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Efficiency Analysis of Leasing Companies in Pakistan

Sundas Shahzadi *[1]

[1]*Technical Support Executive, Izi Send Money Transfer, Gujranwala, Punjab, Pakistan.

Corresponding author: sundasshahzadi00786@gmail.com

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In Pakistan's economic development Leasing sector also contribute. It provides heavy machinery and equipment to the small enterprises which are facing financial difficulties in running the business. Leasing companies provide assets and equipment on lease. In other countries mostly, commercial banks provide the leasing services. As for as the study on leasing sector's efficiency is concerned, a very few studies are conducted on that topic and a limited literature available on that topic. This study aims to measure the CE and PE of Pakistan's leasing sector from 2010 to 2019 by taking the unbalanced panel data of 9 leasing companies registered at PSX through the application of parametric method SFA in the first step of analysis. The Input and output variables were selected from the existing literature. This study uses 2 outputs such as Income and Investment while 3 Inputs such as Operating Expenses, Equity, and Liability. In the second step of analysis, it is investigated that how CE and PE scores are affected through the variables also called determinants such as Size, Investment, ROA, Liquidity, and Equity. The leasing sector's findings revealed that only ROA has substantial impact on TEP while Size, Investment, ROA has substantial impact on TEC.

1. Introduction

Efficiency is a fundamental concept that has long been researched in financial institutions. According to the author (Favero & Papi, 1995; Agres et al., 2020) efficiency investigation is frequently cited as a potential strategic tool to address the challenges of increasing competition and structural developments within financial institutions (Moffat & Valadkhani, 2011). The importance of financial efficiency is that it increases financial stability (Tan, 2016), as well as empirical evidence show a favorable association between the financial sector's growth and the economy's overall growth (Ahmad et al., 2015; Agres et al., 2020). To ensure that economic growth remains stable, financial intermediaries must be extremely efficient in their operations. As a result of inefficient financial intermediation growth is stifled, charges in other industries rise as financial service costs rise. The DEA approach has become well-known in numerous industries around the world for measuring technical efficiency (Banker, 1993;Cooper et al., 2007; Asghar et al. (2020)). It can handle multi-input and multi-output scenarios with ease without needing to use a prohibitive form of most banks in our sample's model attributes. Tan (2016, p.93) in terms of methodologies, the DEA non-parametric method was employed to measure bank efficiency and competition in China (Bannour et al., 2020).

The financial industry, which includes the stock exchange, banks, financial institutions, money lenders, and credit unions, contributes significantly to economic growth and social prosperity. According to research by (SBP,2010), Pakistan's financial sectors assets grew by an average of 13.86 percent yearly over five years, reaching 9.2 trillion rupees in 2010, with the banking sector accounting for 73.2 percent of the assets in the financial industry. As an important part of the financial sector, banks organize public savings and distribute loans to investors. Investments are stimulated, outputs are enhanced as a result of banks' efficient performance, and the financial sector provides the foundation on which the real sector is hoisted. A strong banking organization is as essential to an economy as blood is to the human body. The significance of banking efficiency to economic and social prosperity is what draws people to study it (Saeed et al., 2013; Md.Foysal & Rahman, 2020). Leasing companies in Bangladesh aim to help with the progress and improvement of productive organizations by offering equipment lease financing, as well as the balancing, modernizing, replacing, and expanding of current businesses. These ventures also provide financial assistance towards small and medium-sized businesses (Md.Foysal & Rahman, 2020). Leasing activity was crucial in resolving the issue of providing agricultural producers with technical equipment as quickly as possible. According to worldwide experience, agribusiness leasing played a big influence. In times of crises in the agriculture sector, developed market countries frequently use (and continue to use) leasing relationships to offer the necessary technological capacity for high production. Leasing is a relationship in which one party called the lessor transmits or else agrees to transmit towards the other party called the lessee the usage of assets possessed by the person who gives the asset on lease under ownership rights and obtained without a above mentioned contract with the person who gets the asset on lease called direct leasing or assets obtained through the person who gives asset on lease from the seller called supplier by the person’s stipulations and circumstances who gets asset on

lease known as indirect leasing for a set period and a set fee which is known as lease payments. It's worth noting that leasing is a form of business activity that entails the replication of fixed assets. This is one of the most appealing and promising types of investment that has the potential to significantly revitalize the process of educating agricultural producers' material and technical bases, as well as the integration of the Ukrainian economy into the global market structure. Leasing has been shown to have several advantages over bank lending, including the ability to acquire a property quickly and begin operations without significant one-time investments; the issuance of notable funds for the completion of preference duties; and the option to purchase the property for the residual book value or contract price after the contract expires or to continue leasing for a new tenure (Agres et al., 2020).

