. Their findings indicated that income efficiency and cost efficiency of sample banks have increased by 37.84 percent and 15.28 percent in 2008 and 2001 respectively. On the other hand, private ownership has favorable impact on income efficiency, return on assets, and non-performing loans, whereas negative impact on cost efficiency.

Akhtar et al. (2011), employed data envelopment analysis to estimate the relative efficiency of 12 commercial banks of Pakistan. The results of their study offered some very constructive managerial insights into evaluation and advancing of banking operations. The estimated result shows that 6 banks are relatively efficient when their efficiency is

¹ & ² For more details see the paper of Khanam & Nghiem (2004).

measured in terms of 'constant return to scale'³ and 8 banks are relatively efficient when their efficiency is measured in terms of 'variable return to scale'. However, they suggested that by improving the handling of operating expenses, advances, capital and by boosting banking investment operations, the less efficient banks can successfully endorse resource utilization efficiency.

Several models based on Data Envelopment Analysis (DEA)-have been developed in order to operationalize the framework, and their use has been illustrated using data for the branches of a commercial Bank. In particular, the service-profit chain has been cast as a cascade of efficiency benchmarking models. Empirical results indicate that superior insights can be obtained by analyzing simultaneously operations, service quality and profitability than the information obtained from benchmarking studies of these three dimensions separately (Soteriou 1997).

Fiordelisi et al. (2010), assess the inter-temporal relationships among bank efficiency, capital and risk for the European commercial banking industry. They build on previous work using Granger-causality methods⁴ (Berger and De Young 1997) in a panel data framework. The results show that subdued bank efficiency (cost or revenue) Granger causes risk supporting the "bad management" and the "efficiency version of the moral hazard" hypotheses. They found only limited evidence of relationships between capital and risk in line with the moral hazard hypothesis. The findings showed lower efficiency scores (either cost or revenue) suggest greater future risks and efficiency improvements tend to shore up banks' capital positions. Their findings also emphasize the importance of attaining long-term efficiency gains to support financial stability objectives.

Following the profitability test as suggested by Spong et al. (1995), the main differences between the "most efficient" and "least efficient" bank seem to be mainly related to staff expenses. In the context of important technological improvements in banks' productive processes, the study suggested an urgent need for greater labor market flexibility and the consequent substitution of labor for capital. Moreover, inefficient banks always appear to have lower levels of equity/assets and higher levels of

nonperforming loans. Their finding also suggested that efficient banks are assigning more attention and resources to loan origination, monitoring and other credit judgment activities. Finally, the analysis also shows that there is no clear relationship between the size of assets and bank efficiency

Yiwei et al. (2011), found that the average profit efficiency of Eastern Europe is close to the Central Eastern Europe region, but average cost efficiency leaves considerable room for improvement. They also found that foreign owned banks are somewhat less cost efficient than domestic private banks. It is also evident that progress in the implementation of major economic reforms such as enterprise restructuring and privatization are positively associated with banking efficiency.

Moreover, banking efficiency affects the development of the capital market. This highlights that the relationship between banks and the capital market is both competitive and complementary. When banks are very inefficient, an increase in banking efficiency actually results in more borrowers migrating to the capital market. Beyond a certain point, an increase in the efficiency of banks attracts more borrowers to banks. Thus, the quality cut-off that determines which borrowers go to the market and which go to the banks is non-monotonic with respect to bank efficiency. It may not be possible to develop a good capital market in an economy if it does not have good banks. Thus, in developing a financial system, the initial focus should be on improving the efficiency of banks. (Thakor, 1998).

Berger et al. (2006), found a strong favorable efficiency effects from reforms that reduce the state ownership of banks in China and increase the role of foreign ownership. The Big Four National Banks⁵ are by far the least profit efficient, apparently due in large part to poor revenue performance and high nonperforming loans. The majority foreign-owned banks are also relatively efficient.

The results of the study conducted by Mihir et al. (2009) showed that foreign banks were slightly more efficient than the local public and private banks, and that there was not much of a difference in the efficiency of public and private banks. Net worth was found to be under-productive for efficient private and foreign banks, while it was properly utilized by public banks. Thus, profitability of private and foreign banks is expected to be lower than that of public banks, especially in terms of return on net worth. Operating expenses were found to be very

³ Constant return on scale- It refers to changes in output resulting from a proportional change in all inputs (where all inputs increase by a constant factor). If output increases by that same proportional change then there are constant returns to scale (CRS), Gelles et al. (1996).

⁴ For more details, see the paper of Berger & DeYoung, 1997.

⁵ For more details see the paper "Bank Ownership and Efficiency in China: What will happen in the world's largest nation?", by Berger et al. (2006)

under-productive for efficient private and foreign banks.

METHODOLOGY

Following many recent studies on banking efficiency, data envelopment analysis (DEA) has been employed to evaluate the overall efficiency of banking sector in Bangladesh. Theoretical and empirical studies suggest for enhancing efficiency as a whole and rank the banks in order of their efficiency. Each bank has a competitive advantage along with a bottleneck. In this study, we want to measure the efficiency of each bank from different perspectives such as management efficiency, earnings efficiency, cost controls efficiency, efficiency in liquidity management, debt & leverage efficiency and market efficiency. The reason is to measure the efficiency at different levels of the banks to show, how efficient the bank is at different levels and also to compare with each other so that banks would be able to identify their strengths and weaknesses.

DEA has been selected as a tool to measure the efficiency because there is a possibility that restrictive atmosphere and market imperfections

distort the prices of inputs and outputs to a great extent in developing countries. This makes the application of parametric techniques for computing cost and revenue efficiency more complicated (Bhattacharyya et al. 1997). Furthermore, parametric techniques require prior estimation of the functional form and availability of large data for determining income and cost efficiency, which is not always possible in the context of a developing country like Bangladesh (Uddin and Suzuki 2011). DEA is a nonparametric method of measuring the efficiency of a decision-making unit (DMU) such as a firm or a public sector agency, first introduced into the operations research (OR) literature by Charnes, Cooper and Rhodes (CCR) in EJOR in 1978. The original CCR model was applicable only for technologies characterized by constant return to scale globally. Banker, Charnes and Cooper (BCC) extended the CCR model to accommodate technologies that exhibit variable returns to scale. CC-BCR models and the generic approach of DEA emerged as a valid alternative to regression analysis for efficiency measurement. The mathematical equations have been adapted from Aydin et al. (2009).

Model CCR

$$\max h_j(u, v) = \frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \quad (1)$$

Subject to

$$\max h_j(u, v) = \frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1, j = 1, 2, 3, \dots, n \quad (2)$$

$$u_r \geq 0, r = 1, 2, 3, \dots, s \quad (3)$$

$$v_i \geq 0, i = 1, 2, 3, \dots, m \quad (4)$$

Where x_{ij} = the observed amount of inputs of the i_{th} type of j_{th} DMU ($x_{ij} > 0, i = 1, 2, 3, \dots, m, j = 1, 2, 3, \dots, n$) and y_{rj} = the observed amount of outputs of the r_{th} type of j_{th} DMU ($y_{rj} > 0, r = 1, 2, 3, \dots, s, j = 1, 2, 3, \dots, n$). The above mentioned function could end up unlimited number of solutions as (u^*, v^*) are optimal then $\alpha(u^*, \alpha v^*)$ are also optimal for each positive scale. However, for the requirements of research work, one can choose a representative solution (u, v) by following the transformation of Charnes and Cooper (1962);

$$\sum_{i=1}^m v_i x_{ij} = 1 \quad (5)$$

To obtain a program in liner programming function equation (6) is equivalent to the problem of linear fractional programming. Hence, the denominator of above mentioned efficiency measure h_j is set equal to one and altered DMU_j can be written;

$$\max z_j = \sum_{r=1}^s u_r y_{rj} \tag{6}$$

Subject to

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0, j = 1,2,3,\dots, n \tag{7}$$

$$\sum_{i=1}^m v_i x_{ij} = 1 \tag{8}$$

$$u_r \geq 0, r = 1,2,3,\dots, s \tag{9}$$

$$v_i \geq 0, i = 1,2,3,\dots, m \tag{10}$$

The major advantage of using the DEA model is to detect the precautionary measure, determine the amount of inefficiencies and calculate the potential recovery rate in every Decision Making Units (DMUs). The probable recovery rate can be calculated as follows:

For Example;

X_1 = the amount of Input required for X DMU Y_1 = the amount of Output required for X DMU

The equation can be derived as;

$$Y_1 = (X_1) - [(X_1) * (1 - \alpha)]$$

Therefore, the potential recovery rate is;

$$(\theta) = (Y_1 - X_1) / X_1$$

To make corresponding DMUs efficient, the calculated potential recovery rates revealed that the level requirement increased or decreased.

Model BCC:

$$\max z_j = \sum_{r=1}^m u_r y_{rj} - \mu_0 \tag{11}$$

Subject to

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} - \mu_0 \leq 0, j = 1,2,3,\dots,n \tag{12}$$

$$\sum_{i=1}^m v_i x_{ij} = 1 \tag{13}$$

$$u_r \geq 0, r = 1,2,3,\dots, s \tag{14}$$

$$v_i \geq 0, i = 1,2,3,\dots, m \tag{15}$$

Ratios for Management Efficiency

Input	Financial Ratios
X1	Interest Income / Total Funds
X2	Net Interest Income / Total Funds
X3	Non Interest Income / Total Funds
X4	Interest Expenses / Total Funds
X5	Operating Expense / Total Funds
X6	Profit Before Provisions / Total Funds
X7	Net Profit / Total Funds
X8	Interest Income / Total Loan
Output	
Y1	Net Income after Tax / Total Asset
Y2	Net Income after Tax/ Total Equity

Ratios for Cost Efficiency

Input	Financial Ratios
X5	Operating Expense / Total Funds
X14	Operating Expense / Interest Income
X19	Operating Expenses / Interest Expense
Output	
Y6	Operating Expense/ Profit Before Provisions

Ratios for Liquidity Efficiency

Input	Financial Ratios
X12	Interest Expense / Interest Income
X14	Operating Expense / Interest Income
X20	Liquid Asset / Short Term Liabilities
Output	
Y7	Current Asset/Current Liabilities

Ratios for Earnings Efficiency

Input	Financial Ratios
X8	Interest Income / Total Loan
X9	Operating Profit / (Total Interest + Investment Income)
X10	Profit before Provision / (Total Interest + Investment Income)
X11	Return from Investment/ Total Investment
X12	Interest Expense / Interest Income
X13	Other Income / Total Interest Income
X14	Operating Expense / Interest Income
Output	
Y3	Net Income after Tax / Total Earnings

Ratios for Debt & Leverage Efficiency

Input	Financial Ratios
X15	Long Term Borrowings/Total Equity
X16	Stockholder's Equity/ Total Funds
X17	Net Operating Income / Total Debt
X18	Net Operating Income/Total Fixed Assets
Output	
Y4	Total Debt/Total Equity
Y5	Equity/Total Assets

Ratios for Market Efficiency

Input	Financial Ratios
X21	Retained Earnings/Net Income after tax
X22	Market Price Per Share/Earning Per Share
X23	Market Price Per Share/Book Value Per Share
Output	
Y8	Earnings Available to Common Shareholders / No. of Shares Outstanding

To calculate the total efficiency of a bank CCR model is mostly practiced as it provides the accurate scores and to calculate the technical efficiency of a bank, BCC provides the accurate score too.

