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Impact of Interest Rate Changes on the Profitability of four Major Commercial Banks in Pakistan

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Abstract

The core objective of this project is to analyze the impact of interest rates changes on the profitability of commercial banks being operated in Pakistan by examining the financial statements of four major banks during 2008 to 2012. Like the efficiency of banking sector is considered most important for economic growth, monetary policy implementation and macro-economic stability. From the past few years, interest spread of banking sector of Pakistan is rising. As a result variations in the interest rate depress the savings and investment and on the other hand it increases the efficiency of banks' lending. In this paper interest rate is an independent variable and bank profitability is a dependent variable. To examine the impact of interest rate changes on the profitability of commercial banks in Pakistan, Pearson correlation method is used in this study. As a result it is found that there is strong and positive correlation between interest rate and commercial banks' profitability. It means if the value of interest rate is increases/decreases then as result value of banks' profitability will also increases/decreases.

Keywords: Profitability, interest rate and commercial banks..

1. Introduction

1.1. Introduction

Banking sector of Pakistan has revealed massive growth and potential over the years. There is a considerable expansion in the profitability of banking sector demonstrated by performance and stability indicators. From 2008 after the massive growth, the banking sector of Pakistan is facing some pressures like liquidity and solvency problems which have considerable impact on the performance of banking sector and financial system. If the financial institutions have enough amount of liquidity to respond to their obligations then they can manage the situation easily. As banks are operating in very competitive environment, it has become obligatory to pay handsome rates to depositors to attract liquidity. To ease the liquidity in the market State Bank of Pakistan has decreased the cash reserve requirement (CRR) and statutory liquidity Requirement (SLR) on demand and time liabilities. Instead of developing its own recourses the government allows the banks to generate money and subsequently take loan from the banks. The huge amount of government borrowing from banks is shocking for the economy. The government not only should limit its borrowings from banks as well as place some type of check on control of money.

To make banking system stable requires stable macroeconomic environment which adds to efficient and effective growth of savings and investment decision. The performance of banking system particularly in the areas of monetary policy, transparent fiscal policy and financial stabilization should be supported by macroeconomic measures. State bank of Pakistan plays an important role in the efficient and effective growth of economy by providing guidelines to the financial institutions thus facilitating the investors and mobilizing the resources of the economy for development in the country. The capability to predict and to avoid the risk to fulfill the losses due to the arisen risk is essential for the success of banks. The cheapest source of funding for competitive banking institution is profit and it is the major requirement of a banking institution. The rising competition in financial market makes it necessary for the success of banking industry. These key facts are the reasons to focus on the present issue of banks profitability. These key facts are influencing the efficiency and effectiveness of banks to handle their portfolios like assets and liabilities to attain profitability and discover the areas where it might have potential room for increasing their profitability.

Mainly in operations of economic development bank as financial intermediary, plays an important role and their efficiency can also influence the economic growth. As banks provide financial services to its customers who are different from other firms and as a reward banks charge interest. Conversely most funds are provided by depositors and they also receive interest. The difference among the banks earnings on its assets and payments to depositors is called interest margin. During the last decade there has been an increasing trend. The borrower or depositor or both would be affected by an increase in the spread. The shortage of alternative opportunities of financial intermediation intensifies the bad impact of spread. For example, based on monetary policy if the state bank of Pakistan changes interest rate then the changes in the interest rate will influence the cost of capital and as a result the investment decision and level of consumption will be affected. When the interest rates to depositors

decrease and due to that if spread increases then it will discourage the savings and on the other hand, if interest rate to depositor increases then it will badly affect the investment. That's why there are important implications of these changes in the interest rate on the economy. In the banking system the impact of interest rate changes on the profitability has been a significant issue. As compared to other institutions banks are more sensitive to the changes in the interest rate. In participating, the investment crisis and saving the experience of bank to interest rate risk has been argued the significant issue.

The fee paid by someone for the use of someone else's money is known as interest. It is received when money is lent and paid when money is borrowed. When the borrower pays off the loan, he has to pay the principal amount he borrowed as well as the amount of interest occurred on that principal. Moreover, when someone gives up the right to someone to spend his money and as reward received some compensation is called interest. By ignoring the interest, investors wouldn't be interested to postpone their spending as well as lender to lent money. Usually interest rate is expressed in annual percentage. For example for one year someone borrows Rs. 100 and interest rate is Rs. 10 percent on annual bases. It mean when he pays off the loan he has to pay the principal amount Rs.100 and extra Rs. 10 as an interest. It's very easy to compare the Interest rate charged on different kinds of loans and even the rates that are used in different countries because interest rates are usually expressed as annual percentage. Now what are the Annual percentage rate and Annual percentage yield?