According to a survey of the literature, only a couple of researches had been conducted on Pakistan's leasing sectors. So, in this paper, we calculate the Leasing sector's efficiency scores of the economy. It also computes yearly average, maximum and minimum scores of CE, and PE (Cost Efficiency, and Profit Efficiency). The econometric approach SFA is used to calculate efficiency scores. As a result, the conclusions of this study will be relevant for future studies and academics interested in the efficiency analysis of Pakistani leasing companies. In the past, a lot of research was done on this topic in other nations, but not in Pakistan. Few studies on this topic are conducted so there is need to create awareness about the importance of leasing firms in the economic development of Pakistan. While research has been done on several financial sectors in Pakistan, such as banking, insurance, and mutual funds, this study will focus on leasing enterprises. How can leasing companies get the most out of their resources? Because the leasing sectors play a critical part in an economy's growth, the efficiency evaluation of this sector is critical in determining the answer to this question. Previous studies provide limited information just for four to five years while in this research there is information of recent ten years from 2010 to 2019. In Pakistan, no research on leasing companies has been undertaken utilizing this analytical methodology, SFA. This research will look at the leasing firms', as well as the factors that influence overall efficiency. This analysis will look at two different forms of efficiencies: CE, and PE. Efficiency measurement is now the most important thing to create a more efficient financial system. The most efficient use of resources will boost growth while also contributing to the economy. This will be the first time a two-stage analysis will be used to estimate the leasing firms' efficiency by employing SFA. A Truncated regression is utilized in the second step to evaluate the determinants' effect on overall efficiency. In this research new variables included named as Size, Investment, ROA, Liquidity, and Equity. According to the literature, no one has employed SFA technique and Tobit regression model for efficiency evaluation in this industry in Pakistan.

This research will answer to several questions, including:

1. What are the leasing firms in Pakistan's efficiency ratings?
2. Which company is the most efficient in terms of resource utilization?
3. What are the variables that need to be changed, as well as the improvements that are required for inefficient organizations to increase their technological efficiency?

The research of leasing company efficiency is crucial because it will add to the available literature in the accompanying ways. For starters, managers can pinpoint the source of their reduced efficiency because different types of efficiencies express distinct aspects of the firm's dynamics. Second, this research will assist regulators in comprehending the overall industry's strengths as well as the influence of their time-to-time imposed changes. Finally, the results of this study will assist investors in ranking companies based on their efficiency scores. Furthermore, the current research will benefit all stakeholders and scholars. Five chapters make up the paper. First chapter is about study's introduction. Chapter 2 examines the literature on fundamental efficiency ideas. 3rd chapter includes a thorough explanation of the materials used in the two-stage analysis. The fourth chapter of this analysis discusses the SFA results, as well as Tobit regression results and their interpretations. In the fifth chapter, the study will be summarized and recommendations for improving the Pakistan's leasing organizations' efficiency will be made.

2. Literature Review

TE, AE, CE, and SE are some of how the concept of efficiency can be explained. These multiple efficiencies have varied definitions, but the underlying concept is the same: how efficiently inputs are used to produce outputs. Farrell created the framework for the efficiency notion, stating that a corporation is efficient assuming it generates the output's largest amount while consuming the least number of inputs. He said that efficiency may be determined by comparing the concerned border to the best frontier using the frontier approach, just note that it evaluates the deviation of the company limits set from the optimal limits (Hassan & Hassan, 2018b). Bauer et al. (1998) DEA, Stochastic Frontier Approach, DFA, and TFA were used to compare the consistent criteria for the financial institutions' legislative examination between 1977 and 1988, utilizing 683 United States banks' data. The parametric and nonparametric methods revealed by data have a high degree of consistency. The choice of SFA vs. TFA vs. DFA may have little bearing on regulatory policy findings. Alternatively, the panel and single-year approaches might be chosen. Because the conclusion of relatively lesser DEA model's efficiency is uncommon, alternative specifications and data sources are required for more robustness testing. It could indicate something else about our sample or specification, as well as our inclusion of allocative inefficiency. As a result of the findings, it is determined that completing regulatory analysis using multiple methodologies is beneficial. When all six consistency requirements for two or more methods are met, either method can be certain of its conclusion.

