Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.6, No.13, 2015

Efficiency Analysis of Islamic Banking in Hderabad City Sindh

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Abstract
Interest (Riba) is stringently prohibited in Islam. It is very difficult task to transform a Riba based economy into non-interested based economy. This transformation of economy can take place slowly. Development of Islamic banking industry shows that is growing very rapidly. This study will help to estimate the efficiency of Islamic banking in Hyderabad by applying Data Envelopment Analysis (DEA). Technical, cost and income efficiency will be calculated through DEA. Tobit model will also be applied to investigate the influence of different factors on efficiencies of Islamic banks. Average technical efficiency score of Islamic banking under constant (variable) return to scale was 0.837 (0.929), 0.774 (0.943) and 0.913 (0.967) respectively in 2010, 2011 and 2012. Islamic bank should increase assets and profits which have positive impact on efficiency, while liabilities and no of branches had negative impact on efficiency. Average cost efficiency score of Islamic banking under constant (variable) return to scale was 0.623 (0.730), 0.621 (0.854) and 0.879 (0.929) respectively in 2010, 2011 and 2012. Average income efficiency score of Islamic banking under constant (variable) return to scale was 0.365(0.614), 0.387(0.709) and 0.416(0.687) respectively in 2010, 2011 and 2012. The efficiency of Islamic banks is increasing day by day in Hyderabad Sindh.
Keywords: Islamic banking, Riba, Interest, technical efficiency, profits, Hyderabad.

1. Introduction

Islamic banking has been defined as banking in consonance with the ethos and value system of Islam and governed, in addition to the conventional good governance and risk management rules, by the principles laid down by Islamic Shariah. Interest free banking is a narrow concept denoting a number of banking instruments or operations, which avoid interest. Islamic banking, the more general term is expected not only to avoid interest-based transactions, prohibited in the Islamic Shariah, but also to avoid unethical practices and participate actively in achieving the goals and objectives of an Islamic economy (SBP, 2003).

Islamic banking is now a well-known term and has emerged as one of the most important industries worldwide. Islamic banking is known for its interest free concept and operates in many countries including Bahrain, Pakistan, Jordan, Iran, Sudan, United Kingdom, Singapore and Malaysia. Islamic banking and finance has undergone rapid transformation and growth from an industry striving to satisfy the Muslim community needs, to a multibillion dollar industry upholding Islamic principles. Over recent decades the Islamic banking industry has emerged as one of the fastest growing industries and has spread to all corners of the globe, receiving wide acceptance from Muslims and non-Muslims (Iqbal and Molynex, 2005).

Conventional Banks are working on interest rate and it is strongly prohibited in Islam, However Muslims require a financial system which fulfills their financial needs according to shariha. Islamic banking is a way to fulfill their financial requirements according to Islamic laws. Islamic banking grew speedy and shown marvelous increased over the last 50 years. Islamic banking practice is now spread world-wide. Initially Islamic banking came into existence in Egypt in 1963. “Almed Al Najjar” did great work to introduce non interest based philosophy. In 1974 first Islamic bank recognized by Organization of Islamic countries and that was Islamic Development Bank. Purpose of this bank is to provide funds for development projects running in member countries. During 1970s, several Islamic banks came into existence, which are now growing globally at a rapid pace (Ghafour, 1999). The size of the world-wide Islamic banking industry assets have grown up to $265 billion till 2006. Islamic banking is expected to reach an estimated size of USD 1300 billion in coming years. Currently 1100 institutions are offering Islamic financial services across the world (Serge, 2010).

In Pakistan Islamic banking started during 1977-78. Pakistan is also included among the list of three countries, who took initial steps for the development of interest free banking. In 1980s, several pioneering efforts were taken for Islamic financial system but Federal Shariat Court announced the mechanism adopted by these banks in Pakistan un-Islamic in November 1991 (SBP, 2000). Later on, Islamic banking was re-Launched by SBP in 2001. The 1st Islamic bank practiced was given to Al Meezan Investment Bank in 2002. There have been 6 full fledge Islamic banks in Pakistan till the end of 2012. And 13 Conventional Banks are operating Islamic banking windows in Pakistan. Network of Islamic banks branches consists of 1079 branches and sub-branches spread all over the country in which there are 657 Islamic banks, 367 Islamic branches of conventional banks

and 73 sub- branches (SBP, 2013).

As different literature reveals that Islamic banking products are totally different from conventional banking. This study estimated the efficiency of Islamic banking in Hyderabad. It analyzed the present study 6 full fledge Islamic banks and 11 conventional banks Islamic banking branches were taken. The data were taken from bank employees. Different factors, which influenced the efficiencies of Islamic banks, will be investigated by applying Tobit model. Results of Tobit model will help to provide proper suggestions for the improvement of efficiencies.

2. Objectives

1. The main objectives of my study are:
2. To determine the efficiency of Islamic Banking in Hyderabad.
3. To examine the influence of different factors on Islamic Bank's efficiency.
4. To make the suggestions for the improvement of the efficiency of Islamic Banks.

3. Methodology

Technical efficiency can take a value from zero to one and provides an indicator of' the level of technical efficiency of the bank understudy. A value closer to one indicates that the level of output of' the bank for given inputs is closer to technically efficient point while a value closer to zero indicates that the level of output is closer to the most technically inefficient point for given combination of' inputs. The value of' technical efficiency should he equal to one for a bank to be technically efficient.

The value of allocate efficiency also lies between zero and one. A value closer to one indicates the input combination that is closer to allocatively efficient point for given level of' output while a value closer to zero indicates the input combinations for given level of output i.e. closer to the most allocatively inefficient point. The value of allocative efficiency should be equal to one for a bank to be allocatively efficient.

In the above diagram point M' represents the point of' economic efficiency as at this point bank's output is technically and allocatively efficient simultaneously. For the hank under study economic efficiency is the ratio of distance from origin to point L divided by the distance from origin to point N.

EE = OL/ON

This economics efficiency (EE) or overall efficiency can be obtained by the product technical efficiency (TE) and allocative efficiency (AE)

EE = TE * AE

EE = OM/ON * OL/OM

EE = OL/ON

3.1. Data Envelopment Analysis

Data Envelopment Analysis (DEA) is widely used for the measurement of the relative performance of the banks and it becomes an accepted approach for identifying the inefficient decision making units in the industry. In DEA the frontier is estimated by using mathematical method i.e. linear programming (Coelli *et al*., 1998) and this estimated frontier is used to measure the relative performance of the banks. It measure the efficiency of a bank by maximizing the ratio of observed weighted output to weighted inputs subject to the constraints that the similar ratios for all banks in the samples is less than or equal to one. For example for particular p-th banks, Xp is a column is a column vector representing measure inputs of the p-th bank and Yp is a column vector representing measured output of the p-th bank. The p-th bank's efficiency is measured by maximizing the ratio of weighted outputs to weighted input (i.e. $U/Y_p/V/X_p$ whre U is O*1 vector of outputs weights (column matrix) and $V^{/}$ is 1*1 vector of input weights (column matrix) while $U^{/}$ represents the transpose of the output weights matrix and $V^{/}$ represents the transpose of input weights matrix) subject to the constrain that all the banks in the sample have similar ratios less than or equal to one the optimal weighs are obtained by solving the following problem by linear programming technique for p-th bank.