DATA AND VARIABLES

The data for the study pertained to a sample of 35 commercial banks operating in Bangladesh of which 4 are state owned banks, 28 are private banks, 7 are Islamic banks and 3 are foreign banks. Out of these 35 banks 29 banks are listed in the Dhaka Stock Exchange (DSE). The data were obtained from the financial statements of the selected 35 banks for the last ten-years from 2002 to 2011. To make the study elaborate, in depth and informative, a wide range of financial ratios such as; profitability ratios, liquidity ratios, debt & leverage ratios and market ratios have been used as input and output variables. To calculate management efficiency, 10 financial ratios have been considered. Out of them 2 are output and 8 are input. As bank is a financial institution, earning is the key function of the bank and therefore 8 financial ratios have been employed to see the efficiency in earnings, hence 7 ratios used as input and 1 is output. Apart from the interest expense, operating expenses are the major expenditure of a bank and here 4 financial ratios have been used to measure the efficiency in cost control, thus 3 are input and 1 is output. Banks deal with the most liquid asset in an economy and that's why efficiency in liquidity management is really important. Four financial ratios have been used to calculate the liquidity efficiency, out of them 3 are input and 1 is output. To measure the debt and leverage efficiency, 6 financial ratios have been applied where 4 are input variables and 2 are output variable. Lastly, 4 financial ratios have been examined to see the market efficiency of the 29 listed banks in DSE, where 3 are inputs and 1 is output variables. All the financial ratios are presented below and their explanations as variables are given in Table A2 in annexure.

EMPIRICAL RESULT

It has already been mentioned that this study aims at investigating the bank performance efficiency at different levels such as- management efficiency, earning efficiency, liquidity efficiency, cost efficiency, debt & leverage efficiency and market efficiency of selected 35 commercial banks in Bangladesh from 2002 to 2011. To simplify the analysis we calculated the efficiency of each segment in each year and then made the average of 10 years data. We also calculated the standard deviation of the efficiency of each segment to get a clear picture of the efficiency at different levels of the banks.

Management Efficiency

The following graphs represent the mean and standard deviation of the efficiency score of management efficiency of the 35 selected commercial banks in Bangladesh from 2002 to 2011. The data is presented in Table 3 in annexure.

We also investigated each individual bank performed so that it could make the bank's management efficient enough. From the selected 35 banks, only two banks (*B30* and *B8*)⁶ ranked 1 or 100% in management efficiency, while three other banks (*B7*, *B21* and *B29*) scored more than 90% on an average of management efficiency. On the other hand only one bank (*B1*) ranked lowest or scored less than 50% on an average. From the figure 2, we can see that the standard deviations of two banks (*B8* and *B30*) are zero and one of the banks (*B20*) scored 40% on average. There is a common believe in Bangladesh that foreign commercial banks performed really well in terms of efficient management and profit maximization. However, surprisingly we have seen from this analysis that most of the third generation commercial banks are more efficient and scored high in management efficiency ranking.

Earnings Efficiency

Next we tried to show the performance of each individual bank in earnings or income generation. To earn more and make the bank profitable enough is a big challenge for each commercial bank in Bangladesh, especially during the sluggish growth of the economy. Following figures represent the average score of earning efficiency and its standard deviation from 2002 to 2011. Data is presented in Table 4 in annexure.

Commercial banks have different sources of earnings such as- income from interest, income from investments, commission, exchange, brokerage and other sources. In this study, we tried to explore how efficient a bank is to generate more income considering not only the local and international competition but also social and economic factors existing in Bangladesh. In the above graphs (figures 3 & 4, data is presented in Table B2 in annexure) it can be seen that 5 banks (*B8*, *B10*, *B13*, *B18* and *B32*) ranked almost 1 or 100% efficient in earnings during the period from 2002 to 2011. Whereas, only one bank (*B1*) scored 20% on an average and that is the lowest ranked bank among the selected 35 commercial banks in Bangladesh. It can be derived from figure 4 that the third generation commercial banks in Bangladesh including 1 state owned and 1

⁶ Banks code - Instead of using the name of the banks, here we have used the code for each bank. The details of the banks name, date of incorporation, ownership method and other information are given in table A1 in annexure.

foreign commercial bank have high standard deviation in earning efficiency ranking.

Liquidity Efficiency

As financial institutions deal with the most liquid asset in an economy, it has been tried to see the efficiency in terms of liquidity management of the commercial banks in Bangladesh. To measure the liquidity efficiency we used four financial ratios and these are- interest expenses/interest income, operating expense/interest income and current asset/short term

Cost Efficiency

At the end of the day, profit maximization is the prime objective of all commercial banks in an economy. To achieve the target level of profit, effective cost management or cost minimization is also a major task that needs to be performed by a bank. In this study, we also investigated the expenditure pattern of the commercial banks in Bangladesh, in order to see that how efficiently banks manage or control their expenses considering the double digit inflation and devaluation of the local currency of Bangladesh during the recent financial years. Following graphs depict the mean value of cost efficiency and its standard deviation from 2002 to 2011 (data is presented in Table B4).

It is unforeseen that only one bank (*B30*) out of selected 35 commercial banks of Bangladesh ranked 1 or 100% in terms of cost efficiency. Five other banks *B25*, *B32*, *B8*, *B14* and *B2* scored 90%, 95%, 80% 70% and 60% respectively. Again all the top ranking banks are local private commercial banks in Bangladesh. On the other hand the least ranked bank (*B35*) is one of the foreign commercial banks operating in Bangladesh that scored less than 20%.

Debt & Leverage Efficiency

Commercial banks usually borrow money from different banks or financial institutions or even the central bank of the country. Here, in figure 9 & 10, we tried to show the debt and leverage efficiency of the commercial banks in Bangladesh. For the analysis, we have considered the long term debt and equity financing as variables to measure the debt & leverage efficiency in this study. More than 75% of the commercial banks from the selected data scored reasonably efficient (less than 40%) and rest of the

liabilities as input and current ratio as output. Liquidity efficiency ranking graphs presenting (figures 5 & 6) that 3 banks (*B3*, *B32* and *B35*) ranked 1 or 100% efficient of which 2 (*B3* and *B32*) are local commercial banks and 1(*B35*) is foreign commercial bank. It is also noticeable that none of the banks scored less than 50% in liquidity efficiency during the period of 2002 to 2011. It happened because of the rules, regulations and strong monitoring system of the central bank of Bangladesh.

banks are maintaining quite high leverage on average from 2002 to 2011. Most of the third generation commercial banks and Islamic banks are included in the bracket of high leverage banks.

Market Efficiency

Following graphs (figures 11 & 12) represent the mean score and standard deviation of the market efficiency score of the selected commercial banks in Bangladesh (data is available in Table B6 in annexure). From the selected 35 commercial banks, 29 banks are listed in the Dhaka Stock Exchange (DSE). In this study, we tried to explore the efficiency of banks from the perspective of market performance because the capital market in Bangladesh remained highly volatile in the last couple of years and it has been also believed that the recent share market scam was directly related to the activities of commercial banks in Bangladesh. At the end of 2010, it was pretty much clear that the market was highly overvalued. Bangladesh Bank tried to make the market balanced by putting leash on the liquidity. However, the conservative monetary policy of the central bank of Bangladesh adversely affected the market and DSE index fell down by 551 points and that was the highest fall in the last 57 years. To compute the market efficiency, four financial ratios have been used and these are- price earnings ratio, retention ratio, market to book value ratio and earnings per share of the individual selected banks.

The local commercial banks and Islamic banks from the selected data showed mixed result in the ranking of market efficiency. Figure 12 shows a wide dispersion of standard deviation of the market efficiency from 2002 to 2011. Almost each bank scored on an average of 20% of standard deviation score of the market efficiency.