In APR when a borrower takes loan he not only pays the amount of interest but also he has to pay some other cost as a percentage of principal known as "points" on mortgage loan. A single point is equal to one percent of the amount of mortgage loan. When a lender makes the loan he charges his fee on the loan known as points. Some lenders strategically charge extra points but lower interest rate as compare to others. To evaluate the total cost of mortgage loans APR gives a practical measure. For instance, the APR for a mortgage for 30 years at 8% interest rate and 4 points will be 8.4% and the APR for a mortgage at 8.25% interest rate and 1 point will be 8.26%.

From the perspective of the person who is receiving interest, APY is an effective interest rate. Suppose in each of your two bank accounts you have Rs. 1000 with similar interest rate, but on your one account interest is credited more frequently than other account. The account on which interest is credited more frequently will be higher APY because as compare to other account interest will increase more quickly on that account.

1.2 Problem statement:

The focus of this study is to find out the impact of interest rate changes on the profitability of four major commercial banks in Pakistan.

1.3 Research Questions:

What is the impact of interest rate changes on the profitability of four major commercial banks in Pakistan?

This main question can be brake down into two questions:

- What impact will be on the profitability of commercial banks if interest rate increases?
- What impact will be on the profitability of commercial banks if interest rate decreases?

1.4 Research scope and limitations:

The scope of this research study includes the factors that have an impact on the profitability of commercial banks in Pakistan. This study covers the period of 2008-2012. The sample size of this study is 4 major commercial banks of Pakistan. To evaluate the impact of interest rate changes on the profitability of commercial banks operating in Pakistan, Researchers took an average of annual profits of the four major commercial banks. But this study do not covers the entire banking sector of Pakistan. This study do not covers the whole time period from the beginning of commercial banks in Pakistan to present.

2. Literature Review

To check the effect of changes in interest rate on commercial bank's profitability in Pakistan, number of studies has been conducted in the past decades. In this section researchers will describe the profitability of commercial banks and interest rate with the review of previous literature on this topic. Interest rate is described the certain amount of cash compensated by someone on the utilization of funds for a specific time period. Moreover when a debtor compensates to creditor with the amount of cash for the utilization of creditor's funds for a specific time period, is called interest rate. Creditors charge the interest rate as percentage of the sum of funds lent. Similarly, the institutions like bank for the utilization of money pays interest rate to the depositor. Profitability of bank is described as income by interest or non-interest and after tax profits which are computed as a amount of income (both interest & non-interest) after the subtraction of provisions and operating costs (Albertazzi & Gambacorta, 2006).

In our routine life, interest rate plays an important function. It can considerably influence purchasing power of people. Therefore, as depositor it is essential to focus on these trends in interest rate because the common trends in interest rate can have a major influence on savings of people. The major variation in these trends makes it essential to examine the existing investment opportunities and potential opportunities. The changes in interest rate have significant impact on banks. The major part of bank's revenue comes from the difference in the interest rate that it charges from and pays to customers. Previously, in the commercial bank's operations interest rates have become slight element. To accomplish the stability in the overall economy by managing foreign trade rates and by controlling the inflation, the SBP uses interest rate as a tool.

2.1 Interest Rate

On the usage of funds, a certain sum of money paid or received is known as interest rate. Creditor receives interest when he lent money and debtor pays interest when he borrows. The amount of interest that a creditor receives is a percentage of the amount of money he lent and

in the same way, the amount of interest that a borrower pays is a percentage of the total amount he borrowed (About.com). Anyone can make loan to someone and receive the interest or any institution like bank can accept the deposits and pay the certain amount of interest. But, typically it is the job of bank to provide the loans and accept the deposits. Here question arise that to provide loans, from where bank obtain money? Banks encourage the public to deposit their money by offering interest rates which motivate the public to make deposits by opening their different accounts with the banks and banks use their funds for making loan to other people. Practically, when bank makes loan to a customer it charges higher rate but pays lower rates to the depositor. With this difference of interest rates bank makes profit in return of giving these services. To earn much profit bank charges higher interest rate as much as it is possible and on the other hand pays lower rate as much as possible. However, to attract the same borrower and depositor banks are competing to each other which maintain the interest rates in comparable range (About.com).