$\text{Max}_{u,v} (U^{/}Y_p/V^{/}X_p)$ (1)

Subject to

$U^{/} Y_r^{/} V^{/} X_r^{/} \leq 1$ r=1, 2……C

U, V $\geq$ 0

So variable returns to scale model of above specification is appropriate for the analysis of banking sector efficiency. Banker et al. (1984) proposed the extension of constant returns to scale to account for variable returns to scale in DEA model. The dual of original DEA linear programming model which is constant returns to scale can be modified to variable return to scale model by adding a constraint in the problem. New specification of that model is given below.

$\text{Min}_{\lambda,\theta} (\theta)$

Subject to

$Y_\lambda \geq Y_p$
$\theta X_p - X\lambda \geq 0$
$K\lambda=1$
$\lambda \leq 0$

So technical efficiency score obtained under CRS can also be obtained by multiplying scale efficiency present in the banking unit with the technical efficiency obtained under VRS. To find out whether bank is operating in an area of increasing returns to scale or decreasing returns to scale, one has to run an additional DEA problem. The specification of this model is given below.

$Min_{\lambda,\theta}(\theta)$
Subject to:
$Y\lambda \geq Y_p$
$\theta X_p - X\lambda \geq 0$
$K_\lambda \leq 1$
$\lambda \geq 0$

3.2. Proposed specifications

Efficiency of Islamic banks have determined by applying various models in different literature. There are five fundamental goals i.e. Profit maximization, risk management, service provision, intermediation and utility provision of an efficient bank as suggested by Bergendhal (1998). On the other hand, Grigorian and Manole (2002) reported that two main goals i.e. Profit maximization and service provision. Pasiouras (2006) and Ahmad (2008) estimate efficiency of Greek banks and conventional banks of Pakistan respectively by applying five DEA models. However, in this study, three specifications are suggested to determine the efficiency of Islamic banks under three different assumptions.

Specification-I, Islamic banks are supposed to be decision making units with the objective to obtain optimal level of output by minimization of input.

Specification-II, Islamic banks have objective to minimize costs to attain optimal level of output.

Specification-III, Islamic banks are assumed to minimize expenditure to achieve given level of income. Similarly, these specifications have also been used in previous literature to estimate efficiency of banking sector and are mentioned in detail under sub headings.

3.3. Data and Source

There are 85 branches of Islamic banks operating in Hyderabad now days. In which 6 banks are pure Islamic banks and 11 banks operating Islamic window by existing conventional banks. In this study, data of 17 Islamic banks were collected for the period of 2010 to 2012, available for specific time period. The primary data was collected from managerial employees of the banks through a set designed questionnaire. Secondary data was collected by yearly financial statements. Which was given on each banks website and also on State Bank website? Some data was also collected on state banks annual reports. Data Envelopment Analysis Program (DEAP Computer program) developed by Coelli (1996) is used to estimate the efficiency of commercial banks.

4. Results

This chapter describe the results obtain by applying DEA and Tobit model to the data of Islamic banks operating in Hyderabad, for the period 2010 to 2012. As this study is contain three specifications for measuring the efficiency of Islamic banks, so in this chapter results of study are organized in three sections conclusion of each section are also given at the end of each section.

4.1 Specification-1: Technical Efficiency

In this specification technical efficiency of the Islamic banks is estimated under constant return to scale (CRS) and variable return to scale (VRS), Various input and output data is taken from bank managerial employees and estimated the efficiency of Islamic banks for the years 2010, 2011 and 2012. We take 16, 16 and 17 banks to calculate the efficiency in 2010, 2011 and 2012 respectively.

4.2. Technical Efficiency for the Year 2010

TABLES 1: TECHNICAL EFFICIENCY SCORES OF ISLAMIC BANKS FOR YEAR 2010

Banks Name	Technical Efficiency under CRS	Technical Efficiency under VRS	Scale Efficiency	Return to Scale	Rank of Bank under CRS	Rank of Bank under VRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under CRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under VRS
AL BARAKA ISLAMIC BANK	0.911	1	0.891	Drs	3	1	9.9	0
BANK ISLAMI PAKISTAN LIMITED	1	1	0.816	Drs	2	1	49.4	0
BURJ BANK	1	0.911	1	Drs	9	2	9.9	3.0
DAWOOD ISLAMIC BANK	0.842	1	0.852	Drs	3	1	15.8	0
DUBAI ISLAMIC BANK	1	1	1	Crs	1	1	0	0
MEEZAN BANK	0.796	1	0.916	Drs	5	1	28.4	0
ASKARI BANK	0.718	0.966	0.735	Drs	6	2	29.2	2.4
BANK ALFALAH	0.566	0.763	0.605	Drs	10	4	52.4	22.6
BANK AL-HABIB	0.668	0.659	0.983	Irs	7	6	34.2	33.1
HABIB BANK LIMITED	0.863	0.907	0.489	Irs	9	56.7	9.9	0
HABIB METROPOLITIAN BANK	0.816	0.963	0.821	Drs	4	3	19.4	3.0
MCB	1	1	1	Crs	1	1	0	0
NATIONAL BANK	1	1	1	Crs	1	0	0	0
SILK BANK	0.576	1	1	Crs	1	1	0	0
SONERI BANK	1	1	1	Crs	1	1	0	0
STANDARD CHARTERED	0.649	0.697	0.944	Drs	8	5	35.1	31.3
UBL	0.837	0.929	0.878					
Mean	0.911	1	0.891	Drs	3	1	9.9	0

4.3. Technical Efficiency for the year 2011

TABLES 2: TECHNICAL EFFICIENCY SCORES OF ISLAMIC BANKS FOR YEAR 2011

Banks Name	Technical Efficiency under CRS	Technical Efficiency under VRS	Scale Efficiency	Return to Scale	Rank of Bank under CRS	Rank of Bank under VRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under CRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under VRS
AL BARAKA ISLAMIC BANK	0.724	1	0.714	drs	5	1	28.6	0
BANK ISLAMI PAKISTAN LIMITED	0.619	0.901	0.915	drs	9	6	56.7	9.9
BURJ BANK	1	0.901	1	drs	9	56.7	9.9	0
DAWOOD ISLAMIC BANK	0.614	0.996	0.642	drs	8	2	36	0.4
DUBAI ISLAMIC BANK	0.679	1	0.679	drs	7	1	32.1	0
MEEZAN BANK	0.381	1	0.441	drs	11	1	60.9	0
ASKARI BANK	0.705	0.987	0.494	drs	6	3	29.5	1.3
BANK ALFALAH	0.441	0.957	0.609	drs	10	4	59	4.3
BANK AL-HABIB	0.915	1	0.681	drs	2	1	8.5	0
HABIB BANK LIMITED	0.853	0.901	0.481	drs	9	56.7	1	0.433
HABIB METROPOLITIAN BANK	1	1	1	crs	1	1	0	0
MCB	1	1	1	crs	1	1	0	0
NATIONAL BANK	1	1	1	crs	1	1	0	0
SILK BANK	0.597	0.504	0.912	drs	9	8	51.6	0.487
SONERI BANK	1	1	1	crs	1	1	0	1
STANDARD CHARTERED	0.858	0.95	0.903	drs	3	14.2	5	0.858
UBL	0.714	0.943	0.779					
Mean	0.724	1	0.714	drs	5	1	28.6	0