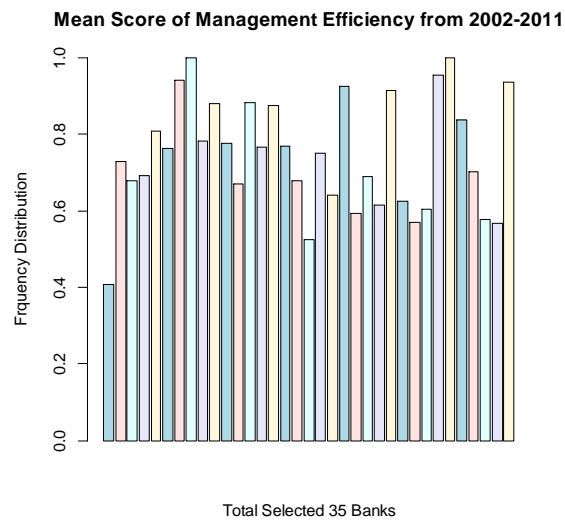


Figure 1: Mean Score of Management Efficiency

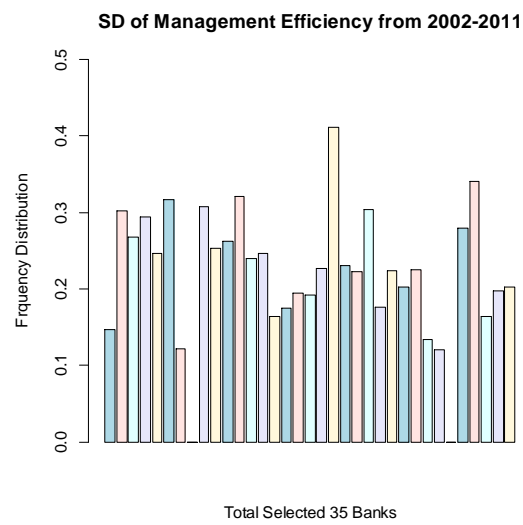


Figure 2: SD of Management Efficiency Score

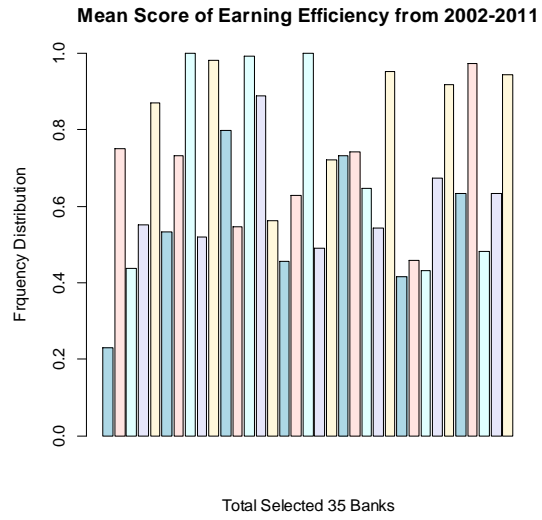


Figure 3: Mean Score of Earnings Efficiency

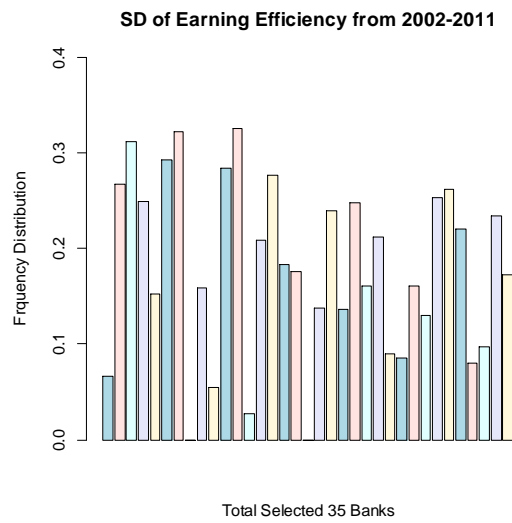


Figure 4: SD of Earnings Efficiency Score

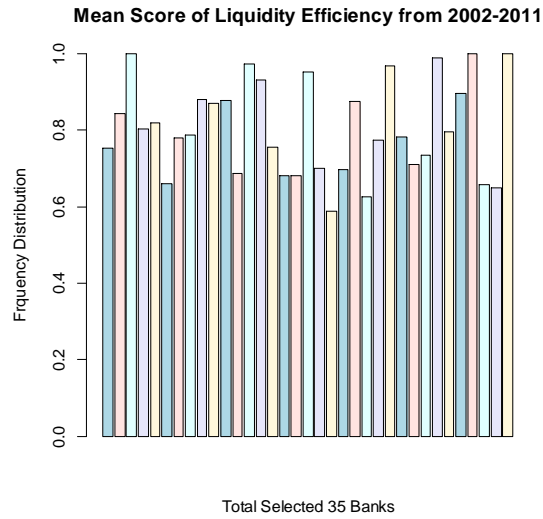


Figure 5: Mean Score of Liquidity Efficiency

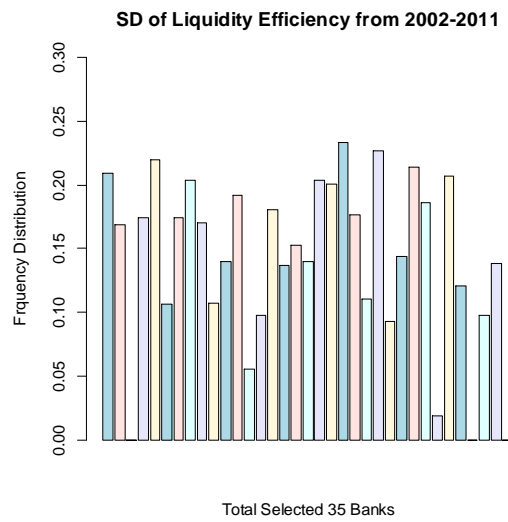


Figure 6: SD of Liquidity Efficiency Score

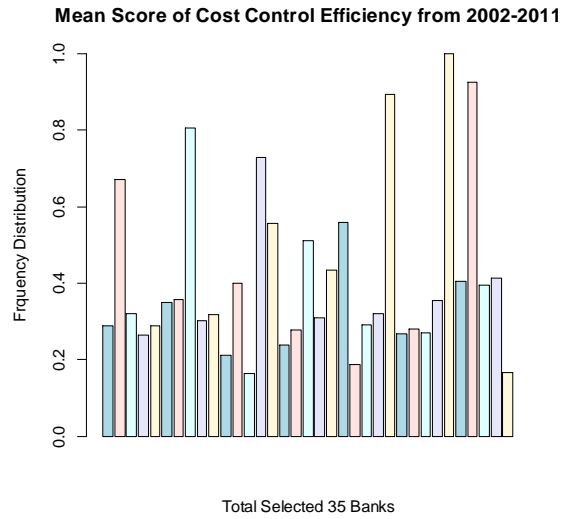


Figure 7: Mean Score of Cost Efficiency Ranking

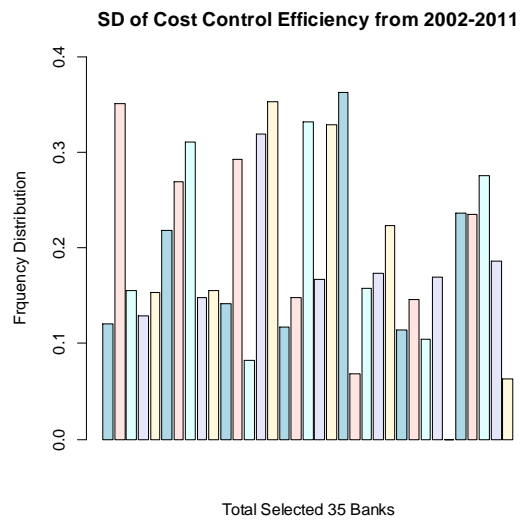


Figure 8: SD of Cost Efficiency Ranking

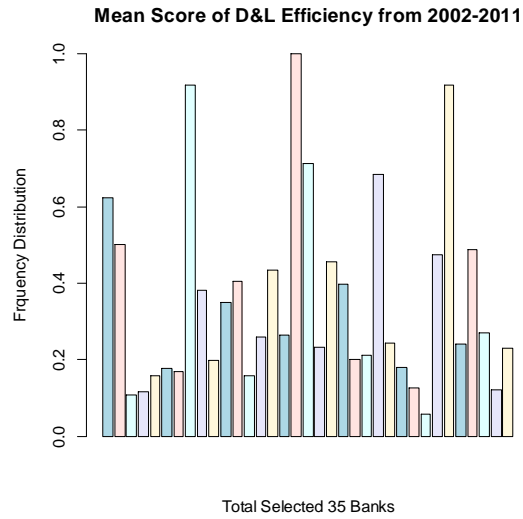


Figure 9: Mean Score of D&L Efficiency Ranking

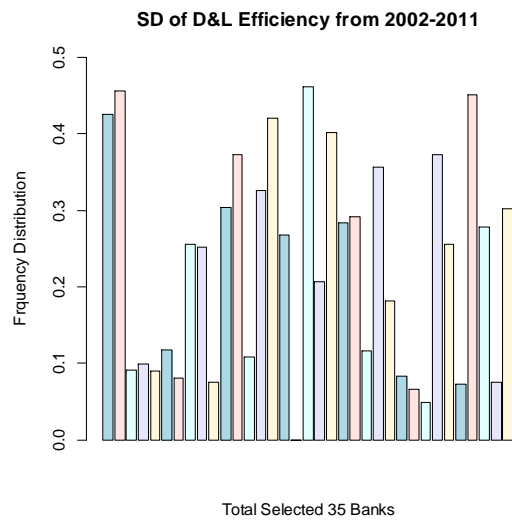


Figure 10: SD of D&L Efficiency Ranking

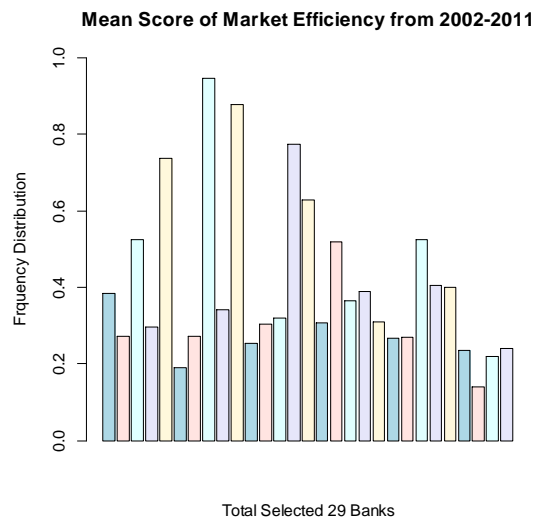


Figure 11: Mean Score of Market Efficiency

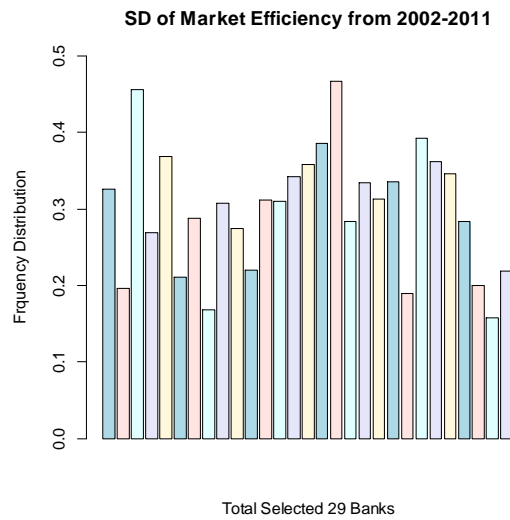


Figure 12: SD of Market Efficiency Ranking

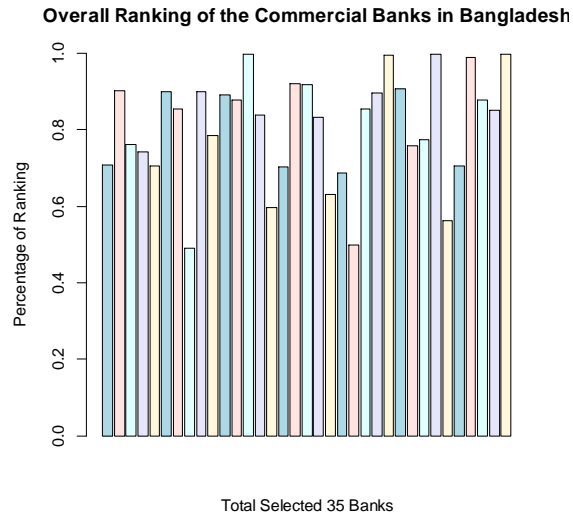


Figure 13: Mean Score of Total Efficiency

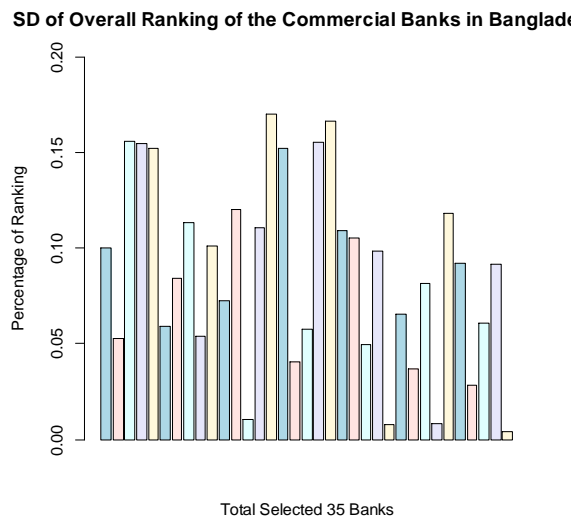


Figure 14: SD of Total Efficiency

Total Efficiency

Finally, we combined all the individual efficiency indicators discussed earlier apart from market efficiency to draw a complete picture of the selected commercial banks in Bangladesh and see the overall ranking of the commercial banks in Bangladesh. Market efficiency has not been considered to calculate the overall efficiency as not all the selected banks in our study are listed in DSE. To do this analysis, all the 31 financial ratios have been used, of which 20 ratios are used as inputs and 8 outputs. The following graphs showed overall ranking of the 35 selected banks from 2002 to 2011. Five banks (B13, B23, B27, B32 and B35) ranked highest or scored 99.87%, 99.78%, 99.89%, 99.96% and 99.86% respectively. Above mentioned top ranked banks are the combination of local commercial banks and foreign banks that operate in Bangladesh economy.

The result of our study slightly deviates from the findings of Yasmeen (2011), as she found in her study that only the local commercial banks and specialized banks are more efficient than the foreign commercial banks in Bangladesh. Whereas, in this study we found that both a few local and foreign banks are equally efficient and we did not consider the specialized banks in our study. However, there is a similar result found in both of our works that number of bank/banks ranked 1 or 100% efficient in a year failed to maintain the position (not all of them) in next year. Khanam & Nghiem (2004) and us found similar result in both of studies that the average technical efficiency of foreign banks that was 88 percent, which is much higher than domestic banks of which scored was 78 percent.

CONCLUSION

This paper introduces six different individual criteria to measure the efficiency of the commercial banks in Bangladesh by using the DEA method. To conduct the analysis 31 financial ratios have been used to show the efficiency of the selected 35 commercial banks including domestic, foreign and state owned banks' data from 2002 to 2011. The average DEA score of management, earnings, cost control, debt & leverage and liquidity efficiency reveals that most of the third generation private commercial banks got high efficiency score and they are competitive to foreign commercial banks that operate in Bangladesh. Later, we combined all the five criteria (apart from market efficiency as all the selected banks in our data set are not listed in DSE) to determine the overall efficiency of the commercial banks in Bangladesh. The overall result of this study shows that the competition among the commercial banks in Bangladesh is very intensive. Bangladesh Bank-the central bank of Bangladesh needs to monitor the activities of commercial banks very closely so that

the competition remains healthy and fair. Future research can be explored on the basis of the relationship between profitability and efficiency of the commercial banks in Bangladesh by using the six individual approaches that we have been used in our study.

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ANNEXURE

Table A1: Name of the Selected Commercial Banks and their Details

Code	Name of the Banks	Year of Est.	Age	Local/Foreign	Ownership	Listed in DSE
B 1	Uttara	1965	47	Local	Private	Yes
B 2	SEB	1995	17	Local	Private	Yes
B 3	The Premier	1999	13	Local	Private	Yes
B 4	NCCBL	1985	27	Local	Private	Yes
B 5	National	1983	29	Local	Private	Yes
B 6	MTB	1999	13	Local	Private	Yes
B 7	Jamuna	2001	11	Local	Private	Yes
B 8	ICB Islamic	1987	25	Local	Private	Yes
B 9	Eastern	1992	20	Local	Private	Yes
B 10	Al Arafah	1995	17	Local	Private	Yes
