Determinants Of Bank's Profitability: Evidence From Bangladesh

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INTRODUCTION

The dominating industry in the financial sector of Bangladesh is the banking industry. Bangladesh Bank (BB) continues to focus on strengthening the financial system of Bangladesh and improving the functioning of its various scheduled banks and financial institutions. The importance of a bank's financial performance and profitability is appraised at both - the micro and macro level of the economy, since it is one of the important sources of finance for enterprises in Bangladesh. The significance of banks' financial performance in the financial sector of Bangladesh led to the undertaking of this research. The basic aim of any bank is generating profit, which is an essential requirement for conducting any business (Bobakova, 2003). To measure profitability of the banks, the common criteria used by Bangladesh Bank are Return on Assets (ROA) and Return on Equity (ROE) (Bangladesh Bank report, 2010). In addition to this, another important profitability measure is Return on Deposit (ROD) (Shrivastava, 1979). The profitability of any bank depends to a great extent on the asset utilization, operational efficiency and asset size. The level of a bank's resources invested in earning an asset contributes to the increased income and profitability of that bank. Besides, the amount of assets that constitute credits and investments is an important asset-management decision. Furthermore, income or profit of a bank is the result of revenue function and cost function. The revenue function shows that the total income of a bank, deriving from the service rendered by the bank, and the cost function shows the total expenses incurred in producing any service rendered by the bank (Khan, 2008). Hence, efficient management of these functions or operations would lead to increased profitability for the bank. The aforesaid discussion led to the assumption that there is a measurable linkage of profitability of a bank with its asset size, asset management, operational efficiency and ROD. Henceforth, this study proposes to evaluate the profitability of sample commercial banks based on common profitability indicators. Furthermore, this paper also investigates the relationship of one of the profitability measures, i.e. Return on Assets (ROA) with operational efficiency, asset utilization, asset size and ROD.

BANKING INDUSTRY OF BANGLADESH

The financial system of Bangladesh is dominated by banks. The banking sector of Bangladesh comprises of Bangladesh Bank as the central bank and four categories of Scheduled Banks. There are four State-owned Commercial Banks (SCBs), five state-owned Development Financial Institutions (DFIs), thirty Private Commercial Banks (PCBs) and nine Foreign Commercial Banks (FCBs). The total number of banks were 48 as of 2009. These banks had a total number of 7095 branches as of December 2009. The number of bank branches increased from 6886 to 7095, owing mainly to opening of new branches by the PCBs during the year. The structure of the banking sector, with a breakdown

Table 1: Banking System Structure

2009 (Billion Taka)

Bank Types	Number of Banks	Number of Branches	Total Assets	% of Industry Assets	Deposits	% of Industry Deposits
SCBs	4	3387	1135.6	28.6	809.1	28.6
DFIs	5	1365	261.9	6.6	161.1	5.3
PCBs	30	2285	2275.7	57.4	1792.4	59.3
FCBs	9	58	292.6	7.4	215.0	7.0
Total	**48**	**7095**	**3965.8**	**100**	**3037.6**	**100**

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by type of banks is shown in the Table 1 (Bangladesh Bank report, 2010).

LITERATURE REVIEW

Profitability is an important measure of financial performance for any bank. Analysis of profitability of a bank provides an insight into the effective utilization of assets and both debt and equity fund. Although, there are various measures of earnings and profitability, the best and widely used indicator is Return on Assets (ROA), which is supplemented by Return on Equity (ROE) and Return on Deposits (ROD).

Loans and investment in securities are a bank's assets and are used to provide most of a bank's income. The return on assets (ROA) is a financial ratio used to measure the relationship of earnings to total assets. It is a ratio of net earnings divided by total assets. According to the Dupont analysis, ROA indicates both income management and cost management of banks by including both asset utilization ratio and net profit margin ratio. Asset utilization ratio is measured by total operating revenue to total assets, and the net profit margin ratio is measured by net earnings to total operating revenue. Therefore, ROA assesses how efficiently a bank is managing its revenues and expenses, and also reflects the ability of the management of the bank to generate profits by using the available financial and real assets (Clark, Dick, Hirtle, Strioh and William, 2007 and Lopez, 1999). Numerous studies have been found to use ROA as a criterion for measuring profitability (Peters, Raad, and Sinkey, 2004 and Tarawneh, 2006).