4.4. Technical Efficiency for the Year 2012

TABLES 3: TECHNICAL EFFICIENCY SCORES OF ISLAMIC BANKS FOR YEAR 2012

Banks Name	Technical Efficiency under CRS	Technical Efficiency under VRS	Scale Efficiency	Return to Scale	Rank of Bank under CRS	Rank of Bank under VRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under CRS	Possible percentage Input Reduction to Produce Obtain Level of Output at Efficient Point under VRS
AL BARAKA ISLAMIC BANK	1	1	1	crs	1	1	0	0
BANK ISLAMI PAKISTAN LIMITED	0.716	0.994	0.808	drs	7	2	21.7	0.6
BURJ BANK	1	1	1	crs	1	1	0	0
DAWOOD ISLAMIC BANK	0.945	1	0.945	irs	3	1	5.5	0
DUBAI ISLAMIC BANK	0.764	0.767	0.996	drs	8	5	23.6	23.3
MEEZAN BANK	0.873	1	0.873	drs	5	1	12.7	0
ASKARI BANK	1	1	1	crs	1	1	0	0
BANK ALFALAH	0.768	0.882	0.764	drs	10	3	28.2	11.8
BANK AL-HABIB	0.804	0.809	0.994	irs	6	4	19.6	19.1
HABIB BANK LIMITED	0.796	1	0.816	drs	9	1	24.4	0
HABIB METROPOLITIAN BANK	1	1	1	crs	1	1	0	0
MCB	1	1	1	Crs	1	1	1	1
NATIONAL BANK	1	1	1	Irs	1	1	1	1
SILK BANK	1	1	1	vrs	1	1	1	1
SONERI BANK	0.902	1	0.902	irs	4	1	9.8	0
STANDARD CHARTERED	1	1	1	crs	1	1	0	0
UBL	0.959	1	0.959	irs	2	1	4.1	0
Mean	0.913	0967	0.944					

4.5. Determinants of Technical Efficiency under CRS

To find out the variation in the technical score efficiency of Islamic banks under CRS due to important factors, equation 3.1 was estimated by Tobit model and the results is given in the table 4. The quantitative variables of equation 3.1 showed that total assets and profit contributed positively in technically efficiency under CRS, while total liabilities and no of branches contributed negatively. As far as qualitative variables of this equation are concerned, dummy variables for 2012, pure Banks public owned banks contributed positively with respect to bench mark category, while the dummy variables for 2011 and foreign owned banks contributed negatively. Profit contributed significantly positive on technical efficiency under CRS at 5% level of significance while significant negatively contributed to efficiency was no. of branches at 10% level of significance. Public owned bank's efficiency contributed significantly positive at 10% level of significance than the private owned bank. For year 2012, Islamic banks efficiency was positive with respect to 2010 efficiency of Islamic banks and significant at 1% level of significance.

TABLE 4: EFFECT OF DIFFERENT FACTOS ON TECHNICAL EFFICIENCY OF ISLAMIC BANK UNDER CRS

VARIABLES	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2011	0.16105	0.063885	2.52941***
D2010	-0.04341	0.060115	-0.72209
LNLIABI	-0.03634	0.072849	-0.49884
LNPROFIT	0.1395491	0.068257	2.044452**
LNASSETS	0.06607	0.109623	0.6027
LNNOB	-0.10527	0.056305	-1.86965*
DPISLAMIC	0.135282	0.079157	1.677956*
DPUBLIC	0.130658	0.11281	1.15822
DFOREIGN	-0.03909	0.070983	-0.55074
C	1.107482	0.772057	1.434457

*** indicates significant at 1% level of significance
**indicates significant at 5% level of significance
* indicates significant at 10% level of significance

In this study assets of Islamic banks have positive relationship with technical efficiency under constant return to scale and this result is consistent with the study of Pasiouras et al (2007). Liabilities of Islamic banks have negatively impact on technical efficiency under constant return to scale, because major portion of liabilities in Hyderabad consists of deposits and this result is similar with that of Sathye (2001). From table.4 one can see the consistency of positive impact of profit with the study of Pasiouras et al (2007). This table also revealed that dummy variable of 2011 has negative impact with technical efficiency of Islamic banks under CRS so in this year efficiency was poor then the bench mark year i.e. 2010 and same results was reported by Isik and Hassan (2002b) and Ahmad (2008).

4.6. Determinants of technical efficiency under VRS

To find out the variation in the technical score efficiency of Islamic banks under VRS due to important factors, equation 3.1 was estimated by Tobit model and the results is given in the table.5. This table shows that among the quantitative variables of equation 3.1, total assets and profit contributed positively in technically efficiency under CRS, while total liabilities and no of branches contributed negatively. As far as qualitative variables of this equation are concerned, dummy variable for 2012 and pure Islamic Banks contributed positively with respect to bench mark category, while the dummy variables for 2011, public owned banks and foreign owned banks contributed negatively. Assets of Islamic banks contributed significantly positive on technical efficiency under CRS at 10% level of significance and this result was same as reported by Pasiouras et al (2007). Foreign owned bank's efficiency contributed significantly negative at 5% level of significance that the private owned bank. For year 2012, Islamic banks efficiency was positive with respect to 2010 efficiency of Islamic banks and significant at 1% level of significance. The table 4.1.5 also revealed that profit has positive impact on technical efficiency under CRS and results in similar to Pasiouras et al (2007) while negatively relation of year 2010 is same result with reported by Isik and Hassan (2002b) and Ahmad (2008).

TABLE 5: EFFECT OF DIFFERENT FACTORS ON TECHNICAL EFFICIENCY OF ISLAMIC BANK UNDER VRS

VARIABLES	COEFFICIENT	STD. ERROR	Z-STATISTICS
d2012	0.1615425	0.0639158	2.527425***
d2010	-0.01069	0.044332	-0.24103
Lnliabi	-0.03403	0.053722	-0.63342
Lnprofit	0.008394	0.025059	0.334982
Lnassets	0.1292762	0.079615	1.623764*
Lnnob	-0.03638	0.041522	-0.87619
Dpislamic	0.04493	0.063223	0.710659
Dpublic	-0.00563	0.083191	-0.06772
Dforeign	-0.13659	0.068331	-1.99896**
C	0.141695	0.569347	0.248873

*** indicates significant at 1% level of significance
**indicates significant at 5% level of significance
* indicates significant at 10% level of significance

4.7. Determinants of Scale Efficiency under Specification-1

Equation 3.1 also estimated the variation in scale efficiency under specification-I with Tobit model and results is given in table 6. This table shows that among the quantitative Variables of equation 3.1, total assets and profit contributed positively in scale efficiency under specification-1, while total liabilities and no of branches contributed negatively. The qualitative variables i.e. dummy variables for year 2012, pure Islamic Banks and public owned bank contributed positively with respect to bench mark category. While the dummy variables for 2011 and foreign owned banks contributed negatively. Assets of Islamic banks contributed significantly positive on scale efficiency under specification-1 at 5% level of significance and it is in line with the study of Burki arid Niazi (2006), Pasiouras (2006), Maghycreb (2004) and Ahmad (2008). Public owned bank's efficiency contributed significantly positive at 10%i level ol significance than the private owned bank as reported isik and Nassan (2002b) and Ahmad (2008).

