Adoption of Internet Banking in United Arab Emirates

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ABSTRACT

Comparing internet banking with conventional banking in United Arab Emirates is the main purpose of this thesis. Internet banking services have been greatly expanded and are greatly used in United Arab Emirates. This study will try to answer our question that which one of the banking system is more profitable; hence which one of United Arab Emirates banks are using. They will use more of the system in order to maximize their profitability. In this study financial ratios are used and are particularly used to evaluate the banks in checking the performance of the two systems. For the process of evaluation, we will use E-views software which helps us in making the hypothesis in regards to t-test, f-test and regression analysis.

Keywords: Internet Banking, Conventional Banking

ÖZ

Bu çalışmanın amacı internet bankacılığının birleşik arap emirlikleri bankacılık sisteminde uygulannması ve karlılık üzerinde etkileridir. Bankacılık sisteminin gelişimini 7 tane ticari bankayı ele alarak 2005-2011 yılları arasındaki performansları bilanço ve gelir gider tabloları incelenmiştir. Performanslar ampirik çalışmlara sonucunda irdelenmiş ve bankaların internet adaptasyonun banka performanslarını ne şekilde etkilediği incelenmiş ve internet kullanımının banka büyüklüğü ve karlılıkla doğru orantılı olduğu görülmektedir.

Anahtar kelimeler: Internet Bankacılığı, Geleneksel Bankacılığı

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LIST OF ABBREVIATIONS

GDP:	Gross Domestic Product
ROA:	Return on asset
ROE:	Return on equity
CAR:	Capital adequacy ratio
EFF:	Management efficiency ratio
ASQ:	Asset quality ratio
LQR:	Liquidity ratio
LSIZE:	Natural logarithm of total assets
DI:	Digital Insight
IMF:	International Monetary Fund
UAE	United Arab Emirates
NIM:	Net Interest Margin
OLS:	Ordinary Least Square
E-VIEWS:	Econometric views

Chapter 1

INTRODUCTION

1.1 Background of the study

Banking in United Arab Emirates (UAE) started in 1980, when a proper central bank was established. At first it was hard for the banks to be established as the government of UAE strictly regulated, due this there was no new innovation in this sector. Slowly there was allowance for local banks to be established which were not that eager to compete with each other, as they were highly regulated. These local banks had established their own private webpage but majority of the transactions were done over the counter. This was major case until in 2004 due to pressure from World Trade Organization (WTO) the Central Bank allowed Establishment of foreign banks in UAE[1]. These foreign banks brought the innovation system which would bring productivity and efficiency to the banking sector of UAE and internet banking was part of it.

Today Internet is the driving force in the banking sector. If it was not for the internet banking would had been limited to physical presence of its phenomenon, where the costumer would get service face to face. The problem with this is that it was not efficient and a new ways were to be found eventually. As all goods and services in capitalism, banking had to change or innovate new ways to make profit. So internet was a viable

[1] http://lcweb2.loc.gov/frd/cs/profiles/UAE.pdf

alternative to naturally progress the banking sector. As internet was slowly introduced by bank, at first a mere portal giving information regarding the bank. But with more resources and time banks were able to provide more services to the costumers.

1.2 Aim of the study

In this thesis the aim is to analyze bank specific determinants with and without internet banking. Even though there has been numerous studies done in the field of banking, not much is research have been done in terms of internet banking. Also not much research has been done in regard to banking sector in the Middle East and especially related to internet banking. In the last few years United Arab Emirates has greatly improved and innovated its banking sector, to an extend that it is leading in this sector in the region. It would be interesting to study on how United Arab Emirates was able to succeed and what kind of benefits is getting from it.

1.3 Scope of the study

The main purpose is to find the relationship that has internet start helping the banking system profitability. For this we also have to research that is customers viewing internet banking as efficient medium of services they can attain. But we can make assumptions like customers with higher education are more likely to use the services, or people with faster internet services. In the end we will use these assumptions and help the profitability ratios in order to examine the performance of the banks in regards to internet banking. These Ratios will be:

- Return on Equity (ROE)
- Return on Assets (ROA)
- Equity of Total Assets

- Profit margins.etc.

1.4 Structure of the thesis

The paper is organized in following order. Section 2 will be literature review based on previous studies, section 3 will have methodology and research data, empirical results will be in section 4 and finally conclusion and recommendation will be present in section 5.

Chapter 2

LITERATURE REVIEW

There have been previous studies done accordingly in regard to internet banking and profitability. The papers being presented are varied in region and topic, but the main aim of these topics are on profitability of banks in regard to internet banking. The studies which are included of Malhotra and Singh (2004), Sumara and Manzoor (2011), Gopalakrishna, Wischnevsky and Damanpour (2003), Onay, Ozsoz and Helvacioglu (2008), Floros (2008), Furst (2002), Furst, Lang and Nolle (2000), Aktan.B and Teker.E (2009), Batan.A.M and Kamil.A.A (2010), Mansumitrchai and Chui (2012), Hajri.S (2008).

According to the study conducted by Malhotra and Singh(2004) which they tried to use advances to technology which it infuses are investigated and which brought shift in banking operations. The paper tries to use statistical analysis, relative to other banks in respect to profitability, cost efficiency and other characteristics. Differences between non internet banks and internet banks were emerging in funding, in sources of income, expenditure and measures of performance. In the conclusion of the paper it was researched that public banks are not providing proper or lagging behind in internet banking than private banks. Also they concluded that internet banking is not a significant determinant in explaining the profitability for all the banks. Internet banks in

private sector are significantly less profitable than non internet banks; this is also the case in public banks[2].