B 11	Citi NA	1996	16	Foreign	Private	No
B 12	The City	1983	29	Local	Private	Yes
B 13	HSBC	1996	16	Foreign	Private	No
B 14	Standard	1999	13	Local	Private	Yes
B 15	Sonali	1972	40	Local	State owned	No
B 16	Janata	1972	40	Local	State owned	No
B 17	Prime	1995	17	Local	Private	Yes
B 18	Islami	1983	29	Local	Private	Yes
B 19	Dutch Bangla	1995	17	Local	Private	Yes
B 20	Rupali	1986	26	Local	State owned	Yes
B 21	AB	1981	31	Local	Private	Yes
B 22	Pubali	1959	53	Local	Private	Yes
B 23	Bank Asia	1999	13	Local	Private	Yes
B 24	Dhaka	1995	17	Local	Private	Yes
B 25	Shahjalal	2001	11	Local	Private	Yes
B 26	BRAC	2001	11	Local	Private	Yes
B 27	IFIC	1976	36	Local	Private	Yes
B 28	UCBL	1983	29	Local	Private	Yes
B 29	EXIM	1999	13	Local	Private	Yes
B 30	BCBL	1999	13	Local	Private	No
B 31	One	1999	13	Local	Private	Yes
B 32	First Security	1999	13	Local	Private	Yes
B 33	Mercantile	1999	13	Local	Private	Yes
B 34	Trust	1999	13	Local	Private	Yes
B 35	SCB	1948	64	Foreign	Private	No

Table A2: All the Financial Ratios and the Explanation of their uses**Ratios have been used to measure the Management Efficiency;**

Input (X1)	Interest Income / Total Fund* -measure the efficiency of a bank to generate income by using its available fund.
Input (X2)	Net Interest Income / Total Funds -used to see a bank net interest income by using its available funds.
Input (X3)	Non Interest Income / Total Fund-apart from the interest income, bank has other sources of income and here it has been used to see how the management generates income from other sources compare to its available fund.
Input (X4)	Interest Expenses / Total Funds-evaluate the bank performances in terms of interest payment against its fund.
Input (X5)	Operating Expense / Total Funds-this ratio indicates the amount of money spend for operating expenses against its fund.
Input (X6)	Profit Before Provisions / Total Fund-shows the profit bank has earned in proportionate to its fund.
Input (X7)	Net Profit / Total Funds-evaluate the actual profit make by the bank against the fund available.
Input (X8)	Interest Income / Total Loan-to see the actual interest income from the loan disbursement.
Output (Y1)	Net Income after Tax / Total Asset-shows the real rate of return against the total asset of the bank.
Output (Y2)	Net Income after Tax/ Total Equity-demonstrate the profit that has been earned against the stockholder's equity.

Ratios have been used to measure the Income Efficiency;

Input (X8)	Interest Income / Total Loan-to see the actual interest income from the loan disbursement.
Input (X9)	Operating Profit / (Total Interest + Investment Income)-indicates how much profit bank has earned from its operation against its loan and investment.
Input (X10)	Profit before Provision / (Total Interest + Investment Income)-evaluate the profit bank has generated after deducting operating expenses.
Input (X11)	Return from Investment/Total Investment-shows the rate of return from the bank's investment.
Input (X12)	Interest Expense / Interest Income-demonstrate the amount paid to depositors against the amount received from loan disbursement.
Input (X13)	Other Income / Total Interest Income-consider the proportionate income generate from other services against total interest income.
Input (X14)	Operating Expense / Interest Income-specify how much money ban pays for operation from the income.
Output (Y3)	Net Income after Tax / Total Earnings-explain the real rate of return against the total earnings such as; interest, investment and others of the bank.

Ratios have been used to measure the Debt &Leverage Efficiency;

Input (X15)	Long Term Borrowings/Total Equity-specify the proportion of the debt that bank borrowed in long term compare to equity.
Input (X16)	Stockholder's Equity/ Total Funds –indicates the percentage of stockholder's equity in total fund.
Input (X17)	Net Operating Income / Total Debt-show the amount of money bank earned through debt financing.
Input (X18)	Net Operating Income/Total Fixed Assets-the amount of money bank earned by utilizing the total assets.
Output (Y4)	Total Debt/Total Equity-demonstrate the proportionate of capital structure.
Output (Y5)	Equity/Total Assets-shows the amount of stockholder's equity participates in accounting equation.

Ratios have been used to measure the Cost Efficiency;

- Input (X5)** Operating Expense / Total Funds-this ratio indicates the amount of money spend for operating expenses against its fund.
- Input (X14)** Operating Expense / Interest Income-specify how much money ban pays for operation from the income.
- Input (X19)** Operating Expenses / Interest Expense-specify the amount of operating expenses against interest expenses.
- Output (Y6)** Operating Expense/ Profit Before Provisions-demonstrate the operating expenses compare to the income after that.