TABLE 6: EFFECT OF DIFFERENT FACTORS ON SCALE EFFICIENCY OF ISLAMIC BANK UNDER SPECIFICATION-1

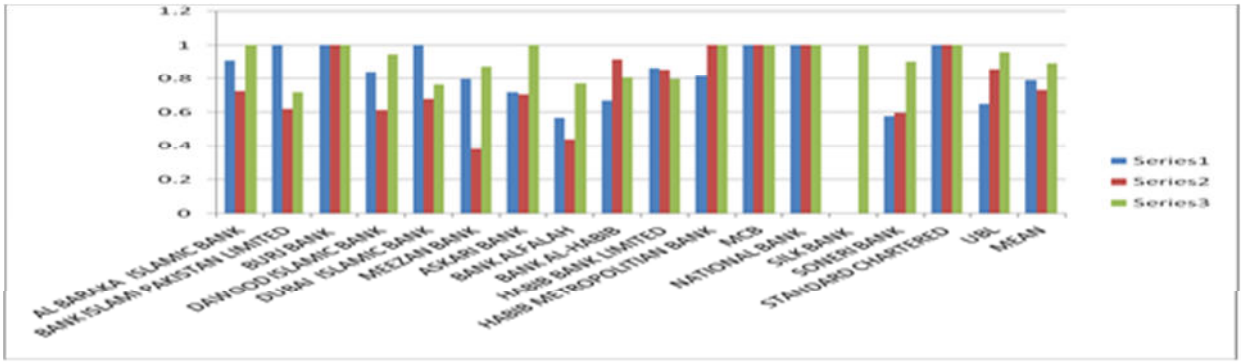
Variables	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2010	0.157936	0.043207	3.655337***
D2009	-0.02891	0.040658	-0.71116
LNLIABI	-0.110916	0.063768	-1.739349*
LNPROFIT	0.031745	0.022982	1.381309
LNASSETS	0.15644	0.074141	2.11001**
LNNOB	-0.07074	0.038081	-1.85773*
DPISLAMIC	0.114903	0.057983	1.981653**
DPUBLIC	0.136193	0.076396	1.785048*
DFOREIGN	-0.01941	0.048008	-0.40419
C	2.016146	0.522164	3.861135***

***Indicates significant at 1% level of significance
**Indicates significant at 5% level of significance
*Indicates significant at 10% level of significance

4.8. Trend in efficiency of Islamic banking in Hyderabad over time.

Figure1: Shows that trend in technical efficiency of Islamic banks under CRS overtime. Means values of pure Islamic banks, Islamic banks operated by conventional banks and over all Islamic banks were taken to see the trend over time. The figure revealed that average technical efficiency under CRS of Islamic banks operated by Conventional banks was higher throughout three year in 2010. Figure also shows that efficiencies of all three categories were low in 2011. One of the main reasons to decline the efficiency in 2011 was that Islamic banking is at initial stage and almost all banks were opening the new branches, in this way cost of bank increase and efficiency show decline.

FIGURE1: TECHNICAL EFFICIENCY SCORE OF ISLAMIC BANKS OVER TIME UNDER CRS



The figure-1 shows the trend in technical efficiency of Islamic banking under VRS. It shows the decline trend in pure Islamic bank's efficiency over time. But efficiency of Islamic Banks operated by conventional bank was showed increasing trend over time, over all Islamic banking industry was also showed the increasing trend in technical efficiency under VRS over time.

FIGURE 2: TECHNICAL EFFICIENCY SCORE OF ISLAMIC BANKS OVER TIME UNDER VRS

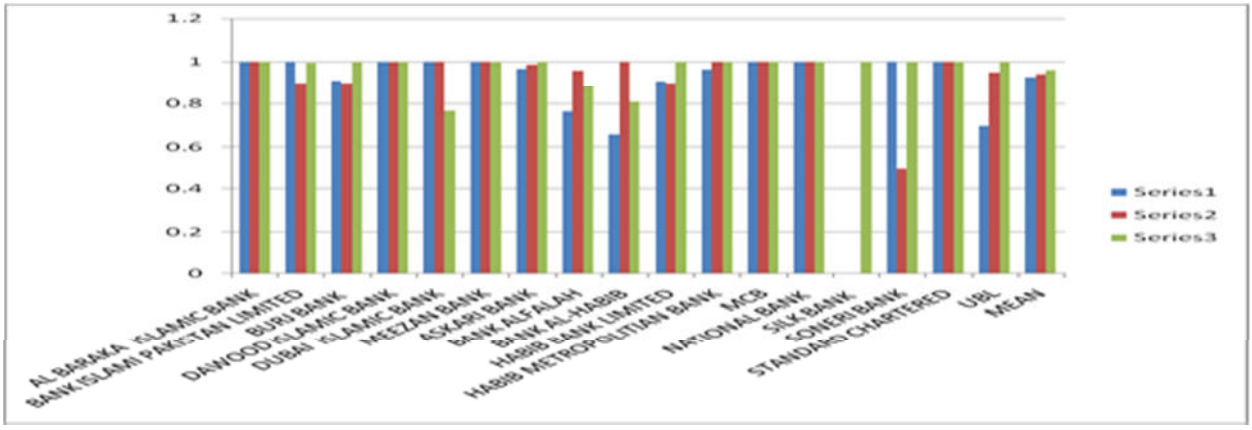
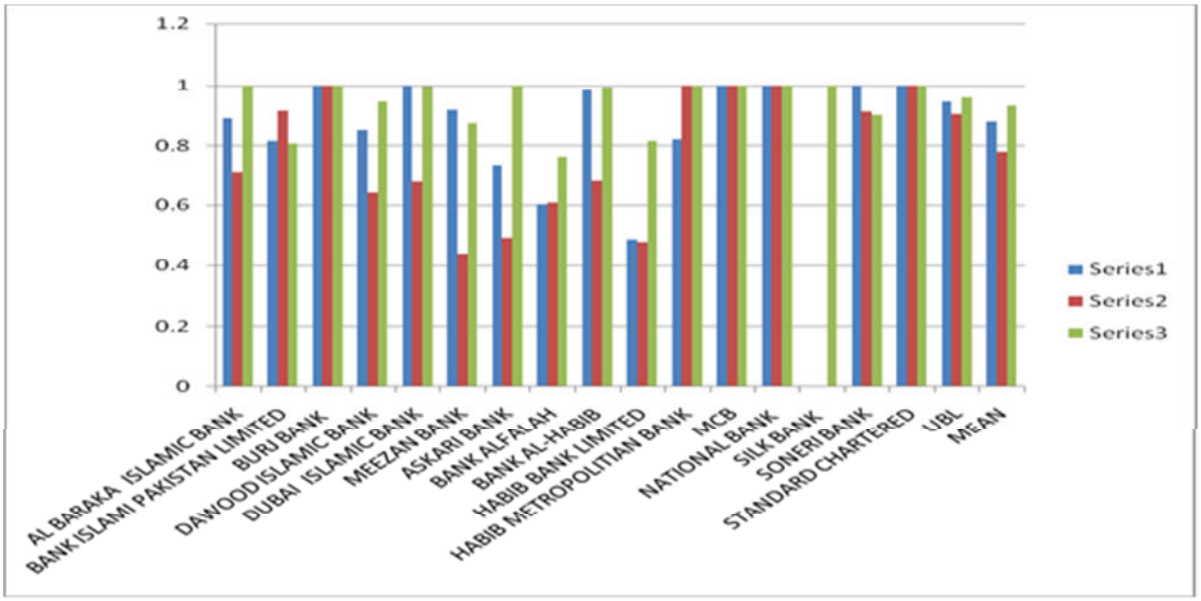