Seydel (2006) according to the research, DMs (Decision-makers) were given an option for dealing with multicriteria decision problems and finite alternative sets, criteria weighting is difficult or impossible to achieve and a tool that is usually descriptive rather than prescriptive. A summary of DEA is provided, and a hypothetical but typical example of a multicriteria choice, vendor selection. The DEA method is utilized to rank the available vendors, which has been modified to include weight constraints. The outcomes of the modified DEA approach are remarkably comparable to those of the SMART strategy. Although DEA necessitates less commitment on the part of the DM, these outcomes are fairly satisfactory. Md et al. (2011) utilizing the SFA production function assesses the TE of enterprises on the DSE for panel data. Adopting the inefficiency effect model of technical

efficiency. From 2000 to 2008, data was gathered from the DSE market in Bangladesh, which included 94 businesses. The assessed average annual efficiency for enterprises in the Dhaka Stock Exchange market is 0.8782, and the average efficiency of the group is 0.8571, according to the findings. ICB was the most efficient company, while Bextex Limited was the least efficient. Hasan et al. (2012) the study uses an econometric SFA to inspect the TE of Malaysian local banks listed on the KLSE since 2005 to 2010. According to the findings, local banks in Malaysia have mean total efficiency of 94%. Consequently, the sample bank loses 6% of their inputs. Sabir and Qayyum (2018) by using the stochastic frontier TFE and TRE models, the author investigates the PE of commercial banks in Pakistan, more than 2 decades of transformation has accomplished by the banking industry from state ownership to private enterprise policies and reform. A balanced panel data of 22 commercial banks from 1995 to 2014 was used for the empirical study, as well as the intermediation technique was employed to select the model's input and output variables. On average, Commercial banks have a profit of 73 percent, according to the study, and they are also more cost-efficient than profit-efficient.

Md. Foysal and Rahman (2020) from 2006 to 2011, DEA was utilized to analyze the performance of leasing firms in Bangladesh. Statistics for all input and output variables were acquired from annual report of 17 leasing companies to choose sample firms using a simple random sampling technique. The findings imply that, except for a few firms, most firms have substantial capacity to enhance TE, AE, and CE by modifying the composition of input resources or by reducing input without losing output. Ali Asghar and Afza (2013) from 2005 to 2010, the performance of Modaraba and Leasing firms in Pakistan was evaluated by computing Technical, Cost, and Profit efficiencies. The value-added strategy is utilized to select input and output variables using a parametric SFA. The study considers three inputs: labor and business services, equity, and debt, as well as two outputs: income and investment. According to the findings, leasing firms are 86 percent PE, 87 percent TE, and 89 percent CE, whereas modaraba companies are 87 percent PE, 51 percent TE, and 96 percent CE. However, it has been discovered that leasing firms' profit efficiency was significantly affected by the financial crisis of 2009, whereas modaraba companies' profit efficiency did not suffer.

Asghar et al. (2020) a two-stage analysis was utilized to investigate the effectiveness of Mudarabah and Leasing firms in Pakistan, using a sample of 24 Mudarabah and 9 Leasing enterprises from 2011 to 2015. The efficiency of Mudarabah and Leasing organizations is compared in the first step of the analysis by computing TE, PTE, and SE using a value-added technique using DEA. The output variables are income and investment, while the input factors are equity, liabilities, fixed assets, and operational expenses. A Tobit model is used in the second step of the research to explore the relation among efficiency and firm-specific aspects such as leverage, tangibility, operational expenditures, and profitability. The study's findings demonstrate that both FIs have similar efficiency results and no significant differences, implying that both firms are competing successfully, while Tobit regression results suggest that firm-specific characteristics are highly associated to the efficiency of both FIs. The effectiveness of Pakistani leasing firms listed on the PSX is assessed in this study

using an econometric methodology, named SFA. CE, and PE are the two basic categories of efficiency measurement. This will be the first time a two-stage study will be used to assess the effectiveness of leasing companies. ESs are measured using SFA in the first step, and a Tobit regression is used on ESs in the second step. No one has ever utilized this method for evaluating efficiency in this industry.