According to the study done by Furst, Lang and Nolle (2000). They tried to explain why banks are choosing to adopt the internet banking in their service and how much profitable is it for them. Banks are looking at internet banking as their next step for providing services which in return brings ease to the customer. Internet banking also decreases the cost of operating their services. But according to the study due to few customers using it this technology is not profitable. In fact internet banking might be the reason that small banks are not profitable as they are using their resources in keeping their internet banking service of which demand is low. Even large banks are not profitable but due to their vastness of their business their loss on internet banking can be covered[3].

Furst again in (2002) wrote a study regarding internet banking profitability that used multivariate logistic regressions to check the factors affecting adoption of internet banking. From regression it was included that internet banks provide a better accounts efficiency ratio and equity returns are higher than non internet banks. Still new smaller banks which are using internet banking are not able to attain profitability. The reason for this is given with regard to that new banks are still using all their resources in setting and maintaining the web site for internet banking and the demand has still not caught up for it to be profitable. It was concluded in the study that as time passes information

[2] http://www.arraydev.com/commerce/JIBC/0406-08.asp
[3] http://www.newyorkfed.org/newsevents/events/research/2001/Furst.pdf

technology will catch up and will transform the banking sector to fully support its internet banking. For this revolutionary developments are needed to be more viable for consumers, as they can easily attain and use it. But for now the internet banking is in novice stage[4].

According to paper written by Gopalakrishna, Wischnevsky and Damanpour (2003) internet can converge different technologies to enhance different industries. There are major performance implications for internet in banking sector. If we look other industries that radically implemented internet for example in brokerage firms provided lower prices to customers than conventional one. For example; Charles Schwab (2002) was quickly able to adopt online brokerage technology and provide it in comparable prices with better research quality.

So as with e- Brokerage industry, in the long run, the incumbent banks will be able to give better internet service to its customers. They will be able to better compete with the conventional mean with introduction of better products and process innovations, which will alter the way they do business. For now the banks are still in the process of innovation and are not able to have a significance impact like the e-brokerage[5].

According to the article written by Malthotra and Singh (2007) on internet banking that examines the relationship between the banks adoption decision and market

[4] http://www.springerlink.com/content/alkfaepxrmvmavmk/

[5] http://pb5be8yq6w.scholar.serialssolutions.com/?sid=google&auinit=S&aulast=Gopalakrishnan&atitle=A+multilevel+analysis+of+factors+influencing+the+adoption+of+internet+banking&id=doi:10.1109/TEM.2003.819648&title=IEEE+transactions+on+engineering+management&volume=50&issue=4&date=2003&spage=413&issn=0018-9391

characteristics. The data that is used consists of 88 banks in India from 1997 to 1998 and 2004 to 2005, the relationship is studied with the help of logistic regression. The induction of the result was that new banks and banks with larger deposits tend to have higher profitability to adopt internet banking. So the profitability indicates that banks have started to use internet banking to increase market share and lower expenses which in return increase profitability. By this we can know that internet has started to mature itself to the point that banks have started to become profitable[6].

Onay, Ozsoz and Helvacioglu (2008) on their research studied the impact of internet banking on banking profitability in the case of Turkey. According to the paper, there is an increase in adoption and penetration in Turkey recently. Even the banks with retail banks are providing a full fledged internet service. But the profitability of the internet banking on bank is not very well researched. Data of internet banking is taken between 1996 and 2005 of 13 banks. The impact of internet banking is measured with the help of Return on assets (ROA) and Return of Equity (ROE). The results indicate that investment on internet banking is a gradual process. The internet banking had a positive effect on banking sector of Turkey, as the return on equity was positive with a lag of two years. So, the paper lacked the data to go forward in continuing its research and answer that whether internet banking in profitable in turkey[7].

[6] http://www.emeraldinsight.com/journals.htm?articleid=1610805

[7] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1698783&http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cts=1330619832378&ved=0CDkQFjAC&url=http%3A%2F%2Fpapers.ssrn.com%2Fsol3%2FDelivery.cfm%3Fabstractid%3D1698783&ei=rKVPT9yNKYeUOuakpJYK&usg=AFQjCNGPkuf30WTJAOVraGE79wc0XjC7Ow&sig2=duDBlfhTfc7ORRks8zbmPw

According to the paper written by Floros (2008) regarding internet banking websites performance in Greece, there has not been enough research in examining performance of internet banking in Greece. The objective of this study is to show the performance of Greek banks in regard to internet banking and related services. According to the data collected it shows that internet banking in Greece has been increasing over time. But internet banking adoption in the rest of European Union is observed; it can be seen that banks with internet banking service are more profitable .But Greek banks are not close enough in adopting internet services. So in order to attract more customers the Greek banks should promote or communicate its service more effectively. They can go beyond the branch system and advertise it more directly to the customers. There can be more work done in the future in regard to getting data for internet banking sector of European banks and comparison to Greek banks, as there is a lot of opportunity for this service to be improved.

Sumra and Manzoor (2011) made a qualitative approach to the banks on the profitability of the banks in Pakistan. The e banking is spreading its influence through every sector of banking of which for example ATM, credit card, fund transfer, cheque payment etc.The adoption of internet banking has easily increased the efficiency, the technology has matured to the state where we can give the notion that brick and mortar banking is diminishing. The reason for the efficiency can easily defined as having less employees to provide the services, the accuracy has been increased and no human errors, the speed of transactions is fast and reliable bring down the costs down. According to the study, the customers are satisfied with interacting with the machine to fulfill their banking needs has greatly decreased the costs and increased the profits. The commission

and deductions for the internet banking has streamlined the earning of the banks. So, the financial statements of the Pakistani banks were studied and found that large growth of profitability can be found due to increase incorporation of internet banking with normal banking services[8].