Figure-2 shows the trend in scale efficiency of Islamic banks under specification-I overtime. The figure 3 revealed that average technical efficiency tinder CRS of Islamic banks operated by Conventional banks was higher throughout three year 2010. It was decreasing trend in the scale efficiency of Islamic banking industry in 2011, but increasing trend in 2012.

FIGURE 3: SCALE EFFICIENCY SCORE OF ISLAMIC BANKS OVER TIME UNDER SPECIFICATION-1



One the basis of analysis under specification-1, it is found that the assets of the Islamic banks and profits are efficient over the time at 40% level. It is also found that pure Islamic banks are comparative less efficient than the conventional banks. It is also concluded that efficiency of Islamic banks is increasing b passing the time.

4.9. Specification-2: Cost Efficiency

In this specification cost and allocate efficiency of the Islamic banks is estimated under constant return to scale (CRS) and variable return to scale (VRS). Various input and output data is taken from bank managerial employees and estimated the efficiency of Islamic banks for the years 2010, 2011 and 20112. We take 16, 16 and 17 banks to calculate the efficiency in 2010, 2011 and 2012 respectively.

4.10. Cost and allocate efficiency for the year 2010 under CRS

TABLES 7: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2010 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.202	10	0.107	11
BANK ISLAMI PAKISTAN LITD	0.527	6	0.517	6
BURJ BANK	0.538	6	0.528	5
DAWOOD ISLAMIC BANK	0.544	5	0.534	6
DUBAI ISLAMIC BANK	0.555	5	0.555	7
MEEZAN BANK	0.607	4	0.521	6
ASKARI BANK	1	1	1	1
BANK ALFALAH	0.128	10	0.101	11
BANK AL-HABIB	0.509	6	0.631	5
HABIB BANK LIMITED	1	1	1	1
HABIB METROPOLITIAN BANK	0.519	6	0.559	6
MCB	1	1	1	1
NATIONAL BANK	1	1	1	1
SONERI BANK	0.715	3	0.705	2
STANDARD CHARTERED	0.664	4	0.694	2
UBL	0.619	4	0.519	6
Mean	0.632		0.623	

4.11. Cost and Allocate Efficiency for the Year 2010 under VRS

TABLES 8: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2010 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.122	10	0.122	10
BANK ISLAMI PAKISTAN LITD	0.527	6	0.517	6
BURJ BANK	0.538	6	0.528	5
DAWOOD ISLAMIC BANK	0.544	5	0.534	6
DUBAI ISLAMIC BANK	0.555	5	0.555	7
MEEZAN BANK	0.607	4	0.521	6
ASKARI BANK	1	1	1	1
BANK ALFALAH	0.282	9	0.294	10
BANK AL-HABIB	1	1	1	1
HABIB BANK LIMITED	1	1	1	1
HABIB METROPOLITIAN BANK	1	1	1	1
MCB	1	1	1	1
NATIONAL BANK	1	1	1	1
SONERI BANK	1	1	1	1
STANDARD CHARTERED	1	1	1	1
UBL	0.619	3	0.619	2
Mean	0.737		0.730	

4.12. Cost and allocate efficiency for the year 2011 under CRS

TABLES 9: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2011 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.529	6	0.567	6
BANK ISLAMI PAKISTAN LITD	0.593	5	0.591	5
BURJ BANK	0.546	8	0.546	6
DAWOOD ISLAMIC BANK	0.550	6	0.556	6
DUBAI ISLAMIC BANK	0.738	4	0.661	4
MEEZAN BANK	0.274	7	0.271	7
ASKARI BANK	0.414	7	0.412	7
BANK ALFALAH	0.819	3	0.819	3
BANK AL-HABIB	0.292	8	0.285	8
HABIB BANK LIMITED	1	1	1	1
HABIB METROPOLITIAN BANK	0.598	5	0.523	6
MCB	1	1	0.958	2
NATIONAL BANK	1	1	1	1
SONERI BANK	0.685	5	0.396	8
STANDARD CHARTERED	0.555	6	0.555	6
UBL	0.827	2	0.801	3
Mean	0.651		0.621	

4.13. Cost and allocative efficiency for the year under 2011 VRS

TABLES 10: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2011 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.970	2	0.841	3
BANK ISLAMI PAKISTAN LITD	0.942	2	0.948	2
BURJ BANK	0.835	3	0.848	3
DAWOOD ISLAMIC BANK	0.512	6	0.572	6
DUBAI ISLAMIC BANK	0.689	5	0.669	5
MEEZAN BANK	0.803	3	0.823	3
ASKARI BANK	1	1	1	1
BANK ALFALAH	1	1	1	1
BANK AL-HABIB	0.860	3	0.869	3
HABIB BANK LIMITED	1	1	1	1
HABIB METROPOLITIAN BANK	1	1	1	1
MCB	1	1	1	1
NATIONAL BANK	1	1	1	1
SONERI BANK	0.471	6	0.468	6
STANDARD CHARTERED	0.799	4	0.791	4
UBL	0.830	3	0.835	3
Mean	0.856		0.854	

4.14. Cost and allocative efficiency for the year 2012 UNDER CRS

TABLES 11: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2012 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.838	3	0.830	3
BANK ISLAMI PAKISTAN LITD	0.720	4	0.730	4
BURJ BANK	1	1	1	1
DAWOOD ISLAMIC BANK	0.994	1	0.927	2
DUBAI ISLAMIC BANK	0.975	2	0.864	3
MEEZAN BANK	0.832	3	0.800	6
ASKARI BANK	1	1	1	1
BANK ALFALAH	0.823	3	0.719	4
BANK AL-HABIB	1	1	0.894	2
HABIB BANK LIMITED	0.786	4	0.786	4
HABIB METROPOLITIAN BANK	1	1	0.902	2
MCB	1	1	0.843	3
NATIONAL BANK	1	1	1	1
SONERI BANK	1	1	0.959	2
STANDARD CHARTERED	0.833	3	0.798	3
UBL	1	1	0.894	2
Mean	1	1	1	1