Ratios have been used to measure the Liquidity Efficiency;

- Input (X12)** Interest Expense / Interest Income-demonstrate the amount paid to depositors against the amount received from loan disbursement.
- Input (X14)** Operating Expense / Interest Income-specify how much money ban pays for operation from the income.
- Input (X20)** Liquid Asset / Short Term Liabilities-indicates the total liquid assets of a bank compare to its current liabilities.
- Output (Y7)** Current Asset/Current Liabilities-evaluate the bank current assets compare to its current liabilities

Ratios have been used to measure the Market Efficiency;

- Input (X21)** Retained Earnings/Net Income after tax-signify the income that bank retained after the dividend payment and reserves from the income.
- Input (X22)** Market Price Per Share/Earning Per Share-justify the market price of the bank compare to the earning per share.
- Input (X23)** Market Price Per Share/Book Value Per Share- It measures how much a bank worth at present, in comparison with the amount of capital invested by current and past shareholders into it.
- Output (Y8)** Earnings Available to Common Stockholder's/No. of Common Share Outstanding- shows the amount of profit allocated against each share of the bank.

Table B1: Management Efficiency Ranking and DEA Summary from 2002 to 2011**Management Efficiency Ranking**

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.6472	0.3444	0.4668	0.2855	0.4457	0.1204	0.5303	0.3647	0.3563	0.5074	0.40687	0.14653	0.02147
SEB	1	0.9097	1	1	0.7008	0.1281	0.436	0.9524	0.6987	0.461	0.72867	0.30246	0.09148
Premier	0.7684	0.5451	0.6393	1	0.6147	0.037	0.6389	0.7586	0.8916	0.8944	0.6788	0.26799	0.07182
NCC	1	0.6079	0.6274	1	0.5348	0.1056	0.5347	0.5476	1	0.9597	0.69177	0.29471	0.08685
National	1	0.9077	0.7831	1	0.9449	0.1745	0.762	0.7505	0.7822	1	0.81049	0.24659	0.0608
MTB	0.8438	1	0.7858	1	1	0.1197	0.3926	1	0.5104	1	0.76523	0.3167	0.1003
Jamuna	1	1	1	1	1	1	0.8162	0.638	1	0.9597	0.94139	0.12115	0.01468
ICB	1	1	1	1	1	1	1	1	1	1	1	0	0
Eastern	1	0.6085	0.5979	1	1	0.0703	0.6183	0.9192	1	1	0.78142	0.308	0.09486
Al Arafah	0.9112	1	1	0.8651	0.9269	0.1726	1	1	1	0.9244	0.88002	0.25337	0.0642
Citi NA	0.7601	0.8216	0.6465	0.6385	1	0.1605	0.7557	1	1	1	0.77829	0.26202	0.06866
The City	1	0.2309	0.7154	0.6812	0.4213	0.1124	1	0.6945	0.9016	0.959	0.67163	0.32029	0.10259
HSBC	0.8535	0.9943	0.8886	0.9132	1	0.2193	0.9599	1	1	1	0.88288	0.2393	0.05726
Standard	0.6649	0.6761	0.6857	1	1	0.2229	1	0.6231	0.9681	0.814	0.76548	0.24665	0.06084
Sonali	0.5831	0.7115	0.6575	0.9493	0.8615	1	1	1	1	1	0.87629	0.16434	0.02701
Janata	0.6738	0.5503	0.5609	0.6996	1	1	1	0.7382	0.8051	0.6717	0.76996	0.17538	0.03076
Prime	0.8735	0.752	0.7309	0.5853	0.8177	0.171	0.6608	0.7282	0.7471	0.7204	0.67869	0.19466	0.03789
Islami	0.5304	0.3278	0.5014	0.5282	0.5757	0.5834	0.3009	0.4516	1	0.4511	0.52505	0.19211	0.03691
Dutch	0.8561	0.8863	0.6879	0.7097	0.7693	0.1404	0.8945	0.879	0.8587	0.8244	0.75063	0.22661	0.05135
Rupali	1	1	1	1	0.0473	0.0066	0.5578	1	0.3509	0.4515	0.64141	0.41182	0.16959
AB	1	1	1	1	1	0.2716	1	1	1	1	0.92716	0.23034	0.05306
Pubali	0.6491	0.3595	0.3267	0.6777	0.7813	0.1962	0.6356	0.7751	0.8693	0.6833	0.59538	0.22313	0.04979
Asia	0.9974	0.7078	1	0.9189	0.7546	0.1647	0.6525	0.8528	0.1604	0.6969	0.6906	0.30402	0.09243
Dhaka	0.6418	0.5887	0.6181	0.5869	0.7441	0.1449	0.6812	0.7614	0.7336	0.6524	0.61531	0.17674	0.03124
Shahjalal	1	1	1	1	1	0.2876	0.8655	1	1	1	0.91531	0.22457	0.05043
Brac	0.6246	0.6212	0.6175	0.9482	0.7328	0.13	0.6097	0.614	0.6735	0.6896	0.62611	0.20222	0.04089
IFIC	0.3413	0.8495	0.637	0.1785	0.5092	0.3403	0.6154	0.7379	0.844	0.6595	0.57126	0.22558	0.05089
UCB	0.5279	0.3228	0.6265	0.696	0.6934	0.6173	0.5442	0.5849	0.8385	0.6038	0.60553	0.13371	0.01788
EXIM	1	1	1	1	1	1	0.6183	1	1	0.9408	0.95591	0.12007	0.01442
BCBL	1	1	1	1	1	1	1	1	1	1	1	0	0
One	0.7306	0.7966	1	1	1	0.1139	1	0.7451	1	1	0.83862	0.27961	0.07818
First Sec	1	0.3417	0.1947	1	1	1	1	0.648	0.5782	0.258	0.70206	0.34101	0.11629
Mercantile	0.643	0.5414	0.5155	0.7141	0.6257	0.1469	0.572	0.6987	0.6517	0.6684	0.57774	0.16476	0.02715
Trust	0.6605	0.6089	0.5157	0.73	0.814	0.0714	0.5189	0.5613	0.6081	0.5881	0.56769	0.19743	0.03898
SCB	1	1	1	1	1	0.3581	1	1	1	1	0.93581	0.20299	0.0412

DEA Summary of Management Efficiency

Min	0.3413	0.2309	0.1947	0.1785	0.0473	0.0063	0.3009	0.3647	0.1604	0.258
1st Qu	0.6548	0.5695	0.6178	0.6978	0.6971	0.1243	0.5909	0.6712	0.6861	0.664
Median	0.8561	0.752	0.6879	0.9493	0.8615	0.1726	0.6812	0.7614	0.8693	0.8944
Mean	0.8223	0.7318	0.7447	0.8373	0.809	0.3539	0.7478	0.8007	0.8126	0.8011
3rd Qu	1	1	1	1	1	0.4708	1	1	1	1
Max	1	1	1	1	1	1	1	1	1	1

Table B2: Earnings Efficiency Ranking and DEA Summary from 2002 to 2011

Earning Efficiency Ranking

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.3579	0.2952	0.1813	0.1565	0.2393	0.1736	0.29	0.2277	0.1598	0.2296	0.23109	0.06681	0.00446
SEB	1	0.5552	1	0.4975	0.571	1	0.455	1	1	0.4195	0.74982	0.26719	0.07139
Premier	0.6427	0.4054	0.83118	1	0.2971	0.0736	0.4538	0.2285	0.028	0.4161	0.437638	0.31247	0.09764
NCC	0.2412	1	0.5418	0.3717	0.4786	0.685	0.3619	0.3191	0.8836	0.6345	0.55174	0.24947	0.06224
National	1	1	1	1	0.9275	0.5558	0.7657	0.8033	0.9193	0.7254	0.8697	0.15213	0.02314
MTB	0.4817	0.2883	0.3377	0.6526	0.2269	0.2344	0.4136	1	1	0.6933	0.53285	0.29325	0.08599
Jamuna	1	1	1	1	0.2239	1	0.7622	0.4392	0.2591	0.6345	0.73189	0.32267	0.10412
ICB	1	1	1	1	1	1	1	1	1	1	1	0	0
Eastern	0.5935	0.3044	0.5611	0.4972	0.5669	0.2661	0.4472	0.6844	0.7875	0.4814	0.51897	0.15851	0.02512
Al Arafah	1	0.8261	1	1	1	1	1	1	0.9979	1	0.9824	0.05492	0.00302
Citi NA	0.145	1	0.7024	1	1	0.5356	1	1	0.9093	0.7028	0.79951	0.28477	0.08109
The City	0.1202	0.0274	0.6633	0.7521	0.1934	0.759	0.5696	0.5612	0.8135	1	0.54597	0.32569	0.10607
HSBC	1	1	1	1	1	0.9133	1	1	1	1	0.99133	0.02742	0.00075
Standard	0.8806	1	1	1	0.5264	0.4708	1	1	1	1	0.88778	0.20888	0.04363
Sonali	0.3886	0.616	0.5439	0.6678	0.3736	0.0068	0.6489	1	0.4918	0.8744	0.56118	0.27692	0.07668
Janata	0.4438	0.4901	0.4851	0.6105	0.5071	0.0068	0.6489	0.5795	0.4768	0.3178	0.45664	0.18331	0.0336
Prime	0.8239	0.6047	0.9821	0.6001	0.6809	0.4746	0.4009	0.6858	0.5941	0.4517	0.62988	0.17592	0.03095
Islami	1	1	1	1	1	1	1	1	1	1	1	0	0
Dutch	0.4976	0.5576	0.7454	0.6557	0.3079	0.3763	0.476	0.5259	0.3961	0.3615	0.49	0.13752	0.01891
Rupali	0.8554	0.6855	0.5321	0.6726	1	1	0.592	0.9553	0.2417	0.6803	0.72149	0.23943	0.05733
AB	0.8414	0.5496	0.936	0.8324	0.6786	0.6031	0.8195	0.8446	0.6248	0.5948	0.73248	0.13624	0.01856
Pubali	0.4964	0.3228	0.5178	1	1	0.6335	0.7361	0.7455	0.9765	1	0.74286	0.24784	0.06142
Asia	0.7115	0.8042	0.8818	0.8597	0.5176	0.5442	0.4302	0.6445	0.6005	0.4768	0.6471	0.16148	0.02608
Dhaka	0.6438	0.7045	0.8858	0.864	0.3356	0.3849	0.3765	0.4112	0.3988	0.4181	0.54232	0.21247	0.04514
Shahjalal	1	1	1	1	1	0.9234	1	0.9489	0.9336	0.7113	0.95172	0.09002	0.0081
Brac	0.3433	0.4783	0.5158	0.536	0.4746	0.3159	0.3797	0.4476	0.3001	0.3592	0.41505	0.0856	0.00733
IFIC	0.2242	0.6095	0.587	0.25	0.3015	0.639	0.5396	0.6104	0.4639	0.3572	0.45823	0.16154	0.02609