According to Hajri.S (2008) efficient financial services of the banking sector are important betterment of economic growth of Oman. Given that developed countries have adopted internet banking, so in order for Oman to be competitive and grow internet banking should be crucial to its strategy. With the help of 15 semi-structured interviews it was noted that internet banking is very slowly integrating. The bank manager who contributed used their experience, thought and understanding. The implications were found that still there is need for ebanking to increase more. The way it can do that is by development of telecommunication infrastructure: customers education and awareness of security and privacy issues[9].

According to Mansumitrchai and Chui (2012) online banking has become important part of service provided by the banks in United Arab Emirates. Partly due to diversification in its customers who are foreign nationals different part of the world and as being a banking hub in the region. The paper included users already using the services and non users of the online services. The sample was made up of 330 of users and non users. The main finding of this of this study was that perceptions of internet banking dependent on compatibility, trust and human contact. And with the help of hypothesis testing it was

[8] http://www.macrothink.org/journal/index.php/jpag/article/download/692/606
[9] http://www.bizresearchpapers.com/12%5B1%5D..Salim.pdf

deducted that the users of the service are more affected by compatibility and trust, where as the non adopters were more interested in having the end user contact. The problem with this paper was that there was not enough emphasize was given on demographics, as stated before United Arab Emirates Is a diverse country in terms of expatriates. So, the use of demographic variable can be studied in the future research[10].

According to research paper written by Batan.A.M and Kamil.A.A (2010) which looks at the Prospect of the Internet Banking on the Economic Activity. According to the paper as many much growth in the internet traffic in the Bangladesh, but the banks still conduct most transactions through traditional ways. The paper will try find the economic prospect which will make agree the banks that internet banking has the exponential growth prospect for them. The research paper was able to find that reason that technology illiteracy in Bangladesh has made the banks to adhere from adoption. There is a phobia of security in the community, so the guarantee must be provided by the government. Also even if as mentioned before that internet traffic is increasing the internet banking part of the banks is not known by many people. So, this problem has to be solved by the marketing department of the bank. In terms of economic feasibility for the banks, it was proved that expanding of markets and decrease of operating cost will make the Bangladeshi banks competitive. So, which ever bank starts e-banking will get the full growth prospect because of increasing Bangladesh economy.[11]

[10] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1957230
[11] http://www.arraydev.com/commerce/jibc/2010-08/Baten.pdf

According to the paper written by Aktan.B and Teker.E (2009) which looks at the whether the financial instructions flourish its businesses because of the deregulations and technological innovations, as it was historically known that banks have been individuality service provider. However in contrast to increase their profit and foot print, they have to adopt more and more of internet banking. New International banks have stepped up the competition in terms of services. So, the banks overall in turkey have to use internet banking applications like Automated Teller Machine, telephone banking, browser based banking etc. So, in conclusion it was deducted that in the time frame of 2005 and 2008 the turkey's financial services have grown in accepting internet banking[12].

[12] http://www.arraydev.com/commerce/jibc/2009-04/Submitted%20Manuscript%20for%20JIBC-25%20FEB%202009.pdf

Chapter 3

UNITED ARAB EMIRATES BANKING SYSTEM

United Arab Emirates is a developing economy, with a 33rd economy in terms of GDP (nominal) according to international monetary fund. But is still regarded a rich country with GDP per capita of US$ 49,600. By 2011 United Arab Emirates was appointed as the 14th best country to do business based on economy and regulatory environment[13], by this many businesses have started to form their regional headquarters in United Arab Emirates. In our case banks are also situating their regional headquarters which has made United Arab Emirates as the hub of financial sector in the region. Right now the as of 2012 there are total of 32 banks operating of which 22 banks are local and 10 are foreign. With 78% labor population working in services sector in the United Arab Emirates, this has helped the banks to recruit local labor as they are already experienced in services sector. By 2000 United Arab Emirates started its self to open its economy to foreign businesses in order to diversify its dependence of its GDP on 99% exports of natural resources. Specific cities were created like Dubai international financial Centre, Dubai Internet City, Dubai Media City. These cities allow foreign businesses to have 100% ownership, no taxes and other facilities which would help them. By 2009 United Arab Emirates was able to decrease its reliance on exportation of natural resources to 85% while the rest was provided by other industries.

[13] http://en.wikipedia.org/wiki/Economy_of_the_United_Arab_Emirates

The Central bank of United Arab Emirates was established in 1973 so that to issue the currency under the new union of emirates which was created in 1971. The objective of the central banks is to direct monetary, credit and banking policy and supervise over its implementation in accordance with the state's general policy and in such ways as to help support the national economy and stability of the currency[14]. The central banks have been greatly monitoring the banks operating in United Arab Emirates and foreign banks were greatly regulated. So, the foreign banks were not interested in operating in United Arab Emirates. But due to pressure from World Trade Organization, the central had to decrease its regulations and provide licenses to banks to operate. So the banks were able to greatly increase their services once the regulations were relaxed on them.

United Arab Emirates is thought to have the best telecommunication network in the Arab world- the highest voice connection and broadband internet connectivity capacity per capita. The internet connectivity is provided by Du (which is part of state owned Emirates Company for integrated Telecommunications) which is a monopoly. But even with the problems with regards to censorships and monopoly, businesses found great value in good infrastructure, tax free etc. As with the case with international banks which could easily set up their offices at first and later able to have cheap educated labor from countries of sub continent, they are were able to set up internet services of these banks.