4.15. Cost and allocative efficiency for the year 2012 under VRS

TABLES 12: COST AND ALLOCATIVE EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2012 UNDER CRS

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	1	1	1	1
BANK ISLAMI PAKISTAN LITD	0.999	1	0.998	1
BURJ BANK	1	1	1	1
DAWOOD ISLAMIC BANK	1	1	1	1
DUBAI ISLAMIC BANK	0.962	1	0.795	1
MEEZAN BANK	1	1	1	1
ASKARI BANK	1	1	1	1
BANK ALFALAH	0.997	1	0.898	1
BANK AL-HABIB	0.996	1	0.829	3
HABIB BANK LIMITED	1	1	1	1
HABIB METROPOLITIAN BANK	1	1	1	1
MCB	1	1	1	1
NATIONAL BANK	1	1	1	1
SONERI BANK	1	1	1	1
STANDARD CHARTERED	0.829	3	0.710	4
UBL	1	1	0.800	3
Mean	0.776	4	0.778	4

4.16. Determinates of cost efficiency under CRS

To find out the variation in the cost efficient score of Islamic banks under CRS due to important factors, equations 3.2 was estimated by Tobit model and the results is given in the table 12. This table shows that among

the quantitative variable of equation 3.2. Total assets and profit contributed positively in cost efficiency under CRS. While total liabilities contributed negatively. As far as qualitative variables of this equation are concerned, dummy variables for 2012 and 2011 contributed positively with respect to bench mark category, while the dummy variables for pure Islamic banks, public owned banks and foreign owned banks contributed negatively. Profit contributed significantly positive on cost efficiency under CRS at 10%leveel of significance and this result is same with the study of Pasiours et al. (2007), for year 2012and 2011 Islamic bank efficiency was positive with respect to 2010 efficiency of Islamic banks and significant at 1% and 5% level of significance. The constant of equation 3.2 is also significantly positive contributed on cost efficiency under CRS at 5% level of significant

TABLE 13: EFFECT OF DIFFERENT FACTORS ON COST EFFICIENCY OF ISLAMIC BANKS UNDER CRS

Variables	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2010	0.231996	0.081434	2.848898**
D2009	0.597924	0.086659	6.899696***
DFOREIGN	-0.04913	0.096875	-0.50711
DPUBLIC	-0.09573	0.137323	-0.69712
LLIBLI	-0.02031	0.099444	-0.0425
LNPROFIT	0.14002	0.068047	2.057559*
LNASSETS	0.07625	0.129586	0.58839
DPISLAMIC	-0.01707	0.11019	-0.1549
C	1.295754	0.669621	1.935054**

***Indicates significant at 1% level of significance
**Indicates significant at 5% level of significance
*Indicates significant at 10% level of significance

4.17. Determinants of cost efficiency under VRS

Determinants of cost efficiency under VRC are calculated in table 13. This table shows that quantitative variables total assets and profit contributed positively in cost efficiency under VRS, while total liabilities contributed negatively. The qualitative dummy variables of 2012, 2011 and pure Islamic banks contributed positively with respect to bench mark category, while the dummy variables for public owned banks and foreign owned banks contributed negatively. Profits of Islamic banks significantly positive on cost efficiency under CRS at 10%leveel of significant and this result is same with the study of Pasiours *et al*. (2007).Dummy variables for year 2011and 2012 gave the significant results which showed that Islamic banking efficiency increased day by day and both variables were positive with respect to 2010 efficiency of Islamic banks and significant at 1% level of significance.

TABLE 14: EFFECT OF DIFFERENT FACTORS ON COST EFFICIENCY OF ISLAMIC BANKS UNDER VRS

VARIABLES	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2010	0.285257	0.086446	3.299847**
D2009	0.410212	0.091993	4.459164***
DFOREIGN	-0.12382	0.102837	-1.204
DPUBLIC	-0.20603	0.145774	-1.41338
LLIBLI	-0.06765	0.105564	-0.6408
LNPROFIT	0.13958	0.068047	1.645075*
LNASSETS	0.078435	0.137562	0.570182
DPISLAMIC	0.101921	0.116972	0.871327
C	0.019924	0.710834	0.028029

***Indicates significant at 1% level of significance
**Indicates significant at 5% level of significance
*Indicates significant at 10% level of significance

4.18. Determinants of allocative efficiency under CRS

Equation 3.2 also estimated that the variation in allocative efficiency under specification -2 with tobit model and results is given in table 14. it is revealed from table 14 total assets and profit contributed positively in allocative efficiency under CRS, while total liabilities contributed negatively. As far as qualitative variables of this equation are concerned, dummy variables for 2012, 2011, pure Islamic banks and public owned banks contributed positively with respect to bench mark category, where the dummy variables for foreign banks contributed negatively. Profit contributed significantly positive on cost efficiency under CRS at 10% level of

significant and this result is same with the study of pasiouras et al, (2007). For year 2012, 2011 Islamic banks efficiency was positive with respect to 2010 efficiency of Islamic banks and significant at 1% level and 5% level of significance. The constant of equation 3.2 is also significantly positive contributed under CRS at 1% level of significance.

TABLE 15: EFFECT OF DIFFERENT FACTORS ON ALLOCATED EFFICIENCY OF ISLAMIC BANKS UNDER CRS

VARIABLES	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2010	0.236347	0.07063	3.346247**
D2009	0.628407	0.075163	8.360603***
DFOREIGN	-0.05831	0.084023	-0.69396
DPUBLIC	0.000251	0.119105	0.002107
LLIBLI	-0.044372	0.086251	-.514448
LNPROFIT	0.144372	0.084251	1.71448*
LNASSETS	0.17159	0.112395	1.52663
DPISLAMIC	0.020783	0.095572	0.21746
C	2.097228	0.580787	3.611009***

***Indicates significant at 1% level of significance
**Indicates significant at 5% level of significance
*Indicates significant at 10% level of significance

4.19. Determinants of allocative efficiency under VRS

Determinant of allocative efficiency under VRS are calculated in table 15. It is exposed from table 15 total assets and profit contributed positively in allocative efficiency under VRS, while total liabilities contributed negatively. As far as qualitative variables of this equation are concerned, dummy variables for 2012, 2011, and pure Islamic banks contributed positively with respect to bench mark category, while dummy variables for public owned banks and foreign owned banks contributed negatively. Dummy variable of pure Islamic banks contributed significantly positive on allocative efficiency under CRS at 10% level of significance. Dummy variables of 2010, 2012 gave the significance positive results and these both variables were significant at 1 % level of significance.