3. Methodology

Nowadays, efficiency measurement is something that all businesses should think about. To become a more efficient business unit, every company aspires to achieve maximum productivity. Any econometric technique is required for efficiency measurement and to understand the determinants of these financial organizations. The major goal of this empirical analysis is to look at the TE of listed leasing firms on the PSX, as well as their CE, and PE and to see if there is a link between the leasing companies' overall TE and their financial characteristics. SFA, a parametric approach, is used to analyze CE and PE in the initial phase of the investigation. Tobit regression is utilized in the second step to regress the overall ESs of the chosen organizations over financial variables. There are several prominent strategies for measuring efficiency's determinants, including regression models that include both OLS and maximum likelihood, however, in this study, a novel methodology called Tobit regression (truncated regression) is utilized. Because the dependent variable, leasing company efficiency, is between 0 and 1, Tobit regression is used. Among all of these leasing institutions, several organizations that operate at 100% efficiency under the DEA technique form a cluster of values towards one extreme, namely 1, causing bias in the results. The Tobit model, which truncates such observations so that bias may be managed, is advised to deal with such an issue.

Two fundamental methodologies are utilized to quantify efficiency in the current literature. The first is an econometric technique, while the second is a non-econometric. The econometric method is also known as the parametric approach. Looking at the other end of the spectrum, we can see that the non-parametric method is a type of linear programming. These frontier approaches are used to determine how close the concerned units (banks, insurance companies, leasing companies, and so on) are to the best frontier. The econometric technique has various advantages, such as allowing noise in the case of inefficiency. However, functional forms of production, cost, profit, or revenue, as well as some assumptions, are still required (Mokhtar et al., 2006). On the other hand, nonparametric techniques do not necessitate any prior assumptions or production forms. The non-parametric technique also has the disadvantage of not accounting for noise. Due to the incorporation of input allocative efficiency as well as technical efficiency, parametric procedures are considered more sophisticated than non-parametric techniques. For measuring efficiency level, there are a range of strategies accessible in the literature, including both econometric and non-econometric techniques. The SFA defines a realistic structure for the frontier of cost, profit, or production while allowing for error term. The SFA compares all selected entities with the best performing entity by analyzing cross-sectional data and decomposing the residuals into random error and inefficiency portions. The study is based on Battese and Coelli's (1995) SFA procedure, which has been used in earlier empirical studies. Battese and

Coelli (1995) present a SFPF for panel data with a strong effect and distributions presumed to be truncated normal random variables (Zerai & Rani, 2012).

3.1 Selection of Variables

The input and output variables in this research are based on factors used in previous modaraba and leasing sector studies in the literature, including (Ali Asghar & Afza, 2013),(Asghar et al., 2020),(Q. M. Khan & Kouser, 2021). All of these investigations were carried out in other studies. As a result, the chosen outputs are income and investment, while the inputs are operating expenses, equity, and liability.

Table No 1: Input & Output

Variables	Types
Income	Output
Investment	Output
Operating Expenses	Input
Equity	Input
Liability	Input

3.2 Cost and Profit Efficiency

The final model for calculating cost efficiency will be as follows:

$$lnTC_{kt} = \alpha_0 + \Sigma\beta_i\, lny_{ikt} + \Sigma\square_i\, lnw_{ikt} + 0.5\,\Sigma\Sigma_{ij}\, lny_{ikt}\, lny_{jkt} + 0.5\,\Sigma\Sigma_{\square ij}\, lnw_{ikt}\, lnw_{jkt} + \Sigma_{\square ij} lnw_{ikt} lny_{jkt} + \Sigma_{\square} lnz_{kt} + 0.5\,\Sigma\Sigma_{\square} lnz_{kt}^2 + \Sigma\Sigma_{\partial i} lnz_{kt} lnw_{ikt} + \Sigma\Sigma_{\square i} lnz_{kt} lny_{ikt} + \Omega t + 0.5\ell\, t^2 + ¢_i lnw_{ikt}\, t + \square_i lny_{ikt}\, t + \emptyset lnz_n\, t + v_i + u_i$$

As a result, the profit function will look like this:

$$\ln(\pi + k + t)_{kt} = \alpha_0 + \Sigma\beta_i\, lny_{ikt} + \Sigma\square_i\, lnw_{ikt} + 0.5\,\Sigma\Sigma_{\square ij}\, lny_{ikt}\, lny_{jkt} + 0.5\,\Sigma\Sigma_{\square ij}\, lnw_{ikt}\, lnw_{jkt} + \Sigma\Sigma_{\square ij}\, lnw_{ikt}\, lny_{jkt} + \Sigma_{\square} lnz_{kt} + 0.5\,\Sigma\Sigma_{\square} lnz_{kt}^2 + \Sigma\Sigma\partial_i\, lnz_{kt}\, lnw_{ikt} + \Sigma\Sigma_{\square i}\, lnz_{kt}\, lny_{ikt} + \Omega t + 0.5\,\ell t^2 + ¢_i\, lnw_{ikt}\, t + \square_i\, lny_{ikt}\, t + \emptyset\, lnz_n\, t + v_i - u_i$$