In 2000 United Arab Emirates built its first Dubai internet city which allowed many businesses to setup their offices and in 2004 the Dubai international financial center was

[14] http://www.centralbank.ae/en/index.php?option=com_content&view=article&id=68&Itemid=107

officially opened to help foreign banks to setup businesses without any tax. By the help of excellent internet services and tax free financial center banks were able to increase their services of internet banking. These banks are not only providing these services in United Arab Emirates, but had call help centers and other internet services for the region which covers from India to Africa. So, the scope the banks are operating now in terms of internet banking is vast. Even if there is problem of censorship and one provider of internet, the banks are greatly establishing different branches of their banks in United Arab Emirates.

Table 3.1 List of Banks in United Arab Emirates

No.	**Name of bank**	**Year Started Operations**	**Total Assets (US$)**
1	National Bank of Abu Dhabi	1995	109,082,128
2	Abu Dhabi commercial bank	1991	178,271,194
3	ARBIFT	2001	6,334,987
4	Union National Bank	2001	1,822,688
5	Commercial Bank of Dubai	1989	5,376,137
6	Dubai Islamic Bank PSC	1990	8,897,289
7	Emirates NBD bank	2000	21,526,137
8	Emirates Islamic Bank	2001	34,290,167
9	Mashreq Bank PSC	1994	14,731,800
10	Sharjah Islamic Bank	2002	8,956,146
11	Bank of Sharjah	1996	12,098,842

12	United Arab Bank PJSC	1994	3,074,124
13	National Bank of Abu Dhabi	1986	24,468,641
14	The National Bank of R.A.K	2001	7,021,765
15	Commercial Bank International	2005	4,026,458
16	National Bank of Fujairah	2002	2,347,971
17	National Bank of U.A.Q PSC	1992	7,932,213
18	First Gulf Bank	1991	8,526,300
19	Abu Dhabi Islamic Bank	1987	10,238,972
20	Dubai Bank	1998	12,345,983

Table 3.2 Banks with their Internet Banking Information

No.	**Name of bank**	**Financial Report**	**Started Information Website**	**Starting internet (Transactional) Banking**	**Total Assets (US$)**
1	Abu Dhabi Commercial Bank	7 years	2003	2006	178,271,194
2	Commercial bank of Dubai	7 years	2004	2007	5,376,083
3	Emirates NBD bank	7 years	2007	2008	21,526,137
4	First Gulf Bank	7 years	2002	2004	8,526,300
5	Mushreq bank	7 years	2007	2009	14,731,800
6	National Bank of Abu Dhabi	7 years	2004	-	24,468,641
7	Union national bank	7 years	1998	2004	1,822,688

3.1 2008 Crisis for United Arab Emirates:

United States was the prime location for the 2008 crisis due to subprime mortgage. But the effect of it was felt in other countries and Banks in United Arab Emirates was also getting effected to the world wide economic meltdown. But the threat the United Arab Emirates came a bit late and when it was about to harm the economy the government quickly took necessary measures to protect the banking sector.

As pointed in paper by Khamis, Senhadji (2010) during the boom years (2003- 2008) there was significant increase in banking credit to the private sector, which was also fueling banks to increase its footprint by providing these credit services and related services on the internet. Real average credit growth was around 23 percent which increased bank leverage and almost doubling the ratio of private sector credit to non oil GDP to 122 percent by the end of 2008. But as world economy was going downwards so with all the credit there was no way UAE will not get affected. So, for which there was reversal of speculation short term inflows linked to exchange rate speculation, combined with global deleveraging and widening emerging market spreads, resulted in large liquidity pressure and increased funding cost[15]. The consequence of this the banks started brought their reserves down with the central bank, which in turn spiked short term interest rates high.

The Government was already aware of economic meltdown worldwide and was ready to use any kind of monitory policy to stop the same problem in United Arab Emirates. So,

[15] **http://www.imf.org/external/pubs/ft/dp/2010/dp1001.pdf**

with that government quickly and timely responded by infusing liquidity in the market, which brought the interest rates were brought normal.

Chapter 4

METHODOLOGY

4.1 Introduction:

In this part, the data and methodology will be presented. The data is being collected to show the profitability of the banks. There data is designed to test adoption of internet banking in regard to profitability.

4.2 Data :

We will make an empirical study of 7 Commercial United Arab Emirates Banks with regards to their bank size, along with the adoption of internet banking. We will check the profitability of these banks with accordance to their increase traffic and net income.

The ratios were analyzed and calculated with the help of E-views Software. These ratios are not provided by the banks which are being used, so we have to manually use Microsoft excel and find those ratios. E views software will facilitate us more in understanding our research by placing our ratios in panel data analysis. Panel data in return will be in combination of time series and cross sectional data for our empirical analysis.

The table below will help in indicating which online source was used to find the data of the particular bank (in most case the online source is the web page of the bank itself)

Table 4.1 The Variables Notation and Their Measurement:

	Variables	Measures	Notation
Dependent Variables	Profitability	Return on Assets(ROA)= Net Income/Total Assets Return on Equity(ROE)= Net Income/Total Equity	ROA ROE
Independent Variables	Capital Adequacy	Equity/Total Assets	CAR
	Asset Quality	Total Loans and Receivables/Total Assets	ASQ
Bank-Specific	Efficiency	Interest Income/ Interest Expense	EFF
	Liquidity	Liquid Assets / Total Assets	LQR
	Bank-size	Natural Logarithm of Total Assets	LSIZE

4.2.1 Dependent Variable:

Return on Assets (ROA) and Return on Equity (ROE) are main ratio measurements to calculate the profitability of the banks. The explanation for these variables is as follows:

Return on Asset (ROA):

In terms of equation form Return on asset is equal to net income of the bank over total assets of the bank. It is basically an asset indicator in terms of how much profitable the business (in our case the bank) is. In terms banks especially return on assets is figure which is used in comparing the performance, as their assets will have the same value as the actual market value.