TABLE 16: EFFECT OF DIFFERENT FACTORS ON ALLOCATED EFFICIENCY OF ISLAMIC BANKS UNDER VRS

VARIABLES	COEFFICIENT	STD. ERROR	Z-STATISTICS
D2010	0.259426	0.081707	3.175073***
D2009	0.413918	0.08695	4.760395***
DFOREIGN	-0.013033	0.0972	-1.3408
DPUBLIC	-0.12053	0.137784	-0.87479
LLIBLI	-0.0255	0.099778	-0.25554
LNPROFIT	0.013381	0.043341	0.0308737
LNASSETS	0.044465	0.130021	0.341985
DPISLAMIC	0.132338	0.06764	1.95636*
C	0.113345	0.67187	0.168701

***Indicates significant at 1% level of significance
**Indicates significant at 5% level of significance
*Indicates significant at 10% level of significance

The results of specification -2 show that profit and assets of the Islamic banks have positive impacts on efficiency of banks, while the liabilities of the banks have negative impact on efficiency. the results also show that public owned banks and foreign owned banks have less efficient then the private banks. Pure Islamic banks have more cost efficient banks then Islamic banks operated by existing conventional banks. The main thing is that Islamic banks efficiency increase day by day as show the results of this specification that efficiency of year 2011and 2012 is high then the 2010.

4.20. Income efficiency for the year 2010

TABLE 17: INCOME EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2010

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.125	0.361	0.313	DRS
BANK ISLAMI PAKISTAN LITD	0.381	0.545	0.271	DRS
BURJ BANK	0.191	0.532	0.427	DRS
DAWOOD ISLAMIC BANK	0.229	0.436	0.465	IRS
DUBAI ISLAMIC BANK	0.165	0.476	0.346	Drs
MEEZAN BANK	0.123	0.231	0.401	DRS
ASKARI BANK	0.625	0.763	0.355	DRS
BANK ALFALAH	0.113	0.463	0.243	CRS
BANK AL-HABIB	0.479	0.433	0.997	SRS
HABIB BANK LIMITED	0.198	0.481	0.198	DRS
HABIB METROPOLITIAN BANK	0.338	1	0.338	DRS
MCB	0.198	1	0.178	IRS
NATIONAL BANK	0.318	1	0.999	CRS
SONERI BANK	0.352	0.103	0.452	DRS
STANDARD CHARTERED	1	1	1	CRS
UBL	1	1	1	CRS
Mean	0.364	0.614	0.498	

4.21. Income efficiency for the year 2011

TABLE 18: INCOME EFFICIENCY SCORE OF ISLAMIC FOR YEAR 2011

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.104	0.261	0.399	DRS
BANK ISLAMI PAKISTAN LITD	0.377	1	0.377	DRS
BURJ BANK	0.234	0.519	0.458	DRS
DAWOOD ISLAMIC BANK	0.585	0.797	0.741	IRS
DUBAI ISLAMIC BANK	0.594	0.989	0.601	Drs
MEEZAN BANK	0.092	0.23	0.401	DRS
ASKARI BANK	0.271	0.763	0.355	DRS
BANK ALFALAH	1	1	1	CRS
BANK AL-HABIB	0.153	0.433	0.354	SRS
HABIB BANK LIMITED	0.673	0.853	0.789	DRS
HABIB METROPOLITIAN BANK	0.338	1	0.338	DRS
MCB	0.178	1	0.178	IRS
NATIONAL BANK	0.281	0.283	0.999	CRS
SONERI BANK	0.352	0.716	0.492	DRS
STANDARD CHARTERED	0.382	0.719	0.532	ICR
UBL	0.589	0.791	0.741	IRS
Mean	0.387	0.709	0.543	

4.22. Income efficiency for the year 2012

TABLE 19: INCOME EFFICIENCY SCORE OF ISLAMIC BANKS FOR YEAR 2012

Banks Name	Allocate Efficiency	Ranks of Bank on the basis of Allocate Efficiency	Cost Efficiency	Rank of Bank on the basis of Cost Efficiency
AL BARAKA ISLAMIC BANK	0.260	0.426	0.610	DRS
BANK ISLAMI PAKISTAN LITD	0.348	0.957	0.363	DRS
BURJ BANK	0.587	0.598	0.981	DRS
DAWOOD ISLAMIC BANK	0.565	0.837	0.675	DRS
DUBAI ISLAMIC BANK	0.604	0.601	0.398	DRS
MEEZAN BANK	0.248	0.721	0.305	DRS
ASKARI BANK	1	1	1	CRS
BANK ALFALAH	0.212	0.621	0.342	DRS
BANK AL-HABIB	0.343	0.474	0.724	DRS
HABIB BANK LIMITED	0.305	1	0.355	DRS
HABIB MP BANK	0.333	0.444	0.986	CRS
MCB	0.232	0.287	0.810	DRS
NATIONAL BANK	0.617	1	0.627	DRS
SONERI BANK	0	0.121	0.644	DRS
STANDARD CHARTERED	0.353	0.594	0.629	ICR
UBL	0.517	1	0.607	DRS
Mean	0.557	1	0.617	DRS

4.23. Determinants of income efficiency under CRS

TABLE 20: EFFECT OF DIFFERENT FACTORS ON INCOME EFFICINECY OF ISLAMIC BANKS UNDER CRS

VARIABLES	COEFFICIENT	STD.ERROR	Z-STATISTIC
D2009	0.121281	0.056244	2.156313**
D2010	0.143694	0.059771	2.404064***
DFOREIGN	-0.06771	0.066413	-1.01946
DPUBLIC	0.125024	0.105546	1.184545
LNNOB	-0.26666	0.05268	-5.06196***
LNLIABI	-0.01892	0.068158	-0.27753
LNPROFIT	0.071154	0.031792	2.23807**
LNASSETS	0.173726	0.102565	1.693817*
DPISLAMIC	-0.00024	0.080212	-0.00302
C	-2.29444	0.722344	-3.17639***

***indicates significant at 1% level of significance
**indicates significant at 5% level of significance
* indicates significant at 10% level of significance

4.24. Determinants of income efficiency under YRS

TABLE 21: EFFECT OF DIFFERENT FACTORS ON INCOME EFFICINECY OF ISLAMIC BANKS UNDER VRS

VARIABLES	COEFFICIENT	STD.ERROR	Z-STATISTIC
D2009	0.114529	0.069073	1.658083*
D2010	0.014191	0.073404	0.193325
DFOREIGN	-0.0083	0.081561	-0.10174
DPUBLIC	-0.06655	0.129619	-0.5134
LNNOB	-0.02386	0.064695	-0.36876
LNLIABI	-0.03218	0.083704	-0.38447
LNPROFIT	0.151335	0.039044	3.876036***
LNASSETS	0.034686	0.125985	0.275379
DPISLAMIC	-0.0321	0.098507	-0.32591
C	-1.11284	0.8871	-1.25447

***indicates significant at 1% level of significance
** indicates significant at 5% level of significance
* indicates Significant at 10% level of significance