Due to the competition among the banks interest rate remains in a comparable range. For tracking and managing the significant development interest rate is to be addressed a significant economic problem (Boulier, Huang & Taillard, 2001; Laubach, 2009). On the other hand, in the profit and loss statement interest rate also engage in managing the interest component entirely (Buiter & Panigirtzoglou, 2003). In addition, the interest rate also summarizes the way of whole business debt summary, including the receipt of debt, excellence of the debt, expectations of visions participation proportions and fixed floating mixture of the debt (Brigo & Mercurio, 2006; Einav, Jenkins, & Levin, 2008). Interest rates are applied in various shapes like there are different interest rates for saving account and for taking loan. Central bank sets the interest rate to control the interest rate that transforms the interest rates to control the lively of financial system. But the results of the variation in the interest rate are not constantly the projected results (ehow). Central bank plays many important roles in the economy but the major task of it is to regulate the interest rates which affect the financial system. For instance, this can be completed by regulating the interbank loan rate. The rates that commercial banks present for saving and lending are influenced by interbank interest rates and banks as result present their rates which are below or above from the interbank rate in certain percentage. In this way commercial banks earn their profit (ehow).

2.1.1 Increasing Effect

When interest rate rises up, businesses have to pay more for borrowing. In other words their cost of taking loan increases which decreases their profitability and due to decrease in profitability market price of their share also decline. Moreover, a rise in interest rate also decreases the worth of corporate bond. The interest rate that a bond pays to its holder is not much attractive due to high interest rate (Accaglobal.com). For borrowing and saving there are various types of interest rates that bank offers. To set the rate of interest that influence the lively of financial system, central bank plays a significant role. The central bank executes that job by controlling the loan rate for interbank. Because it considerably influences the interest rates for loan and savings that commercial banks offer. The main source of commercial bank's income is the interest income by interest rate which is to some extent below or above

the inter-bank loan rate. Typically, central bank boosts up the rate of interest for many causes that may or may not correct the intended issue. Inflation is from one of them. Rising interest rate encourages the people to keep their funds with bank by offering hand sum saving interest income. Rising interest rate and over spending cause stress on inflation. While on the other hand, when interest rate goes up make borrowing more expensive which results into fall in mortgage and investment. Ultimately, it influences the currency revaluation to increase the value of money. Moreover, improved rate of interest may enhance the demand of Government Issue bond (ehow).

Interest rate not merely charged to loans, however it is also charged to unpaid bills, mortgages and credit cards and it is only applicable on the unpaid portion of bills or loans. So, it is very necessary to be familiar with your interest rates and to know that how it is added to your loans or bills. If for example, your interest rate adds more than the amount you are paying, it possibly means your debts increase although you are paying for debts. Interest rates are not same even though they are more competitive. When a bank feel doubt that the debt will not be repaid it will usually charge higher interest rate. Loans like credit cards are very expensive to handle, so banks usually charge higher interest rates to them. Moreover, bank also charges high interest rate to risky people. So, it is essential to know about the score of your credit card and the ways to improve your credit card scores because when your card have higher scores then you have to pay less interest rates (about.com).

The study of Samuelson Paul A, (1945) showed that when interest rate increases it actually effect to borrowers but it don't affect the bank's performance. The borrower will tolerate the impact of high interest rate while the performance of bank would not be affected by high interest rates. Because when interest rates go upward then the bank charges more to borrower than the return it pays to depositors. Therefore, both the borrower and depositor will tolerate the cost. According to the study of Khawaja, Musleh, (2007), Increase in the interest rate depresses the borrowers and depositors, like investment and saving. Banks by charging high interest rate gain high returns from borrowers and discouraging the depositors by giving low return to them which results in inclusive spreads. In Pakistan spreads are higher. Finally, interest rate increases when spreads are taken into account that results into high returns to banks on investments and lending. And beside this, depositors have no other option to save their money except on prevailing rates offered by the banks.