To extend credit or loan and to invest in securities, a bank must have money, which comes primarily from the bank's owners in the form of equity capital, from depositors, and from money that it borrows from other banks or by selling debt securities. Credits and investments are important sources of both interest income and non-interest income of the firm. Hence, this study employs Return on Equity (ROE) as a measure of profitability, which is a ratio of net earnings to shareholders' equity. This ratio indicates to what extent a bank is using an equity fund to produce earnings. The growth in ROE depends on how actively and efficiently the bank is managing its equity capital. Peters et al. (2004) and Tarawneh (2006) have used the ratio as an indicator of profitability. According to Dupont's analysis, ROE equals ROA multiplied by Equity Multiplier (EM), which indicates the usage of leverage and effect of leverage on ROE of a bank (Clark et al., 2007 and Lopez, 1999).

Return on Deposits (ROD) is considered to be a better index of profitability in the same way as return on sales for non-banking companies. It is a ratio of net earnings to total deposits (Shrivastava, 1979). This ratio shows the percentage return on each dollar of customers' deposit. In other words, it indicates the effectiveness of a bank in converting deposits into net earnings (Rosly and Bakar, 2003 and Tanaweh, 2006).

Furthermore, profitability is considered as an index of operational efficiency of banks (Shrivastava, 1979). Efficiency ratio is a popular tool used by the bank's financial analyst to evaluate the ability of a bank to manage its costs. Operational efficiency of a bank is calculated by the ratio of non-interest expense to total operating income. It measures the level of non-interest expense needed to support one dollar of operating income, consisting of both interest income and non-interest fee income (Hays, De Lurgio and Gilbert, 2009).

Investigating the financial performance and determinants of bank profitability has been one of the popular topics among researchers in banking studies. Till date, researchers have managed to examine and identify various factors that have a significant influence on banks' performance and profitability. The literature divides the determinants of bank profitability into two categories, namely internal and external. Internal determinants of profitability, which are within the control of the bank management, are basically, financial statement variables. External variables are those factors that are considered to be beyond the control of the management of a bank. Among the widely discussed external variables are competition, regulation, concentration, market share, ownership, scarcity of capital, money supply, inflation and size (Haron, 2004) . However, the current study focuses on only internal factors or financial statement variables.

Haslem (1968) used operating ratios to measure the effect of management, size, location and time on profitability and found all variables significantly related to profitability. Fraser, Philips and Rose (1974) used operating costs, deposits and loan compositions as factors influencing profitability. Hester and Zoellner (1996) found that changes in balance sheet items had a significant impact on bank's earnings. Begrer (1995) examined the relationship between return on equity and the capital asset ratio of US banks and found them to be positively related. Guru, Staunton and Balashanmugam (2002) found efficient expenses management as one of the significant factors in explaining Malaysian banks' profitability. Molyneux and Thornton (1992) found a significant positive association between the return on equity and the level of interest rates in eighteen European countries. Positive correlation between returns and

capital has been evident in many past studies (Furlong and Keeley, 1990; Naceur, 2003; and Kwan and Eisenbeis, 2005). Empirical evidence form Naceur and Goained (2001) indicate that the best-performing banks are those who have maintained a high level of deposit accounts relative to their assets, and this leads to higher return on assets (Allen and Rai, 1996 and Holden and El-Bannany, 2006). The profit function of a bank includes the size and composition of its credit portfolio (Bashir, 2000 and Fries, Neven and Seabright, 2002). Loan generates revenue through interest income and increases the bank's profits (Rhoades and Rutz, 1982). Tarawneh (2006) found that financial performance of the banks was strongly and positively influenced by the operational efficiency and asset management, in addition to the bank size. The aforesaid discussion indicates that there are many past researches relevant to banks' performance evaluation and determinant of banks' profitability. The present research was conducted considering the importance of banks' role in both micro and macro-level economy of Bangladesh. Henceforth, this research contributes to the existing literature on banking studies written in the context of Bangladesh.

OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

1) To evaluate the profitability position of selected banks with profitability ratios - ROA, ROE and ROD.

2) To examine ROA and ROE of selected banks through Dupont Analysis.

3) To examine the relationship of one of the profitability measure, i.e., ROA with operational efficiency, asset utilization, asset size and return on deposit (ROD). The null hypothesis being assumed for the fulfillment of this objective is as follows:

Ho: There is no significant relationship of ROA with Operational Efficiency, Asset Utilization, Asset Size and ROD.