4.25. Determinants of scale efficiency under specification-3

TABLE 22: EFFECT OF DIFFERENT FACTORS ON SCALE EFFICJNECY OF ISLAMIC BANKS UNDER SPECIFICATION-3

VARIABLES	COEFFICIENT	STD.ERROR	Z-STATISTIC
D2009	0.056161	0.069844	0.804095
D2010	0.177705	0.074224	2.39419**
DFOREIGN	-0.12334	0.082471	-1.4956
DPUBLIC	0.123799	0.076379	1.62085*
LNNOB	-0.23478	0.065418	-3.58895***
LNLIABI	0.03323	0.084638	0.392613
LNPROFIT	-0.00559	0.03948	-0.14168
LNASSETS	0.136017	0.079156	1.718336*
DPISLAMIC	0.005079	0.099607	0.050986
C	-0.33348	0.897003	-0.37177

*** indicates significant at 1% level of significance
** indicates significant at 5% level of significance
* indicates significant at 10% level of significance

6. Discussion, Conclusion and Suggestions

Islamic banking flourishes very lastly throughout the world. Due to unique style arid Products of Islamic banking, it has not only become popular among the Muslims hut also in Non- Muslim countries. One of the major problems of Islamic banking is that it has to compete conventional banking which had been running since long time. Islamic banks performance can be evaluated by measuring its efficiency. As in Pakistan no comprehensive and analytical research is clone yet, so this study will help to evaluate the efficiency of Islamic banking in Pakistan, This study will also determine various factors affecting the efficiency of Islamic banking. For the measurement of efficiency of Islamic banking, Data Envelopment Analysis (DEA) is used because this model has ability to capture multiple outputs and cover the problems regarding misspecification of model. Input oriented approach of TWA is used to measure the efficiency of Islamic banking under constant return to scale (CRS) and variable return to scale (VRS). Scale efficiency and return to scale at which bank is operating is also calculated in this study. Tobit model is also used to determine the factors effecting on efficiency. This study is divided into three specifications to measure (lie technical. cost and income efficiency and its determinants.

In the first specification, technical efficiency is measured and also its determinants. Since technical efficiency is defined as to attain given level of output by utilizing minimum level of inputs, for this purpose fixed assets and deposits are taken as inputs while investment and advances are considered as output. Efficiency is measured by DEA model under CRS and VRS. Scale efficiency and return to scale is also measured. Average technical efficiency scores of Islamic banking under constant return to scale was 0.837, 0.774 and 0.913 for the year 2010, 2011 and 2012 respectively. Factors, which effect the technical efficiency under CRS was also calculated and on the basis of results it was suggested that bank should increase assets and profit which have positive impact on efficiency, while liabilities and no of branches had negative impact on efficiency- Average technical efficiency scores of Islamic banking under VRS was 0.929, 0.943 and 0.96 1 for the year 2010, 2011

and 2012 respectively. These results showed that Islamic banking efficiency was increasing day by day. Assets and profits of bank also gave positive results for efficiency and scale efficiency results also showed the almost same trend. This specification also showed that pure Islamic banks were efficient than the Islamic bank branches operated by conventional banks and public owned banks efficiency has greater than foreign and private banks.

In second specification, cost and allocate efficiency of Islamic banks is measured by using advances and investment as output and deposits and no of branches as input. To measure the prices of inputs deposits are divided by deposits expenses and office expenses are divided by o of branches. In this specification the average cost efficiency of Islamic banks under constant return to scale (CRS) was 62.3 percent, 62.1 percent and 87.9 percent for year 2010. 2011 and 2012 respectively, while average cost efficiency under VRS was 73 percent, 85.4 percent and 92.9 percent for year 2010, 2011 and 2012 respectively. Cost efficiency under CRS and VRS showed that Islamic banks became cost efficient as time is passed. On the other hand, average a locative efficiency of Islamic banks under CRS (VRS) was 63 percent (73.7 percent), 65.1 percent (85.6 percent) and 92.9 percent (97.4 percent) and these results were also showed that Islamic banks became alocative efficient as time passed. In this specification also measured the factors effecting on cost and a locative efficiency were also measured by using Tohit models. The results showed that assets and profit had positive effects on both cost and alocative efficiency and also gave the significant results of these variables on these efficiencies. Total liabilities of the banks had negative impact on these efficiencies.

In the third specification, income efficiency is measured and also its determinants. Since income efficiency is defined as Bank's, ability to produce the given level of revenue subject to minimize the expenses of banks for this purpose total expenses are taken as inputs while total revenue are considered as output. Efficiency is measured by DEA model under CRS and VRS. Scale efficiency and return to scale is also measured. Average income efficiency of Islamic Banking under constant return to scale was 0.364, 0.387 and 0.416 for the year 2010, 2011 and 2012 respectively. Factors which affected the income efficiency under CRS were also calculated and on the basis of its results Ii was suggested that bank should increase assets and profit which have positive impact on efficiency, while liabilities and no of branches had negative impact on efficiency. Average income efficiency of Islamic banking under VRS was 0.614, 0.709 and 0.689 for the year 2010, 2011 and 2012 respectively. Assets and profits of bank were also give positive results for efficiency and scale efficiency results also show the almost same trend. This specification also showed that pure Islamic banks had efficient than the Islamic bank branches operated by conventional banks. But private owned banks were more efficient than the public and foreign owned banks, The efficiency of year 2011 was scored better than the year 2010, while year 2012 also score better efficiency than 2010 but Less scores than the 2011.

Although Islamic banking is growing rapidly around the world, yet it is in its infancy. One of the major problems of Islamic banking is that it has to compete conventional banking which had been running since long time. It's because of this reason that there is lot of research on conventional banking performance as compared to the performance of Islamic banking. In case of Hyderabad in particular, there is dead of research wok vis-a-vis efficiency analysis of Islamic banking. This study attempted to measure the performance of 17 Islamic banks through efficiency analysis for 2010-2012. This study exposed that efficiency of Islamic banks was increasing in Hyderabad. The technical efficiency of Islamic banks was higher than cost and income efficiency because mostly banks were opening new branches so that cost was too high and income was low. Public owned banks were more efficiency than private owned banks. Technical efficiency was high in pure Islamic banks as compared to Islamic banks branches operated by conventional banks while income efficiency was low in pure Islamic Banks. This study also shows that assets and profit had positive impact on the efficiency while liabilities and no, of branches negatively affected on efficiency. Pure Islamic banks were contributes positively on efficiency.

In the basis of the findings of this study, it is suggested that (lie Islamic banks should prove their total assets and the profits. While the liabilities of the banks should be decreased as it generates inefficiencies as per the findings of this study. Moreover, the decision to open tip new branch should be very calculated and considered only if the bank is working efficiently.

Although this is a comprehensive study on Islamic banking efficiency in Hyderabad yet it has got some limitations as given below.

- First is the non-availability of ample data, this is because mostly Islamic banks are at initial stage which started only between 2 or 6 years back.
- Second limitation is related to the cost of the bank. As most of the banks took start and opening up new branches recently, they are running at high cost, thus making it difficult to measure actual performance at this escalated cost.
- Third, since most of the Islamic banks in Hyderabad are being operated by conventional Banks, data of some important variables cannot be found, which was only available lot' whole conventional bank.
- It is hoped that in future, as the Islamic banking industry grew in the far and wide of the country, these limitations would reduce, hence easy for researchers undertake research with efficient data.

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