UCB	0.2642	0.3157	0.5814	0.4486	0.6836	0.4087	0.4083	0.3954	0.5137	0.3047	0.43243	0.13034	0.01699
EXIM	0.8298	0.4664	1	0.9248	0.9219	0.2341	0.4521	0.6621	0.7588	0.497	0.6747	0.25373	0.06438
BCBL	1	1	1	1	1	1	1	0.1722	1	1	0.91722	0.26177	0.06853
One	1	0.6285	0.687	0.6916	0.5506	0.354	0.5319	1	0.4884	0.419	0.6351	0.22042	0.04858
First Sec	1	0.7445	1	1	1	1	1	1	1	1	0.97445	0.0808	0.00653
Mercantile	0.4697	0.5003	0.6099	0.6531	0.363	0.4051	0.3893	0.4752	0.559	0.4098	0.48344	0.09773	0.00955
Trust	0.816	1	0.7347	0.481	0.5176	1	0.4041	0.5085	0.4309	0.4384	0.63312	0.23481	0.05514
SCB	1	1	1	1	1	0.4532	1	1	1	1	0.94532	0.17291	0.0299

DEA Summary of Earnings Efficiency

Min	0.1202	0.02749	0.1813	0.1565	0.1934	0.0068	0.29	0.1722	0.028	0.2296
1st Qu	0.4568	0.4842	0.5712	0.6053	0.3683	0.3652	0.4219	0.4918	0.4704	0.4186
Median	0.816	0.6285	0.8318	0.8324	0.5669	0.5442	0.5696	0.6858	0.7588	0.6345
Mean	0.6889	0.6794	0.7727	0.7622	0.6419	0.5837	0.6501	0.711	0.6859	0.646
3rd Qu	1	1	1	1	1	0.9617	1	1	0.999	1

Table B3: Liquidity Efficiency Ranking and DEA Summary of 2002-2011

Liquidity Efficiency Ranking

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.9131	0.872	0.7379	0.5187	1	0.8917	0.3361	0.734	0.7762	0.95	0.77297	0.20674	0.04274
SEB	0.6624	0.833	0.5024	0.8106	0.883	1	1	1	0.8958	0.6977	0.82849	0.1657	0.02746
Premier	1	1	1	1	1	1	1	1	1	1	1	0	0
NCC	0.6807	1	0.9348	0.9717	0.6724	1	0.542	0.7555	0.6728	0.8912	0.81211	0.16658	0.02775
National	1	1	1	0.8182	0.989	0.8879	0.5163	0.4258	0.7347	1	0.83719	0.21466	0.04608
MTB	0.6414	0.5684	0.6496	0.4968	0.6758	0.7826	0.5765	0.7096	0.8352	0.7709	0.67068	0.10648	0.01134
Jamuna	0.5921	0.93	0.614	1	0.8756	1	0.6095	0.6333	0.7592	0.8912	0.79049	0.16786	0.02818
ICB	1	1	0.6199	0.5607	0.616	1	1	0.6638	0.6201	0.6235	0.7704	0.19913	0.03965
Eastern	0.6401	1	0.7626	0.5866	0.9375	1	1	1	1	1	0.89268	0.16517	0.02728
Al Arafah	1	0.9425	1	0.705	0.7859	0.8328	0.7582	0.8739	0.9396	0.6726	0.85105	0.11901	0.01416
Citi NA	1	0.8143	0.848	0.582	0.8533	0.9952	0.8072	1	1	1	0.89	0.13745	0.01889
The City	0.5913	0.9192	0.7552	0.7861	0.5806	0.6268	0.5012	0.425	1	0.7203	0.69057	0.18093	0.03273
HSBC	1	0.8357	1	1	1	1	0.9409	1	1	1	0.97766	0.05323	0.00283
Standard	0.717	0.9556	1	0.9702	0.8873	0.8476	1	1	1	0.6311	0.90088	0.13196	0.01741
Sonali	0.8874	0.8783	0.8116	0.5865	0.8664	0.7263	0.3605	0.9181	0.7644	0.6758	0.74753	0.17179	0.02951
Janata	0.7598	0.7567	0.733	0.5601	0.7278	0.7743	0.3579	0.7446	0.7166	0.6946	0.68254	0.12911	0.01667
Prime	0.7675	0.6054	0.7039	0.5186	0.7239	0.5897	0.4999	0.7293	1	0.7313	0.68695	0.14504	0.02104
Islami	1	1	1	0.5807	1	1	1	1	1	1	0.95807	0.13259	0.01758
Dutch	0.9269	0.5601	0.6361	0.5943	0.7935	0.6184	0.3367	0.8997	0.941	0.8231	0.71298	0.19583	0.03835

Rupali	0.656	0.5583	0.53	0.4346	1	0.6078	0.2478	0.6315	0.6212	0.6107	0.58979	0.18908	0.03575
AB	0.8087	1	0.9922	0.4444	0.632	0.7372	0.3198	0.5464	0.793	0.5309	0.68046	0.2261	0.05112
Pubali	0.8432	0.7545	1	1	1	0.8858	0.4645	1	0.9305	1	0.88785	0.17118	0.0293
Asia	0.582	0.5526	0.5027	0.5735	0.7444	0.8522	0.543	0.6379	0.635	0.6622	0.62855	0.10479	0.01098
Dhaka	1	0.7359	0.8657	0.2886	0.8346	0.7886	0.5526	0.9149	0.983	0.7783	0.77422	0.21422	0.04589
Shahjalal	1	1	1	1	1	0.7204	1	1	1	0.8982	0.96186	0.09067	0.00822
Brac	0.7419	0.7521	0.8676	0.8693	0.7633	0.8952	0.4616	0.7459	0.9594	1	0.80563	0.15202	0.02311
IFIC	0.7738	0.8007	0.6954	0.4193	0.9215	1	0.3463	0.7769	0.6573	1	0.73912	0.22136	0.049
UCB	0.749	1	0.7636	0.5656	0.8045	0.5874	0.4209	0.7538	0.9612	0.6502	0.72562	0.17734	0.03145
EXIM	1	1	1	1	1	0.9604	1	1	0.9553	0.8416	0.97573	0.0503	0.00253
BCBL	0.5982	0.8108	1	1	0.8166	0.6896	0.3901	1	0.8499	0.8332	0.79884	0.19576	0.03832
One	0.984	0.8773	0.9767	0.7689	1	1	0.6536	0.9563	0.8484	0.9411	0.90063	0.11493	0.01321
First Sec	1	1	1	1	1	1	1	1	1	1	1	0	0
Mercantile	0.6835	0.6402	0.708	0.5163	0.7677	0.7502	0.4884	0.7188	0.65	0.5666	0.64897	0.09669	0.00935
Trust	0.7779	0.6162	0.6865	0.4274	0.7715	0.6476	0.4862	0.5786	0.8451	0.5857	0.64227	0.13194	0.01741
SCB	1	1	1	1	1	1	1	1	1	1	1	0	0

DEA Summary of Liquidity Efficiency

Min	0.582	0.5526	0.5024	0.2886	0.5806	0.5874	0.2478	0.425	0.6201	0.5309			
1st Qu	0.6821	0.7533	0.6997	0.5394	0.7655	0.7318	0.4412	0.7142	0.7613	0.6742			
Median	0.8087	0.8773	0.848	0.5943	0.8664	0.8858	0.543	0.8739	0.9305	0.8332			
Mean	0.8292	0.8449	0.8256	0.713	0.855	0.8484	0.6434	0.8221	0.867	0.8192			
3rd Qu	1	1	1	0.9858	1	1	1	1	1	1			
Max	1	1	1	1	1	1	1	1	1	1			

Table B4: Cost Control Efficiency Ranking and DEA Summary of 2002-2011

Cost Control Efficiency Ranking

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD
Uttara	0.4671	0.1395	0.309	0.4057	0.2338	0.3797	0.143	0.2549	0.1563	0.4016	0.28906	0.12117
SEB	0.277	1	0.3261	0.2947	1	0.3339	0.4699	1	1	1	0.67016	0.35136
Premier	0.3258	0.1008	0.293	0.3833	0.1913	0.2963	0.1684	0.6191	0.3288	0.5102	0.3217	0.15585
NCC	0.1352	0.1001	0.266	0.3883	0.2756	0.2969	0.1091	0.3717	0.2033	0.4893	0.26355	0.12917
National	0.2761	0.1235	0.2913	0.5286	0.1957	0.4347	0.1121	0.2765	0.1392	0.4995	0.28772	0.15387
MTB	0.2503	0.1431	0.2272	0.3192	0.1429	0.2734	0.2223	0.8205	0.5636	0.5233	0.34858	0.2188
Jamuna	0.2749	1	0.1727	0.5758	0.1996	0.1911	0.103	0.3635	0.2187	0.4893	0.35886	0.26987
ICB	1	1	1	1	1	1	0.1716	0.9129	0.3606	0.6193	0.80644	0.31144
Eastern	0.3232	0.13	0.2923	0.473	0.1175	0.5111	0.1138	0.3193	0.2802	0.4615	0.30219	0.14861
Al Arafah	0.2544	0.1865	0.2853	0.2483	0.1092	0.4269	0.1646	0.4376	0.5197	0.5552	0.31877	0.15546
Citi NA	0.1788	0.0628	0.1483	0.3121	0.0695	0.4425	0.0781	0.1639	0.2171	0.4379	0.2111	0.14227