METHODOLOGY OF THE STUDY

The purpose of this empirical study is to evaluate the performance of commercial banks of Bangladesh in terms of profitability measures. The sample consists of six commercial banks, which were randomly selected for this study and constitute about 13% of the total Scheduled Banks of Bangladesh. These banks are Arab Bangladesh Bank Limited (ABBL), Prime Bank Limited (PBL), Eastern Bank Limited (EBL), Dutch-Bangla Bank Limited (DBBL), Bank Asia and National Credit and Commerce Bank Limited (NCCBL).This study also aims to test the stated hypothesis and examines the relationship of ROA with operational efficiency, asset utilization, asset size and ROD. This research primarily focuses on secondary data, which were obtained from the annual reports of selected commercial banks. The present study covers the relevant data for a period of 5 years starting from 2005 to 2009. The profitability measures used in this study are ROD, ROA and ROE. In addition, ROA and ROE were evaluated with the help of Dupont Analysis. The hypothesis of this study contains one dependent variable, which is ROA and four independent or explanatory variables, which are operational efficiency, asset utilization, assets size and ROD. Simple correlation coefficient was used to test the linear relationship among all the dependent and independent variables. Furthermore, to determine the significance of a correlation coefficient, a t-test was performed, which hypothesizes that the linear relationship between two variables is zero. The result of correlation and t-test is reported through a correlation matrix table. Multiple regression analysis was used to see how far the explanatory variables are related with ROA. To test the significance of beta coefficients, t-test was used. In addition to this, ANOVA was used to examine the significance of coefficient of determination; that is r-square and to report the fitting of regression equation with the help of 'F' value. The data are summarized by Microsoft Excel and different tests were conducted by using Minitab Statistical Software.

FINDINGS AND ANALYSIS

❁ **Comparison Of The Bank's Profitability Measures- ROA, ROE and ROD :** According to the Dupont analysis, ROE is decomposed into the profitability of assets indicated by ROA, and the leverage of the bank is measured by Equity Multiplier (EM). By decreasing equity and increasing leverage, i.e. Equity Multiplier (EM), a bank can increase ROE based on any given level of ROA.

As it is visible from the Table 2, average ROE was highest for Arab Bangladesh Bank Limited, which is recorded as 31.10%. This result can be justified by the increased rate of deposit mobilization by this bank, as indicated by the increasing Equity Multiplier, and also due to the increased profitability of assets as reported by ROA. Similar rate of average ROE, which was around 27%, was reported by both Prime Bank Limited and Dutch-Bangla Bank Limited.

Table 2: Return on Equity (ROE): Dupont Analysis (ROE= ROA X EM)							
Year	**Ratios**	**NCCBL**	**PBL**	**EBL**	**ABBL**	**Bank Asia**	**DBBL**
2005	ROE	18.93%	22.51%	19.17%	11.73%	27.89%	31.01%
	ROA	1.32%	1.54%	2.17%	0.50%	3.28%	1.29%
	EM	14.04	14.78	8.83	23.46	8.5	24.04
2006	ROE	19.82%	31.55%	16.07%	20.61%	27.06%	24.07%
	ROA	1.47%	2.05%	1.62%	1.31%	1.77%	0.93%
	EM	13.49	15.77	9.92	15.73	15.29	25.88
2007	ROE	20.23%	30.68%	11.73%	42.19%	31.63%	24.02%
	ROA	1.59%	1.99%	1.10%	3.41%	2.11%	1.01%
	EM	12.78	15.09	10.66	12.37	14.99	23.78
2008	ROE	21.16%	20.58%	18.64%	40.96%	23.00%	29.89%
	ROA	1.54%	1.305%	1.68%	3.12%	1.87%	1.49%
	EM	12.41	16.49	11.09	13.12	12.30	20.06
2009	ROE	28.49%	30.19%	22.10%	40.01%	32.03%	30.28%
	ROA	2.61%	2.37%	2.34%	3.52%	2.18%	1.60%
	EM	9.9	10.63	9.44	11.37	14.69	18.92
Average ROE		**21.85%**	**27.10%**	**17.54%**	**31.10%**	**28.32%**	**28.85%**

The lowest average ROE was accounted for Eastern Bank Limited, which was only 17.54%. This poor performance of Eastern Bank Limited in terms of ROE contributed to the lower profitability of the bank's assets (ROA), even when deposit mobilization of this bank is higher as reflected by the Equity Multiplier in Table 2.