Return on Equity (ROE)

In terms of equation form Return on Equity is equal to Net income (After Tax) of the bank over Total Equity of the Bank. The benefit of Return on Equity will be related to when there is reinvestment of the earnings at high rate. Which in turn lead to higher rate for the equity of the share holders. The higher ratio of Return on Equity will lead us to conclusion that the bank had an increase in equity value in previous years.

4.2.2 Independent Variables:

Capital Adequacy:

In terms of equation Capital Adequacy is equal to Capital over Total Asset. The use of this ratio is associated with the banks capacity for meeting the liabilities and risks (like operation and capital). It also keeps the capital in the bank afloat so that there is no less supply of it, by which the depositors or lenders might get affected.

Asset Quality:

With equation of Asset Quality over Total loans over Total assets. It is used to explain how the non performing loans are affecting the portfolio of the assets. The exposure to

these loans will bring a lot of risk to the overall quality of the assets of the bank. Hence an increase in loans will bring more chance of failure.

Management Efficiency:

The equation which determines Management Efficiency will be Interest Income over Total Assets. The ratio analyzes how efficiently the bank is using its assets and liabilities. They are easily able to calculate turnover of receivables, return of liabilities etc.

Liquidity:

The liquidity of the bank is calculated as Cash over total assets. The liquidity ratios are anticipated to be either positively or negatively effective with the profitability of the banks. The higher the ratio the more the bank is in profitable, the lower the ratio the more the chances of it to be in unprofitable position.

Bank Size:

Generally the bank size is measured by its Total Assets. The larger the Assets the better the banks is considered to be in profitable situation.

Log Size:

The logarithm is of the total bank size. Since the total Assets are all in numbers, thus logarithm of the bank size is used to run the regression analysis.

Dummy Variable

In Regression Analysis, dummy variable (which is also referred to as the indicator variable). In this study 0 & 1 are used as dummy variable to find out for the years, in which Internet was actually started and when they started to provide different services to their customers. So 1 defines the years in which the banks were using internet and 0 defines the years in which there was no internet service.

4.3 Methodology:

For analyzing bank profitability we will be using regression analysis with the help of data made up of cross section and time series. The data have to be evaluated for stationary, with the help of unit root test. Stationary is evaluated to know whether with time does mean, variance and autocorrelation change or not. In our case the unit root test is found to be stationary with all the variables.

The panel of regression for the econometric form will be used is:

$$Yi = \beta 0 + \beta Xi + Di + \varepsilon t$$

Definig each variable

Yi can be noted as the dependent variable in the function for regression analysis

$\beta 0$ is the intercept

Xi is the independent variable

Di is the dummy variable

Et is the error term

The model which will be followed is:

Without Dummy:

Y= f (CAR, ASQ, EFF, LQR, SIZE)

$$ROA=\beta0+\beta1(CAR)+\beta2(ASQ)+\beta3(EFF)+\beta4(LQR)+\beta5(SIZE)+ \varepsilon t$$

$$ROE=\beta0+\beta1(CAR)+\beta2(ASQ)+\beta3(EFF)+\beta4(LQR)+\beta5(SIZE)+ \varepsilon t$$

With Dummy:

Y= f (CAR, ASQ, EFF, LQR, SIZE, DUMMY)

$$ROA=\beta0+\beta1(CAR)+\beta2(ASQ)+\beta3(EFF)+\beta4(LQR)+\beta5(SIZE)+ Di+ \varepsilon t$$

$$ROE=\beta0+\beta1(CAR)+\beta2(ASQ)+\beta3(EFF)+\beta4(LQR)+\beta5(SIZE)+ Di + \varepsilon t$$

Chapter 5

EMPIRICAL RESULTS

Panel unit root tests have been employed to the variables, in order to check whether the data (variables) are stationary or not. According to the Methodology done by Levin, Lei & Chu (LLC) & Im Pesaran Shin (IPS) & Wu the data reject the null hypothesis and accept the Alternative hypothesis at α (Alpha) 0.01,0.05,0.10.

H0: series are not stationary (null hypothesis)

H1: series are stationary (Alternative hypothesis)

CAR(Capital Adequacy) is stationary in all three models, and hence we reject null hypothesis and accept alternative hypothesis. **ASQ** (Asset Quality) is stationary in two models and hence we accept the alternative hypothesis.. **LQR** (Liquidity Ratio) and **LNBS** (log Size of the banks) both are stationary in two models, so they accept alternative hypothesis. **ROA (**return on Assets), **ROE (**return on equity) both are stationary at all three models, therefore accepting the alternative hypothesis.

5.1 Correlation Analysis

The relationship of the variables between each other is shown by correlation analysis. Correlation Analysis takes the independent variables which in our case are Return on Assets (ROA) and Return on Equity (ROE), which are also profitability

indicators for the banks. Other Variables are Independent Variables which might cause multicollinearity between each other and affect the profitability ratios.