2.1.2 Decreasing Effect

The decline in the interest rate as a common rule is most excellent for the economic atmosphere because customers can easily pay for taking loan as they don't have to pay higher interest rate for taking the loans. To regulate the economic development, interest rate is used as a device. As economy developed rapidly it will cause inflation in the economy. In other words prices go up to higher point which reduce the buying power of people which affect the demand of people for goods and services because of the shifting accessibility of bank loans. But on the other hand when interest rates are low the cost of borrowing decline which increase the buying power of public and as result they tend to make investments and spend in different forms. Lower interest rate also gives opportunity to businesses to take capital

investment loan. By making huge investment in rising sectors and making significant profit, it also enhances the firm's confidence. As result the economy become stable and employment opportunities in the country increases. Another feature of lower interest rate is that it reduces the risk of other party to failure to pay. It shows that when interest rates are lower people have more disposable income to pay off their loans and to make savings decision. When trade rates decline, the demand for those manufacturers that sells their goods and services in international markets increase which enhance the export's growth and as result it will increase collective demand and improves the economy. Moreover, boost the income factor of those in work. And it directs to amplify the level of national income.

2.2 Bank Profitability

The profitability of bank is typically spoken as a function of interior and exterior determinants. The interior determinants are called micro or bank specific determinants of profitability because they are initiated from bank accounts like balance sheet or profit and loss account. While on the other hand the exterior determinants are the variables which are not in the control of bank's management. These variables reflect the legal and economic environment which can influence the process and performance of an economic body. Moreover the expenses of bank are considered significant determinant of bank's profitability which is directly associated to the concept of capable management. For instance Bourke (1989) and Molyneux and Thornton (1992) discovered an encouraging affiliation among profitability and better-quality management. Another appealing matter is that whether the bank's ownership status is associated with its profitability or not but to support the assumption that private organization will earn comparatively higher profit, small proof is founded. The study of Short (1979) is from one of the few studies contributing cross country proof of direct negative correlation among public owned organization and the profitability of banks. The final set of the determinants of banks profitability works with macro-economic control variables. Growth rate of money supply, inflation rate and long term interest rates are usually used as variables. The issue of the association among inflation and bank's profitability has been introduced by Revell (1979). He noted that the consequence of inflation on the profitability of banks depends upon whether wages and other operating expenses of banks are increasing faster than the inflation.

3. Methodology

For the purpose of research, several methods and approaches are used. Here researchers described the methods and approaches used in data collection and discussed the tools that are used to analyze the collected data. For the purpose of research, two types of approaches are widely used. These are quantitative approach and qualitative approach. The researchers used quantitative research methods to perform this research study. Pearson Correlation Method is used to identify the relationship between interest rate and profitability. Researchers used quantitative method because this research is about analyzing the impact of interest rate changes on the profitability of four major commercial banks in Pakistan and to explore this study in detail researchers used the information that exists in the form of literatures, scientific articles. Besides this, researchers used annual reports of Askari Bank, Bank Alflah, Faysal

Bank and MCB Bank Ltd. Moreover, records that are published by state bank of Pakistan. This method is used with the aim to investigate the complete solution of an underlying task and to analyze the results with the help of numbers, tables and other tools. This approach is more objective in nature and applied on a large group of people or population. The main attribute of this method is that it is measurable, observable and it can also be manipulated.

3.1 Data collection Sources used in this Research:

Researchers used secondary sources of data to facilitate the useful information for this study. Researchers employed the secondary data sources for this study to get desired goals. Secondary data means the data that has been collected by scholars and documented in articles, books and other publications. Secondary data is very useful for research with its significant advantages: time saving and rapid accessibility. This, however, depends on if the data is already collected and published or internally exists and also on the cost. It could also be freely available at different sources with detailed information.

3.1.1 Major Secondary Data Collection Sources:

Researchers collected the secondary data and valuable information from following official websites of commercial banks and from the official website of State Bank of Pakistan.

- Askari Bank (www.askaribank.com.pk)
- Bank Alflah (www.bankalfalah.com)
- Faysal Bank (www.faysalbank.com)
- MCB Bank (www.mcb.com.pk)
- State Bank of Pakistan(www.sbp.org.pk)

3.1.2 Use of Secondary Data and Data analysis:

This research study deals with the impact of interest rate changes on the profitability of four major commercial banks in Pakistan. In order to review this impact in detail from a theoretical and analytical perspective, Researchers selected and employed the relevant literature and findings of empirical studies on impact of interest rate changes on the profitability of commercial banks in Pakistan. Researchers discussed, theoretically, this factor and elaborated the main components of this factor in alignment with previous researches that have been done in this field. On the basis of this theoretical discussion, Researchers tried to find the relationship between interest rate and commercial banks profitability. In this regard, Researchers selected relevant material articles, annual reports, and various archives of records in order to get a comprehensive view of these factors. After reviewing theoretically these factors, Researchers revised these factors analytically to determine the nature of relationship between interest rate and commercial banks' profitability in Pakistan. For this purpose, Researchers used Pearson Correlation Method and have taken the period 2008-2012 for this analysis.