Table 3 : Return On Assets Ratio (ROA) Of The Sample Commercial Banks						
Year / Bank	**2005**	**2006**	**2007**	**2008**	**2009**	**Average**
NCCBL	1.32%	1.47%	1.59%	1.54%	2.61%	1.71%
PBL	1.54%	2.05%	1.99%	1.30%	2.37%	1.85%
EBL	2.17%	1.62%	1.10%	1.68%	2.34%	1.78%
ABBL	0.50%	1.31%	3.41%	3.12%	3.52%	2.37%
Bank Asia	3.28%	1.77%	2.11%	1.87%	2.18%	2.24%
DBBL	1.29%	0.93%	1.01%	1.49%	1.60%	1.26%

The summary result of ROA ratios for the period of 2005 to 2009 for sample commercial banks is presented in the Table 3. Dupont analysis is presented in Table 4, and it suggests that ROA evaluates both efficiency of a bank in utilizing assets and effectiveness in managing income and expenses indicated by the net profit margin (NPM).

Table 4 : Return on Assets (ROA): Dupont Analysis (ROA= NPM X AU)							
Year	**Ratios**	**NCCBL**	**PBL**	**ABBL**	**Bank Asia**	**DBBL**	**EBL**
2005-2009	ROA	1.71%	1.85%	2.772%	2.242%	1.264%	1.78%
Average	Asset Utilization (AU)	6.2%	5.82%	6.474%	5.49%	5.356%	5.94%
	Net Profit Margin (NPM)	28%	31%	43%	41%	23%	30%

Highest average ROA was reported for Arab Bangladesh Bank Limited, which was 2.772%, which was a combined result of asset utilization and net profit margin. In Table 4, the highest net profit margin ratio of 43% of Arab Bangladesh Bank Limited indicates the bank's efficiency in saving costs and raising income. In addition, high asset utilization ratio of 6.474% indicates the greater ability of this aforesaid bank in generating profit by using its available

financial and real assets. Lowest average ROA was reported for Dutch Bangla Bank Limited, which was 1.264%. This low ROA is a resultant factor of the lowest asset utilization ratio of 5.356%, and the lowest net profit margin ratio of 23% among all the six commercial banks as reported in the Table 4. Ranking of these banks based on average ROA ratio reveals that the Arab Bangladesh Bank Limited had secured the first position, it had an average ROA of 2.37 percent. The second position was secured by the Bank Asia with ROA equal to 2.24 percent, and the last position went to the Dutch Bangla Bank Limited.

Table 5: Return On Deposits Ratio (ROD) Of The Sample Commercial Banks

Year / Bank	2005	2006	2007	2008	2009	Average
NCCBL	1.64%	1.70%	1.94%	1.88%	3.20%	2.072%
PBL	1.58%	1.92%	1.99%	1.40%	2.60%	1.898%
EBL	2.81%	1.99%	1.40%	1.92%	2.96%	2.216%
ABBL	1.49%	1.26%	3.56%	3.36%	4.05%	2.74%
Bank Asia	2.07%	1.88%	2.42%	1.62%	2.42%	2.08%
DBBL	1.35%	0.90%	1.14%	1.59%	1.68%	1.33%

Many financial analysts consider ROD as one of the best measures of a bank's profitability performance. This ratio reflects the (bank) management's ability to utilize the customers' deposits to generate profits. As presented in the Table 5, the highest average ROD ratio was reported by the Arab Bangladesh Bank Limited, which was 2.74% and the lowest

Table 6 : Sample Commercial Banks' Average Data For The Period Of 2005-2009

	NCCBL	PBL	EBL	ABBL	Bank Asia	DBBL
Variable Y : (ROA)	1.71%	1.85%	1.78%	2.772%	2.242%	1.264%
Variable X1 : Operational efficiency	71.6%	90.04%	87.62%	140.43%	79.58%	97.644%
Variable X2: Assets utilization	6.20%	5.82%	5.94%	6.474%	5.496%	5.356%
Variable X3 : Assets size	44911.00	83440.60	45608.80	67114	42864	33443
Variable X4: ROD	2.072%	1.898%	2.216%	2.74%	2.08%	1.33%