Table 5.1: Correlation of variables

	ROA	ROE	CAR	ASQ	EFF	LQR	LNBS	D
ROA	1.00							
ROE	0.60	1.00						
CAR	-0.03	-0.33	1.00					
ASQ	-0.15	0.19	-0.09	1.00				
EFF	0.16	0.12	-0.09	0.15	1.00			
LQR	0.03	0.07	-0.12	-0.47	0.11	1.00		
LNBS	-0.65	-0.29	-0.04	0.05	-0.19	-0.14	1.00	
D	-0.23	-0.077	-0.28	0.32	-0.06	-0.06	0.00	1.00

As we can observe from none of the independent variables are correlated to each other. In order to be correlated the variables should have a value of more than 50% between each other. Which we cannot find so, by this we can conduct that there is no multicollenarity between the independent variables.

5.2 Auto Correlation

The concept autocorrelation helps us with the fact that is there correlation between the error terms of linear regression equation, which is used to find the profitability

ratios. In the E-views software to find autocorrelation we are going to find with the help of Durbin Watson Test (d-test)

Table 5.2 Regression Analysis for ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/13/12 Time: 19:27
Sample: 2005 2011
Periods included: 7
Cross-sections included: 7
Total panel (unbalanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.687406	0.310432	2.214355	0.0329
CAR	-0.024423	0.009202	-2.654005	0.0116
ASQ	0.252133	0.133918	1.882738	0.0674
EFF	-0.005515	0.012980	-0.424858	0.6733
LQR	0.164380	0.220448	0.745662	0.4605
LNBS	-0.037067	0.015965	-2.321758	0.0257
DUMMY	-0.047618	0.025552	-1.863586	0.0701

R-squared	0.304111	Mean dependent var	0.135881
Adjusted R-squared	0.194233	S.D. dependent var	0.082444
S.E. of regression	0.074005	Akaike info criterion	-2.227322
Sum squared resid	0.208118	Schwarz criterion	-1.946286
Log likelihood	57.11475	Hannan-Quinn criter.	-2.122554
F-statistic	2.767730	Durbin-Watson stat	0.942767
Prob(F-statistic)	0.024818		

As we can note with the help of Durbin-Watson (d-test). From the d value of 0.9427 we can deduct that their high autocorrelation between the error terms. So, in order to limit the effect of autocorrelation we are going to perform our regression analysis with the help of lag (t).

5.3 Vector Autoregression

After autocorrelation analysis between the error terms is done then we can now concentrate on using Eviews program to find the regression analysis between the variables. In more particular we will be finding the ratio that wether the independant variables are affecting our dependent variable (ROE). As we also have

autocorrelation betwen the error terms we are going to use Vector Autoregression or (VAR) model.

The VAR model will use lag of (t) of -1,-2,-3.

5.3.1 Significant Variables

ASQ (-2) is the Asset Quality with a lag of time (t) -2. With the T-Stat of -3.27703 which is less than -1.85 so this variable is significantly impacting. So we can deduct that as ASQ (-2) is dcreaing the ROE is increasing by 3.268. The reason for this can be associated with the equation of ASQ which is (loans/total assets). The loan might be having non-performing assets, which might had defaulted. Because of which loans are deacreasing which in return is decreasing ASQ, as both of them are having direct relationship in the equation.

CAR (-3) is the Capital Adequency ratio with a lag of time (t) -3. With a T-stat of -3.80591 which is also less than -1.85 so this variable is siginficantly impacting the dependant variable (ROE) Return on Equity. As CAR is (Total Equity/Total Assets) as their will be increase in the Total Assets which will allow the bank to have cash to meet its liabilities and risks.So, the Capital Adequency will decrease for the banks, we can also observe that as their is an inverse relatioship between the two.

EFF (-1) is the Managment Quality ratio with a lag of time (t) -1. With the T-stat of -3.11834 which is also less than -1.85 so this variable is significantly impacting the dependent variable Return on Equity. EFF has the equation of (Interest Income/Interest Expense). With the increase of Interest Income to decrease and the Interest Expense to increase the Managment is not efficient in managing its assets and liabilities.

LQR (-2) which is a liquidity ratio with a lag of time (t) -2. With the T-stat of -2.2795 which is less than -1.85 this independent variable is significantly impacting the dependent variable of Return on Equity.The equation for LQR is (Total Cash/Total Assets), so as Total Cash will decrease their will be liqudity problem as LQR will decrease.

Dummy (-1) which we are using as the banks web site having the ability to have to provide the transactional facilities to its customers. We have taken the dummy as (0) if there is no transactional facility provided by the bank and (1) if there is transactional facility is provided by the website of the bank. In accordance to significance Dummy (-1) which has a lag of time (t) -1. With the T-stat of -3.58555 which is less than -1.85 so the Dummy (independent variable).

Chapter 6

CONCLUSION AND SUGGESTIONS

The thesis was conducted to find the effect on ROA and ROE which is banks profitability ratio from CAMEL or ASQ, CAR, EFF, LQR and Dummy variables. The result was conducted with the period of 7 years (2005-2011) with the number of banks being 7. The banks which were chosen had both commercial and internet banking.

If we compare to study done by Mansumitrchai and Chui (2012) which looked at the how important are becoming for the banks of United Arab Emirates, which might help us concluding our own conclusion. The paper has explained that there might be still lack of security which is stopping the customers from using the internet banking. Even having fantastic internet infrastrucuture customers would still trust end user contact. So with having this cultural problem and 2008 financial crisis we can explain the dummy variable having a negative significant impact. As people lost more trust In the banking sector and stopped the internet services altogether. Batan and Kamil (2010) which looked at the internet banking effect on the bank profitability which in return affected the economic activity. Out of many reasons internet the one reason of phobia of security has prohibited the adoption of internet banking for the banking sector to be more profitable. So with all the negativity

regarding 2008 Banking Crisis, consumers became more critical to the services of the banks. So, even if the internet adoption in Bangladesh is increasing but customers are still hesitant in using newer banking services. Ozsoz (2008) did research on impacting banking on banking in the case of Turkey. They used similar approach in impact of internet banking on ROA (Return on Asset) and ROE (Return on Equity) with the help of E-views Software. A data of 13 banks between 1995 and 2005 was taken. It was concluded that a gradual investment in internet services can make this sector efficient and help in profitability.