The City	1	0.1338	0.2399	0.3852	0.1655	0.8113	0.1099	0.3921	0.3142	0.4422	0.39941	0.2933
HSBC	0.1178	0.0939	0.1636	0.2609	0.0669	0.304	0.0654	0.1878	0.1462	0.2339	0.16404	0.0823
Standard	0.1406	1	1	0.6301	0.4615	0.7319	0.3599	0.9775	1	1	0.73015	0.3196
Sonali	0.3031	0.1394	0.305	0.4472	0.1867	0.7999	0.3936	1	1	1	0.55749	0.35371
Janata	0.2128	0.088	0.1614	0.3683	0.1573	0.4199	0.1056	0.2619	0.234	0.3794	0.23886	0.11723
Prime	0.1867	0.0851	0.2003	0.322	0.1805	0.2822	0.1617	0.4381	0.3573	0.5771	0.2791	0.1483
Islami	0.2163	0.2593	0.2446	0.3826	0.1556	1	0.3476	0.7998	0.7201	1	0.51259	0.33267
Dutch	0.26	0.1777	0.2542	0.3648	0.1743	0.3022	0.1095	0.3275	0.4346	0.6998	0.31046	0.16752
Rupali	0.2295	0.0968	0.236	0.4238	1	1	0.1381	0.3248	0.3037	0.5876	0.43403	0.32924
AB	1	1	1	0.7782	0.5858	0.2218	0.0892	0.2876	0.1966	0.4299	0.55891	0.36336
Pubali	0.1619	0.1008	0.1601	0.2969	0.1217	0.259	0.1167	0.1767	0.229	0.2634	0.18862	0.06907
Asia	0.1645	0.0923	0.2417	0.3965	0.1868	0.322	0.1737	0.4291	0.2715	0.6211	0.28992	0.15742
Dhaka	0.2198	0.1153	0.21	0.3504	0.1814	0.2753	0.2013	0.6364	0.493	0.5206	0.32035	0.17338
Shahjalal	0.4715	1	1	1	1	1	1	1	0.4652	1	0.89367	0.22417
Brac	0.2457	0.1096	0.247	0.386	0.1411	0.3455	0.1427	0.3383	0.2535	0.4549	0.26643	0.11442
IFIC	0.2369	0.0973	0.2785	0.4251	0.1874	0.5806	0.1917	0.2873	0.1395	0.3782	0.28025	0.14623
UCB	0.392	0.1308	0.2761	0.4073	0.1703	0.2909	0.1106	0.3177	0.2482	0.3568	0.27007	0.105
EXIM	0.4973	0.444	0.2509	0.4556	0.0972	0.4253	0.0842	0.3931	0.3079	0.6001	0.35556	0.16918
BCBL	1	1	1	1	1	1	1	1	1	1	1	0
One	0.5296	0.1647	0.3374	0.4591	0.1849	0.8478	0.1716	0.3552	0.2667	0.726	0.4043	0.23674
First Sec	1	1	1	1	1	1	0.256	1	1	1	0.9256	0.23527
Mercantile	0.2262	0.1227	0.2081	0.2992	0.1676	0.3297	1	0.6028	0.3215	0.6582	0.3936	0.2762
Trust	0.3908	0.2477	0.3453	0.5921	0.2442	0.3264	0.1588	0.5809	0.5023	0.7478	0.41363	0.18659
SCB	0.1435	0.0645	0.1524	0.2512	0.0817	0.2153	0.1828	0.1742	0.1496	0.2504	0.16656	0.06283

DEA Summary of Cost Control

Min	0.1178	0.06289	0.1483	0.2483	0.06698	0.1911	0.06545	0.1369	0.1392	0.2339		
1st Qu	0.2146	0.1005	0.2186	0.3362	0.1492	0.2951	0.1103	0.3027	0.2238	0.4401		
Median	0.26	0.1338	0.266	0.3883	0.1849	0.3797	0.1617	0.3821	0.3079	0.5233		
Mean	0.3746	0.3357	0.375	0.4738	0.3267	0.505	0.2463	0.5094	0.4098	0.5948		
3rd Qu	0.4296	0.3516	0.3176	0.5008	0.2599	0.7659	0.2118	0.7181	0.4976	0.6291		
Max	1	1	1	1	1	1	1	1	1	1		

Table B5: Debt and Leverage Efficiency Ranking and DEA Summary of 2002-2011

Debt and Leverage Efficiency Ranking

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.0166	0.1086	0.1376	1	1	1	1	0.5815	1	0.3947	0.6239	0.42589	0.18138
SEB	0.0576	0.3382	0.5202	0.0382	0.036	0.0282	1	1	1	1	0.50184	0.45624	0.20816

Premier	0.0066	0.1666	0.0409	0.0532	0.0149	0.0126	0.1574	0.171	0.2401	0.2128	0.10761	0.09057	0.0082
NCC	0.0238	0.1826	0.0501	0.1333	0.0223	0.0121	0.1412	0.2805	0.2617	0.0592	0.11668	0.09961	0.00992
National	0.0194	0.2156	0.1176	0.1311	0.062	0.1021	0.1682	0.1846	0.3102	0.2668	0.15776	0.09008	0.00812
MTB	0.0401	0.199	0.0649	0.233	0.1654	0.1503	0.244	0.3682	0.3062	0.004	0.17751	0.11711	0.01372
Jamuna	0.0382	0.1513	0.125	0.26	0.1752	0.1481	0.2294	0.2828	0.2092	0.0592	0.16784	0.08053	0.00649
ICB	1	1	1	1	1	0.19	1	1	1	1	0.919	0.25614	0.06561
Eastern	0.0622	0.2283	0.2666	0.2352	0.2155	0.2714	0.4401	0.915	0.5629	0.6068	0.3804	0.25197	0.06349
Al Arafah	0.0612	0.2175	0.1665	0.1753	0.1572	0.1426	0.215	0.332	0.2536	0.2594	0.19803	0.07486	0.0056
Citi NA	0.0531	0.3899	0.6126	0.3086	0.03009	0.0381	0.2881	0.2418	0.5374	1	0.34997	0.30427	0.09258
The City	1	1	0.027	0.0346	0.0158	0.2242	0.2384	0.6231	0.4836	0.4064	0.40531	0.37324	0.13931
HSBC	0.0291	0.2987	0.1367	0.0714	0.0479	0.0294	0.2401	0.1775	0.2575	0.2857	0.1574	0.1087	0.01182
Standard	0.6282	1	0.0187	0.0379	0.0103	0.0077	0.196	0.115	0.2039	0.3883	0.2606	0.32685	0.10683
Sonali	0.0189	0.3026	0.1148	0.0202	0.2743	0.5401	0.0652	1	1	1	0.43361	0.42118	0.17739
Janata	0.014	0.523	0.3245	0.2013	0.0066	0.5401	0.0652	0.063	0.1291	0.7807	0.26475	0.26765	0.07164
Prime	1	1	1	1	1	1	1	1	1	1	1	0	0
Islami	0.0629	1	1	0.0526	0.0136	1	1	1	1	1	0.71291	0.46242	0.21383
Dutch	0.038	0.2005	0.365	0.3106	0.1294	0.0503	0.1057	0.7394	0.2271	0.1568	0.23228	0.20686	0.04279
Rupali	0.0116	1	0.1483	0.1067	0.5479	1	0.3254	0.1638	1	0.2581	0.45618	0.40167	0.16134
AB	0.0374	0.2184	0.2239	0.3034	0.1512	0.3241	0.3986	0.7284	0.9308	0.6473	0.39635	0.28345	0.08034
Pubali	1	0.123	0.0279	0.0424	0.0179	0.0417	0.1895	0.1228	0.2603	0.1801	0.20056	0.29225	0.08541
Asia	0.0409	0.173	0.2919	0.3331	0.0605	0.1129	0.1561	0.3529	0.3235	0.2596	0.21044	0.11656	0.01359
Dhaka	0.5818	1	1	1	0.3994	0.5348	1	0.1321	1	0.2027	0.68508	0.35734	0.12769
Shah	0.0605	0.1964	0.1545	0.2081	0.2018	0.1047	0.2068	0.5684	0.5836	0.1468	0.24316	0.18191	0.03309
Brac	0.0541	0.2845	0.2262	0.3248	0.1299	0.1328	0.1676	0.1925	0.0996	0.1718	0.17838	0.08261	0.00683
IFIC	0.0231	0.1711	0.0811	0.1699	0.0426	0.0791	0.1369	0.2278	0.1618	0.1594	0.12528	0.06549	0.00429
UCB	0.0035	0.0764	0.0269	0.0317	0.0261	0.0229	0.1324	0.094	0.1317	0.016	0.05616	0.04855	0.00236
EXIM	0.0932	0.1575	0.2965	0.2752	0.2492	0.237	0.4452	1	1	1	0.47538	0.37324	0.13931
BCBL	1	1	1	1	1	0.19	1	1	1	1	0.919	0.25614	0.06561
One	0.0756	0.2294	0.2735	0.2042	0.1888	0.3411	0.2703	0.2464	0.2612	0.304	0.23945	0.07294	0.00532
First Sec	0.0152	0.3609	0.0343	1	1	1	0.1917	0.1372	0.1361	1	0.48754	0.45078	0.2032
Mercantile	0.0698	0.1581	0.1749	0.1073	0.0628	0.2991	1	0.4281	0.188	0.2125	0.27006	0.27885	0.07776
Trust	0.0324	0.0874	0.1344	0.247	0.0967	0.047	0.1953	0.0297	0.1731	0.1772	0.12202	0.07514	0.00565
SCB	0.0175	0.2597	0.0666	0.0485	0.0234	0.0477	0.225	0.1713	1	0.4481	0.23078	0.30286	0.09173

DEA Summary of Debt & Leverage Efficiency

Min	0.0035	0.0764	0.0187	0.0202	0.0066	0.0077	0.0625	0.0297	0.0996	0.004			
1st Qu	0.0222	0.1725	0.07741	0.0669	0.029	0.047	0.168	0.1712	0.2182	0.1781			
Median	0.047	0.2288	0.1605	0.206	0.1297	0.1492	0.2339	0.2828	0.3102	0.2948			
Mean	0.2223	0.4172	0.3125	0.325	0.2658	0.3056	0.412	0.4477	0.5209	0.4739			
3rd Qu	0.08009	0.6422	0.3346	0.3142	0.2555	0.3895	0.5839	0.7339	1	1			
Max	1	1	1	1	1	1	1	1	1	1			