3.2 Validity and reliability of Data:

The data employed in this research study is collected from authentic sources which included official websites of Askari Bank, Bank Alfalah, Faysal bank, MCB and State Bank of Pakistan. The data available on the archives of these banks is prepared by high level experts and professionals. These banks have copyrights and are fully responsible about the validity and reliability of data. Therefore, the researchers trust on this data with assurance of validity and reliability in terms of collection, compilation and measurements. The data used in this research study is provided with complete references to ensure the validity and reliability of data.

3.3 Pearson Correlation method:

A correlation is a number within the range -1 and + 1 that measures the degree of association between two variables call them X and Y. The association between these two variables could be positive or negative. If the correlation is positive between two variables; it means that there is a direct relationship between them (if the value of one variable(X) is increased/decreased then the value of second variable(Y) will also be increased/decreased). Contrary to this, if the correlation is negative between two variables (X and Y), then it means that there is an inverse relationship between the two variables (if the value of one variable(X) is increased/decreased then the value of second variable(Y) will be decreased/increased). Researchers employed Pearson correlation method to measure degree of association among interest rate and commercial banks profitability in Pakistan and tried to find out some extent of association among these variables.

3.4 Data Collection and Statistical Analysis

The data has been collected from the above mentioned resources and analyzed by using Pearson co-relation method to find out the relationship between interest rate and commercial banks profitability. Correlation coefficient represents the association between the variables. The values of correlation coefficient range from -1 to +1. The sign of correlation coefficient indicates the direction of the relationship either positive or negative. The value of correlation coefficient indicates the strength and weakness of relationship either strong or weak.

Bank Name	Yearly Profits After Tax (PKR)				
	2008	2009	2010	2011	2012
Askari Bank	386,225,000	1,107,793,000	943,177,000	1,627,698,000	1,255,362,000
Bank Alfah	1,301,301,000	-97,904,000	968,452,000	4,325,888,000	4,556,121,000
Faysal bank	1,114,952,000	1,200,159,000	1,190,329,000	1,280,296,000	1,422,882,000
MCB	15,323,227,000	15,495,297,000	16,873,175,000	19,424,906,000	20,940,696,000
Average Profits	3,749,366,400	3,746,139,200	4,324,944,200	6,010,066,200	6,336,635,400

Source: (Official Websites of Banks)

The above table provides annual profits of four major commercial banks in Pakistan named: Askari bank, Bank Alfah, Faysal bank and MCB. It also provides average annual profits of these above mention four commercial banks.

Year (N)	Interest Rate (%)	Change in Interest Rate (X)%	Average Profits After Taxation (Rs.)	Change in Profit (Y)%	XY	X ²	Y ²
2008	13	-	3,749,366,400	-	-	-	-
2009	12.5	-3.846	3,746,139,200	-0.0861	0.3311406	12.152196	0.007431
2010	14	12	4,324,944,200	15.451	185.412	144	238.7334
2011	12	-14.285	6,010,066,200	38.963	-556.586455	204.06123	1,518.1154
2012	9.5	-20.8333	6,336,635,400	5.434	-113.2081522	434.02639	29.5284
n= 5		ΣX=-26.9643		ΣY= 89.7619	ΣXY=-484.0514666	Σ X ² = 794.239	Σ Y ² = 1,786.3846

Source: (authors' Calculation)

In the above table interest rates mentioned are base rates provided by State Bank of Pakistan. And average profits after tax are taken from first table.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

As a result it is found that correlation in this study between interest rate and commercial banks profitability is -0.69. It means the association between these two variables is strong and negative. Which shows that there is an indirect relationship between interest rate and banks profitability (if the value of interest rate(X) is increased/decreased then the value of bank profitability(Y) will also be decreased/increased). This result is different from what is suggested in the literature. The reason behind this is that the banking sector in Pakistan is having a very huge banking spread and any changes in interest rates are easily absorbed by this spread. Moreover banks are earning profits from investment also, so their income is not too heavily dependent on interest margin.

4. Conclusion & Recommendations

4.1. Conclusion

The aim of this study is to analyze the impact of changes in interest rate on the profitability of four major commercial banks in Pakistan. Interest rate considerably affects the bank's interest income. These findings are proved through Pearson correlation technique. It means banks' income by interest is extremely related to interest rates that show the bank's profitability is dependent on the monetary policy tool known as interest rate.