So, Dummy is a very important of all the other variables. The reason for that is we are finding that how does adoption of the internet banking by the United Arab Emirates Banks increase profitability. By looking at the dummy variable at the lag of (-1) we clearly see the relationship of the dummy variable. So, the Return on Equity is affected by the internet banking. As with the internet taking over the whole economics and is making profit. So, we are already in acceptance that there would have been profitability for the bank from the adoption of internet banking and by the use of E-Views we have proved it also.

I would suggest the bank to keep on integrating more of the internet banking services. As businesses like Google, Yahoo etc are easily making profits from online advertisement. So the Bank as with providing services for a fee can also expand their revenues through advertisement. As with our research it can easily be noted that the United Arab Banks are greatly regulated and with that they have hurdles in providing newer services. I would suggest that providing online services is much of beneficial

than harm. The Banks are just providing the services on the internet which they would mainly provide in their branches. So, liberation of the banking sector will be vital in order to keep the growth maintained.

REFERENCES

1. Central Bank of United Arab Emirates http://www.centralbank.ae/en/index.php

2. Sana.H, Manzoor.M, Sumra.H and Manzoor.A (2011) The Impact of E-Banking on the Prfotability of Banks: A case of Pakistani Banks

3. Gopalkrishan.S, Wischnvesky.J, Damanpour.F (2004) A Multi Level Analysis of Factors Influencing the Adoption of Internet Banking

4. Onay.C, Ozsoz.E, Halvacioglu.D (2008) The Impact of Internet Banking On Bank Profitability: The Case of Turkey

5. Malhotra.M, Singh.M (2007) Determinannts of Internet Banking adoption by Banks in India

6. Floros. C (2008) Internet Banking Websites Performance in Greece

7. Furst. K (2005) Internet Banking

8. Furst.K, Lang. W, Nolle. D (2000) Internet Banking : Development and Prospectus.

9. Hajri.S (2008) The Adoption of e-Banking: The Case of Omani Banks http://www.bizresearchpapers.com/12%5B1%5D..Salim.pdf

10. Munsumitrchai.S , Chiu.C (2012) Adoption Of Internet Banking In UAE: Factors Underlying Adoption Characteristics http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1957230

11. Country Profile: United Arab Emirates **http://lcweb2.loc.gov/frd/cs/profiles/UAE.pdf**

12. Impact of the Global Financial Crisis on the Gulf Cooperation Council Countries and Challenges Ahead **http://www.imf.org/external/pubs/ft/dp/2010/dp1001.pdf**

13. Economy of United Arab Emirates http://en.wikipedia.org/wiki/Economy_of_the_United_Arab_Emirates

14. Baten.A.M (2010) E-Banking of Economical Prospects in Bangladesh http://www.arraydev.com/commerce/jibc/2010-08/Baten.pdf

15. Aktan.B and Teker.D (2009) Changing Face of Banks and the Evaluation of Internet Banking in Turkey.

http://www.arraydev.com/commerce/jibc/2009-04/Submitted%20Manuscript%20for%20JIBC-25%20FEB%202009.pdf

APPENDICES

Table 1: Panel Unit Root Tests for Internet Banking

Variables		Levels		
		LLC	IPS	M-W
ROA	τ_T	-8153.4*	-776.92*	0.22729*
	τ_μ	-233.55*	-53.404*	34.333*
	τ	-2.6557*		20.5564
ROE	τ_T	-13.242*	0.0530	14.983
	τ_μ	-7.9495*	-1.2373	15.9364
	τ	-1.69395		18.158
CAR	τ_T	-6.7783*	0.10781	23.5262
	τ_μ	-0.98289	0.25518	14.4896
	τ	-0.96173		19.2783
LQR	τ_T	-10.657*	-0.83549	38.4483*
	τ_μ	-7.5050*	-2.6650*	36.1340*
	τ	-2.3746*		17.7913
ASQ	τ_T	-2.281**	0.7958	5.41
	τ_μ	-1.995**	0.2345	20.928
	τ	-1.3817***		16.1989

EFF	τ_T	-1542.9*	-113.19*	15.0664
	τ_μ	-1.8915	-0.49721	16.2604
	τ	1.55501		9.58234
LNBS	τ_T	-5.1115*	0.66872	26.6193*
	τ_μ	-10.431*	-3.8792*	46.938*
	τ	4.20588	-	6.76730

Note:

ROA represents return on assets; ROE represents return on equity; CAR represent Capital adequacy; ASQ represents asset quality, EFF represents management efficiency; LQR represents liquidity; LNBS represents the bank size; τ_T represents the most general model with a drift and trend; τ_μ is the model with a drift and without trend; τ is the most restricted model without a drift and trend. Optimum lag lengths are selected based on Schwartz Criterion. *, **, ***denote rejection of the null hypothesis at the 1%,5% and 10% level. Tests for unit roots have been carried out in E-VIEWS 6.