Table B6: Market Efficiency Ranking and DEA Summary of 2002-2011

Market Efficiency Ranking													
Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.0811	0.8708	0.2424	0.3967	0.2345	0.4004	1	0.0518	0.4798	0.0922	0.38497	0.32586	0.10619
SEB	0.026	0.276	0.1557	0.5901	0.1245	0.2092	0.3097	0.5316	0.4358	0.0542	0.27128	0.19551	0.03822
Premier	0.0153	1	1	1	1	0.081	0.3949	0.0442	0.6885	0.0345	0.52584	0.45642	0.20832
NCC	0.0241	0.49	0.131	0.706	0.0724	0.2106	0.4977	0.0564	0.6755	0.0896	0.29533	0.26851	0.0721
National	0.0184	0.2928	0.4626	1	1	1	1	1	1	0.6108	0.73846	0.36817	0.13555
MTB	0.0266	0.1959	0.1245	0.6849	0.0914	0.0824	0.4442	0.0357	0.1149	0.0904	0.18909	0.21114	0.04458
Jamuna	0.0143	0.2721	0.6336	0.7992	0.0018	0.0039	0.3909	0.0641	0.4488	0.0869	0.27156	0.2873	0.08254
ICB	1	1	1	0.4685	1	1	1	1	1	1	0.94685	0.16808	0.02825
Eastern	0.0279	0.2575	0.2073	1	0.1134	0.1581	0.5406	0.0438	0.5851	0.493	0.34267	0.3079	0.0948
Al Arafah	0.1694	1	0.6293	0.9748	1	1	1	1	1	1	0.87735	0.27437	0.07528
The City	0.0272	0.0325	0.2762	0.6513	0.04038	0.1128	0.2616	0.4026	0.5424	0.1803	0.25273	0.21988	0.04835
Standard	0.0176	0.1431	0.1162	0.5614	0.0585	0.0796	0.3064	0.2165	0.5571	1	0.30564	0.31201	0.09735
Prime	0.0323	0.3227	0.2181	1	0.1093	0.2401	0.4239	0.0605	0.6906	0.1109	0.32084	0.31011	0.09617
Islami	0.5054	0.7783	1	1	1	1	1	1	0.4393	0.0246	0.77476	0.34193	0.11692
Dutch	0.0476	0.5908	0.3852	1	0.336	1	0.7334	0.9483	1	0.2496	0.62909	0.35816	0.12828
Rupali	0.0166	0.1344	0.0314	0.3305	0.0136	0.0073	1	1	0.3463	0.1819	0.3062	0.38647	0.14936
AB	0.0031	0.0218	0.0642	0.9647	0.1709	1	1	0.9983	0.8241	0.15	0.51971	0.46687	0.21797
Pubali	0.1079	0.437	0.1811	1	0.1292	0.2516	0.4877	0.409	0.5844	0.0786	0.36665	0.28361	0.08044
Asia	0.0263	0.2234	0.1419	0.7254	0.0774	1	0.3872	0.5195	0.6927	0.0904	0.38842	0.33367	0.11134
Dhaka	0.0335	0.3024	0.2135	1	0.082	0.1775	0.446	0.0337	0.6664	0.1453	0.31003	0.31277	0.09783
Shahjalal	0.0122	0.0761	0.008	1	0.0899	0.1349	0.3156	0.0234	0.709	0.315	0.26841	0.33564	0.11266
Brac	0.0082	0.1472	0.29	0.228	0.115	0.2145	0.5575	0.4822	0.5242	0.1288	0.26956	0.19007	0.03613
IFIC	0.0158	0.0936	0.056	0.9647	1	0.5617	0.4154	0.3864	0.7479	1	0.52415	0.3933	0.15469
UCB	0.0219	0.7342	0.2371	1	0.3617	0.266	0.3577	0.0352	0.9412	0.0975	0.40525	0.36203	0.13107
EXIM	0.0429	0.4873	0.2169	0.8415	0.079	0.1804	0.4385	0.048	0.6735	1	0.4008	0.34561	0.11945
One	0.028	0.2234	0.1026	0.0343	0.079	0.1521	0.32	0.3493	0.9768	0.0958	0.23613	0.28322	0.08021
First Sec	0.0066	0.1089	0.1152	0.626	0.0031	0.0124	0.0756	0.012	0.3541	0.0879	0.14018	0.19991	0.03996
Mercantile	0.0456	0.2074	0.1402	0.3307	0.0749	0.1408	0.341	0.2802	0.5536	0.0843	0.21987	0.15794	0.02494
Trust	0.108	0.0624	0.1137		0.0403	0.114	0.2976	0.2476	0.6564	0.5351	0.24168	0.21923	0.04806
DEA Summary of Market Efficiency													
Min	0.003135	0.0218	0.00802	0.03434	0.00184	0.00392	0.04386	0.01289	0.1149	0.02469			
1st Qu	0.01535	0.1431	0.1162	0.5829	0.07248	0.1128	0.32	0.0442	0.5242	0.08962			
Median	0.02631	0.2721	0.2073	0.8204	0.1093	0.2092	0.4239	0.2476	0.664	0.1288			

Mean	0.08305	0.3718	0.2929	0.7455	0.2927	0.3699	0.5293	0.3763	0.652	0.3141
3rd Qu	0.04292	0.49	0.2902	1	0.3336	0.5617	0.7334	0.5316	0.7479	0.493
Max	1	1	1	1	1	1	1	1	1	1

Table B7: Market Efficiency Ranking and DEA Summary of 2002-2011**Total Efficiency Ranking**

Banks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean	SD	Var
Uttara	0.576	0.6986	0.752	0.6724	0.8862	0.7865	0.6476	0.691	0.796	0.567	0.70733	0.10010599	0.010021209
SEB	0.9076	0.9341	0.8975	0.879	1	0.9126	0.8458	0.8097	0.9451	0.8908	0.90222	0.05269164	0.002776408
Premier	0.8562	0.463	0.7682	1	0.7532	0.9788	0.697	0.6782	0.743	0.684	0.76216	0.15625085	0.024414327
NCC	0.9148	0.586	0.6332	0.853	0.8337	0.563	0.7295	0.7508	1	0.5682	0.74322	0.15484523	0.023977046
National	0.561	0.6791	0.686	0.743	0.8721	0.541	0.571	0.9753	0.8568	0.5782	0.70635	0.15207877	0.023127952
MTB	0.978	0.8561	0.865	0.9322	0.901	0.9141	0.767	0.9123	0.941	0.941	0.90077	0.05931949	0.003518802
Jamuna	0.7861	0.8645	0.9838	0.786	0.978	0.876	0.9314	0.7736	0.7845	0.7845	0.85484	0.08443345	0.007129007
ICB	0.3421	0.4321	0.5123	0.3421	0.652	0.4534	0.453	0.4671	0.592	0.6571	0.49032	0.11323568	0.01282232
Eastern	0.9572	0.894	0.906	0.904	0.935	0.909	0.7559	0.9032	0.9076	0.922	0.89939	0.0537266	0.002886548
Al Arafah	0.6525	0.875	0.7722	0.797	0.867	0.9762	0.7682	0.6781	0.7986	0.6781	0.78629	0.10140749	0.010283479
Citi NA	0.796	0.932	0.785	0.879	0.942	0.7892	0.9562	0.9424	0.9328	0.9525	0.89071	0.07262682	0.005274654
The City	0.8314	0.9451	0.9414	0.932	0.5652	0.931	0.8868	0.854	0.9074	1	0.87943	0.12048224	0.014515969
HSBC	1	1	0.9675	1	1	1	1	1	1	1	0.99675	0.0102774	0.000105625
Standard	0.584	0.995	0.874	0.8436	0.9132	0.8963	0.8562	0.797	0.879	0.754	0.83923	0.11069498	0.012253378
Sonali	0.347	0.3951	0.631	0.454	0.807	0.556	0.688	0.654	0.875	0.5631	0.59702	0.1701675	0.02895698
Janata	0.675	0.752	0.986	0.7095	0.685	0.4532	0.8632	0.568	0.578	0.764	0.70339	0.15248818	0.023252645
Prime	0.912	0.9231	0.8489	1	0.9324	0.8964	0.9657	0.912	0.9012	0.9065	0.91982	0.04072591	0.0016586
Islami	1	0.9561	0.8671	0.8895	0.8765	0.976	0.8086	0.941	0.9451	0.9331	0.9193	0.05783866	0.003345311
Dutch	0.562	0.9699	0.9782	0.874	0.9644	0.7923	0.9541	0.5772	0.876	0.7842	0.83323	0.15570551	0.024244207
Rupali	0.882	0.562	0.672	0.6572	0.4908	0.6432	0.9386	0.542	0.472	0.452	0.63118	0.16659824	0.027754973
AB	0.884	0.762	0.674	0.69	0.704	0.5907	0.6824	0.679	0.462	0.739	0.68671	0.10933537	0.011954223
Pubali	0.39	0.4435	0.5654	0.6524	0.5347	0.485	0.395	0.425	0.424	0.682	0.4997	0.10528974	0.011085929
Asia	0.967	0.878	0.8564	0.7967	0.8402	0.8745	0.7869	0.8561	0.8285	0.8563	0.85406	0.04989663	0.002489674
Dhaka	1	0.9556	0.705	0.851	0.8021	0.8231	0.894	0.984	1	0.9446	0.89594	0.09884427	0.009770189
Shah	0.9865	1	1	1	1	1	1	0.9786	1	1	0.99651	0.00758953	5.76E-05
Brac	0.9425	1	0.9942	0.7991	0.8572	0.8566	0.8564	0.9147	0.912	0.9535	0.90862	0.06579122	0.004328484
IFIC	0.7304	0.749	0.8094	0.7451	0.7578	0.7145	0.7561	0.7942	0.708	0.8107	0.75752	0.03671581	0.001348051
UCB	0.584	0.7424	0.8545	0.7772	0.852	0.725	0.8001	0.762	0.855	0.7953	0.77475	0.08158726	0.006656481
EXIM	1	1	1	1	1	1	0.9745	1	1	1	0.99745	0.00806381	6.50E-05
BCBL	0.451	0.478	0.586	0.7646	0.489	0.398	0.582	0.5	0.697	0.663	0.56086	0.11826607	0.013986863
One	0.567	0.675	0.705	0.585	0.689	0.7467	0.865	0.769	0.796	0.657	0.70547	0.09226633	0.008513076
First Sec	0.9095	1	1	1	1	1	1	1	1	1	0.99095	0.02861861	0.000819025
Mercantile	0.858	0.7726	0.8978	0.9076	0.93	0.864	0.9501	0.9392	0.8794	0.7854	0.87841	0.06073279	0.003688472
Trust	1	0.781	0.8195	0.9221	0.8154	1	0.7231	0.8103	0.8417	0.8133	0.85264	0.09196171	0.008456956
SCB	1	1	1	1	1	0.9876	1	1	1	1	0.99876	0.00392122	1.54E-05