Particularly, when interest rate is high, usually rise in lending rate is higher than the deposit rates which as a result increases the bank spread. But on the other side when interest rates are low then rise in deposit rate is higher than the lending rates. As compare to deposit rates, the rates of lending are adjusted more rapidly when interest rates increase. Whereas when interest rate decreases then the deposit rates are adjusted more rapidly as compare to lending rates.

4.2 Recommendations

- The commercial banks in Pakistan are charging more to borrowers but paying less to depositor. For the betterment of economy management of bank should concentrate on their profitability by charging lower interest rate and providing handsome return to depositors.
- The involvement of money is not necessary to decrease the risk of bank. It can be minimized by increasing their concentration on non interest income.
- To regulate the interest spread, the state bank of Pakistan should play its significant role.
- About the unexpected variation in the interest rate and capital adequacy ratio bank must take conscious steps.

References

1. Albertazzi U. and Gambacorta L. (2006), "Bank Profitability and Taxation", mimeo, Bancad'Italia.
2. Boulier, J. F., Huang, S. J., &Taillard, G. (2001). Optimal management under stochastic interest rates: the case of a protected defined contribution pension fund.

Insurance: Mathematics and Economics, 28(2), pp.173-189.

3. Bourke, P., (1989). "Concentration and other determinants of bank profitability in Europe, North America and Australia". *Journal of Banking and Finance* 13, pp.65- 79.
4. Brigo, D., & Mercurio, F. (2006). *Interest rate models: theory and practice: with smile, inflation, and credit*: Springer Verlag.
5. Buiter, W. H., & Panigirtzoglou, N. (2003). Overcoming the zero bound on nominal interest rates with negative interest on currency: gesell's solution*. *The economic journal*, 113(490), pp.723-746.
6. Einav, L., Jenkins, M., & Levin, J. (2008). "The Impact of Information Technology on Consumer Lending: Working paper."
7. Idrees Khawaja & Musleh-ud Din, 2007. "Determinants of Interest Spread in Pakistan, "PIDE-Working Papers 2007:22, Pakistan Institute of Development Economics.
8. Impact of interest rates. (n.d.). Retrieved June 2, 2013, from http://www2.accaglobal.com/documents/interest_rates.pdf
9. James, Green, (n.d.). After effects of fluctuating interest rates. Retrieved June 2, 2013, from http://www.ehow.com/info_8383958_after-effects-fluctuating-interest-rates.html.
10. James, Green, (n.d.). After effects of fluctuating interest rates. Retrieved June 2, 2013, from http://www.ehow.com/info_8383958_after-effects-fluctuating-interest-rates.html.
11. James, Green, (n.d.). After effects of fluctuating interest rates. Retrieved June 2, 2013, from http://www.ehow.com/info_8383958_after-effects-fluctuating-interest-rates.html.
12. James, Green, (n.d.). After effects of fluctuating interest rates. Retrieved June 2, 2013, from http://www.ehow.com/info_8383958_after-effects-fluctuating-interest-rates.html
13. Kimberly Amadeo, (2012, April 14). What are the interest rates and how do they work. Retrieved from <http://useconomy.about.com/bio/Kimberly-Amadeo-22286.htm> on June 2, 2013.
14. Kimberly Amadeo, (2012, April 14). What are the interest rates and how do they work. Retrieved from <http://useconomy.about.com/bio/Kimberly-Amadeo-22286.htm> on June 2, 2013.
15. Kimberly Amadeo, (2012, April 14). What are the interest rates and how do they work. Retrieved from <http://useconomy.about.com/bio/Kimberly-Amadeo-22286.htm> on June 2, 2013.
16. Laubach, T. (2009). "New evidence on the interest rate effects of budget deficits and debt." *Journal of the European Economic Association*, 7(4), pp.858-885.

17. Molyneux, P. and J. Thornton, (1992), The determinants of European bank profitability, *Journal of Banking and Finance* 16 (6), pp.1173-1178.
18. Paul, A. Samuelson (1945). "The effects of interest rate increases on banking system." *The American economic review*, Vol.35, No. 1, pp. 16-27.
19. Revell, J. (1979). *Inflation and financial institutions*. (The Financial Times Ltd., London).
20. Short, B.K. (1979): "The Relation between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe and Japan", *Journal of Banking and Finance*, Vol.3, pp.209-219.