Table 2: Regression Analysis for ROA

Dependent Variable ROA

Dependent Variable: ROA

Method: Panel Least Squares

Date: 05/15/12 Time: 10:24

Sample: 2005 2011

Periods included: 7

Cross-sections included: 7

Total panel (unbalanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.202058	0.032409	6.234696	0.0000
CAR	-0.001076	0.000989	-1.088132	0.2832
ASQ	-0.006144	0.012611	-0.487170	0.6289
EFF	0.000302	0.001386	0.218134	0.8285
LNBS	-0.009531	0.001726	-5.520222	0.0000
DUMMY	-0.005364	0.002766	-1.938843	0.0598

R-squared	0.491758	Mean dependent var	0.021512
Adjusted R-squared	0.426599	S.D. dependent var	0.010621
S.E. of regression	0.008043	Akaike info criterion	-6.684572
Sum squared resid	0.002523	Schwarz criterion	-6.443684
Log likelihood	156.4029	Hannan-Quinn criter.	-6.594771
F-statistic	7.547018	Durbin-Watson stat	0.910814
Prob(F-statistic)	0.000049		

Table 3: Regression Analysis for ROE

Dependent Variable ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/13/12 Time: 19:27
Sample: 2005 2011
Periods included: 7
Cross-sections included: 7
Total panel (unbalanced) observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.687406	0.310432	2.214355	0.0329
CAR	-0.024423	0.009202	-2.654005	0.0116
ASQ	0.252133	0.133918	1.882738	0.0674
EFF	-0.005515	0.012980	-0.424858	0.6733
LQR	0.164380	0.220448	0.745662	0.4605
LNBS	-0.037067	0.015965	-2.321758	0.0257
DUMMY	-0.047618	0.025552	-1.863586	0.0701

R-squared	0.304111	Mean dependent var	0.135881
Adjusted R-squared	0.194233	S.D. dependent var	0.082444
S.E. of regression	0.074005	Akaike info criterion	-2.227322
Sum squared resid	0.208118	Schwarz criterion	-1.946286
Log likelihood	57.11475	Hannan-Quinn criter.	-2.122554
F-statistic	2.767730	Durbin-Watson stat	0.942767
Prob(F-statistic)	0.024818		

Table 4: Vector Auto Regression Estimates of Banks (ROE)

	ROE
ROE(-1)	0.396923 (0.19715) [2.01328]
ROE(-2)	0.326307 (0.28255) [1.15485]
ROE(-3)	-0.905949 (0.22828) [-3.96856]
ASQ(-1)	0.914854 (0.26425) [3.46202]
ASQ(-2)	-1.340557 (0.40908) [-3.27703]
ASQ(-3)	-0.135746 (0.21890) [-0.62013]
CAR(-1)	-0.049929 (0.04558) [-1.09544]
CAR(-2)	-0.012432 (0.05774) [-0.21530]
CAR(-3)	-0.215183 (0.05654) [-3.80591]
EFF(-1)	-0.028378 (0.00864) [-3.28278]
EFF(-2)	0.086668 (0.02779) [3.11834]
EFF(-3)	-0.010558

	(0.03677)
	[-0.28712]
LQR(-1)	1.018895
	(0.38705)
	[2.63243]
LQR(-2)	-0.918428
	(0.40290)
	[-2.27952]
LQR(-3)	0.023580
	(0.14750)
	[0.15986]
DUMMY(-1)	-0.187117
	(0.05219)
	[-3.58555]
DUMMY(-2)	0.117435
	(0.05786)
	[2.02968]
DUMMY(-3)	0.065350
	(0.02216)
	[2.94944]
C	0.533973
	(0.16314)
	[3.27306]

R-squared	0.992273
Adj. R-squared	0.945909
Sum sq. resids	0.000992
S.E. equation	0.018180
F-statistic	21.40176
Log likelihood	78.86378
Akaike AIC	-5.442162
Schwarz SC	-4.499898
Mean dependent	0.124346
S.D. dependent	0.078168

Determinant resid covariance (dof adj.)	
Determinant resid covariance	

Table 4: Vector Auto Regression Estimates of Banks (ROA)

	ROA
ROA(-1)	1.364701 (0.67534) [2.02077]
ROA(-2)	-0.881882 (1.20260) [-0.73331]
ROA(-3)	-0.680077 (0.55800) [-1.21877]
ASQ(-1)	0.003209 (0.14017) [0.02290]
ASQ(-2)	-0.032386 (0.15951) [-0.20303]
ASQ(-3)	-0.075864 (0.09339) [-0.81233]
CAR(-1)	-0.015319 (0.02426) [-0.63155]
CAR(-2)	0.000457 (0.04472) [0.01022]
CAR(-3)	-0.016819 (0.02770) [-0.60725]
EFF(-1)	-0.002556 (0.00417) [-0.61299]
EFF(-2)	-0.006516 (0.01307)

	[-0.49868]
EFF(-3)	0.024295
	(0.01951)
	[1.24533]
LQR(-1)	-0.093264
	(0.17163)
	[-0.54339]
LQR(-2)	-0.022748
	(0.15247)
	[-0.14920]
LQR(-3)	0.013696
	(0.06477)
	[0.21145]
DUMMY(-1)	-1.69E-05
	(0.02334)
	[-0.00072]
DUMMY(-2)	-0.001864
	(0.03451)
	[-0.05400]
DUMMY(-3)	0.000677
	(0.01196)
	[0.05663]
C	0.086348
	(0.08321)
	[1.03775]

R-squared	0.890083
Adj. R-squared	0.230583
Sum sq. resids	0.000261
S.E. equation	0.009330
F-statistic	1.349632
Log likelihood	93.53891
Akaike AIC	-6.776264
Schwarz SC	-5.834000
Mean dependent	0.018841
S.D. dependent	0.010637

Determinant resid covariance (dof adj.)	
Determinant resid covariance	