Table 7 : Correlation Matrix Of All Dependent And Independent Variables

	ROA	Asset Utilization	Operational Efficiency	Asset Size	ROD
ROA	1	0.615	0.61	0.46	0.89
Sig. (two-tailed)		1.56	1.54	1.04	3.9**
N	6	6	6	6	6
Asset Utilization	0.615	1	0.47	0.377	0.83
Sig. (two-tailed)	1.56		1.06	0.81	2.98**
N	6	6	6	6	6
Operational Efficiency	0.61	0.47	1	0.45	0.5
Sig. (two-tailed)	1.54	1.06		1.01	1.15
N	6	6	6	6	6
Asset Size	0.46	0.377	0.45	1	0.41
Sig. (two-tailed)	1.04	0.81	1.01		0.9
N	6	6	6	6	6
ROD	0.89	0.83	0.5	0.41	1
Sig.(two-tailed)	3.9**	2.98**	1.15	0.9	
N	6	6	6	6	6

**Significant at 0.10 level

ROD ratio was recorded for the Dutch-Bangla Bank Limited, which was only 1.33%.

❁ **Association of ROA With Asset Utilization, Operational Efficiency, Asset Size And ROD :** Table 6 provides the descriptive statistics of dependent variable ROA, and independent variables-operational efficiency, asset utilization, asset size and ROD. This table presents the five-year average value of each variable for six commercial banks. It is evident from the Table 6 that Prime Bank Limited was efficiently performing its operations as indicated by the lower efficiency ratio with high volume of assets. However, performance of Arab Bangladesh Bank was soaring in terms of asset utilization and profitability.

The values reported in Table 6 were used to calculate the correlation and conduct the regression analysis. The correlation results and results of t-test are shown through the correlation matrix in Table 7. The correlation matrix table indicates that all the variables are positively correlated. However, the signification correlation was found for only ROD with ROA and asset utilization.

Table 8: Multiple Regression Analysis Result

Particular	Coefficient	Standard Deviation	T-statistic
Constant	2.484	2.785	0.89
Operational Efficiency (X1)	0.004751	0.007031	0.68
Asset Utilization (X2)	-0.6667	0.6354	-1.05
Asset Size (X3)	0.00000389	0.00000882	0.44
ROD (X4)	1.3225	0.5834	2.27
Standard Error	0.3203		
R^2	92.3%		
R^2(adjusted)	61.3%		

Multiple regression analysis was conducted to examine what effect the independent variables have on the dependent variable ROA. The multiple regression results are shown in the Table 8. This table shows that beta coefficients of operational efficiency, asset size, ROD are positive, indicating direct linear relationship with ROA. However, the beta coefficient of asset utilization indicates an inverse relationship with ROA. The critical value of 't' at 0.10 level of significance was 2.92. The calculated value of 't' shown in the Table 8 reports that beta coefficients are not statistically significant, since the t-value falls within the acceptance region. Hence, operational efficiency, asset utilization, asset size and ROD are not significant explanatory variables of ROA.

Table 9: Analysis of Variance

Source	Degree of Freedom	Sum of Squares	Mean of Squares	F
Regression	4	1.2243	0.3061	2.98
Error	1	0.1026	0.1026	
Total	**5**	**1.3269**		

To examine whether the regression model as a whole is significant, coefficient of determination, i.e. r-square was calculated. Table 8 reports that 92.3 percent of the variation in ROA is explained by the regression line. However, the calculated value of F-ratio, 2.98 as reported in the Table 9, is less than the critical value of F-ratio 225, which suggests that the regression model as a whole is statistically insignificant.

CONCLUSION

This study used widely used determinants of banks' profitability, which are ROA, ROE and ROD, and these are also the commonly used criterion by Bangladesh Bank to evaluate the banks' performance. In addition, this study evaluates the efficiency ratio, asset utilization ratio, asset size and ROD as a determinant of banks' profitability measured by ROA. The results reveals that the Prime Bank is considered to be out performing in terms of asset size, whereas, Arab Bangladesh Bank is showing soaring performance in terms of profitability measured by ROA, ROE and ROD. Dutch

Bangla Bank Limited, Bank Asia, Eastern Bank Limited and National Credit and Commerce Bank Limited are underperforming in terms of all profitability indicators. It can be further concluded that the bank with higher total assets is not always the most profitable one, as it is evident in the case of Prime Bank Limited.

This study evaluated the relationship of ROA with asset utilization, operational efficiency, asset size and ROD. The correlation result shows that the dependent, and all explanatory variables are positively correlated, but the statistically significant result was found for only ROD positively related to ROA and asset utilization. The results of regression analysis found the explanatory variables - operational efficiency, asset size and ROD to be positively related, and asset utilization to be negatively related to ROA, but failed to establish any relationship as statistically significant. The number of selected banks considered for the study is the major short coming for the present study, as this study comprises of only six commercial banks among the forty eight banks operating in the country. Hence, being a study of a limited-scale, it failed to establish the existence of a significant relationship of ROA with explanatory variables. Therefore, this prompts further research covering all or majority of the forty eight financial institutions' and commercial banks operating in Bangladesh. Further, future research can be extended by covering both internal and external determinants of a bank's profitability. The importance of this study may be viewed as it adds to the existing body of literature on banking studies. Furthermore, it can also serve as a starting point on which future related studies can be done in the context of Bangladesh.

REFERENCES

1) Allen, L. and Rai, A. (1996). "Operational Efficiency in Banking: An International Comparison", *Journal of Banking and Finance,* Volume 20, pp. 655-672.

2) Bobáková, I.V. (2003). "Raising the Profitability of Commercial Banks", *BIATEC*, 11, pp. 21-25.

3) Berger, A. (1995). "The Profit Structure Relationship in Banking: Tests of Market-Power and Efficient-Structure Hypotheses", *Journal of Money, Credit and Banking,* Volume 27, pp. 404-431.

4) Bashir, A.M. (2000). "Assessing the Performance of Islamic Banks: Some Evidence from the Middle East", Grambling State University, Mimeo.

5) Banking Sector Performance. Regulation and Bank Supervision Report (2010), Bangladesh Bank.

6) Clark.T., Dick, A.A., Hitle. B., Strioh, K.J., and William, R. (2007). "The Role of Retail Banking in the U.S. Banking Industry: Risk, Return, and Industry Structure", *Economic Policy Review*. Volume 13, Issue 3.

7) Fraser, D. R., Philips, W. and Rose, P.S. (1974). "Determinants of Profits and Profitability of Publics Sectors in India: A Profit Function Approach", *Journal of Financial Management and Analysis,* Volume 14, Issue 1, pp.27-37.

8) Fries, S., Neven, D. and Seabright, P. (2002). "Bank Performance in Transition Economies", European Bank for Reconstruction and Development Working Paper.

9) Guru B., J. Staunton and B. Balashanmugam (2002). "Determinants of Commercial Bank Profitability in Malaysia", University Multimedia Working Papers.

10) Hays, F.H., DeLurgio, S.A. and Gilbert, A.H.(2009). "Concentration, the Internet and Pricing of Bank Assets and Liabilities", *Research in Business and Economics Journal,* Volume 1.

11) Haslem, J.A. (1968). "A Statistical Analysis of the Relative Profitability of Commercial Banks", *Journal of Finance,* Volume 23, pp.167-176.

12) Haron, S. (2004). "Determinants of Islamic Bank Profitability", *Global Journal of Finance and Economics* , Volume 1.

13) Hester, D.D. and Zoellner, J. F. (1966). "The Relation between Bank portfolios and Earnings: An Econometric Analysis", *Review of Economics and Statistics,* Volume 48, pp. 372-386.

14) Holden, K. and El-Bannany, M. (2006). "Investment in Information Technology Systems and Other Determinants of Bank Profitability in the UK", *Applied Financial Economics,* Volume 14, pp. 361-365.

15) Khan, A.R. (2008). *Bank Management: A Fund Emphasis*. Bangladesh: Decent Book House.

16) Kwan, S. and Eisenbeis, R.A. (2005). "Bank Risk, Capitalization and Inefficiency", *Center for Financi*al Institutions Working Papers 96-35, Wharton School Center for Financial Institutions, University of Pennsylvania.

17) Keeley, M.C. and Furlong, F.T. (1990). "A Reexamination of Mean-Variance Analysis of Bank Capital Regulation", *Journal of Banking and Finance,* Volume 12, pp. 69-84.

18) Lopez, J.A. (1999). "Methods for Evaluating Value-at-risk Estimate", *SF FRB Economic Review*.

19) Molyneux, P. and Thornton, J. (1992). "Determinants of European Bank Profitability: A Note", *Journal of Banking and Finance,* Volume 16, pp.1173-1178.

20) Naceur, S.B. and Goaied, M. (2001). "The Determinants of the Tunisian Deposit Banks' Performance", *Applied Financial Economics,* Volume 11, pp.317-319.

21) Naceur, S. B. (2003). "The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence", Universite Libre de Tunis Working Papers.22) Peters, D., Raad, E. and Sinkey, J.F.(2004). "The Performance of Banks in Post-war Lebanon", *International Journal of Business,* Volume 9, Issue 3.