3.3 Tobit Regression

In order to cope with censored data, the Tobit regression model has piqued the interest of researchers. This study investigates the association among determinants of firm's performance and the efficiency of leasing sector in order to determine their relationship with efficiency scores. Firm Size, Investment, ROA, liquidity, Equity are all firm-specific characteristics. Tobit regression analysis was used over other regression techniques in this study because it gives results between 1 and 0. Here is the Tobit equation:

$$\theta_{i,t} = \beta_1 + \beta_2 SZ_{i,t} + \beta_3 NILF_{i,t} + \beta_4 PROF_{i,t} + \beta_5 LQDTY_{i,t} + \beta_6 EQTY_{i,t} + \varepsilon_{i,t}$$

Where:

SZ; Natural Log of Total Assets

NILF: Net Investment in Lease Finance to Total Assets

PROF: ROA: Profit before Tax to Total Assets

LQDTY; Current Assets to Current Liabilities

EQTY; Total Equity to Total Assets

The Leasing companies of Pakistan are being considered as units of analysis. For the estimation, unbalanced panel data will be used. In all, Pakistan has 9 Leasing firms, but due to unbalanced panel data, all the companies which was operating during 2010 to 2019 are involved in the investigation. As a result, the total observations for leasing companies would be 83. Data is collected utilizing a secondary data strategy through yearly reports issued by companies. The STATA software is also used to estimate efficiency.

4. Results

This chapter will cover the study's empirical findings. From 2010 to 2019, an unbalanced panel data of 9 leasing firms in Pakistan was collected. This research is divided into 2 parts: the first utilizes a parametric method (SFA), and the second uses the Tobit regression. Table 2 represent the descriptive statistics of the leasing firms regarding the outputs such as income, investments, and output variables such as operating expenses, equity, and liability together with the dependent variables total cost and total profit. It indicates that the average total income of leasing companies increased by Rs. 540m to Rs. 650m during the research time. The total investment of the leasing companies upgraded from Rs. 1448m to Rs. 1450m throughout the review time. This represents the growth in the leasing sector.

Table No 2: Descriptive Statistics of Input & Output

Year		Total Profit	Total Cost	Income	Investments	Operating Expenses	Equity	Liability
2010	Mean	-59032.4	110656.89	540008.5556	1447922	3.146409297	0.280813892	0.126434304
	SD	153916.5	186091.59	1213432.752	2912946.434	6.136407345	0	0
2011	Mean	37147.67	106303.44	488809.2222	1475739.444	10.10582559	-0.056142394	0.133079625
	SD	101532.1	168528.03	1021728.1	2916564.504	26.40059802	0	0
2012	Mean	-44531.3	107096.67	501587.3333	2298748.444	8.039260923	0.489689813	0.109630476
	SD	300387.8	181629.2	1078333.407	5217392.459	16.11307477	0	0
2013	Mean	57645.56	123430.33	515957.4444	2323246.667	8.155301079	0.494291663	0.092497385
	SD	129246.6	229887.38	1156200.237	5217583.142	18.4529068	0	0
2014	Mean	61643.22	128755	540351.2222	2520429.667	6.350497971	0.271960733	0.099214667
	SD	181774.3	237330.93	1242621.734	5800939.874	10.24953149	0	0
2015	Mean	65092.78	133614.33	546396.4444	637077.5556	8.081601176	0.021318975	0.072874409
	SD	225451.3	246331.	1295866.2	913088.84	15.71446603	0	0

			84	38	59			
2016	Mean	83210.63	143051.63	561797.625	1168753.5	2.224821486	0.456819844	0.060436273
	SD	283653.6	289161.71	1418343.159	2548404.991	2.479085584	0	0
2017	Mean	111358	168839.57	612000	1319336.571	2.366696694	-0.153429414	0.060152875
	SD	324097.6	352340.48	1508901.409	2773023.706	2.764803534	0	0
2018	Mean	204338.9	184911.29	704757.2857	1497106	3.115473838	-0.08413224	0.1311
	SD	519769	401533.93	1662712.363	3175067.261	3.730528929	0	0
2019	Mean	152720.3	201680.86	650190.7143	1449917.286	2.765059275	0.098955945	0.1346
	SD	385055.2	435710.03	1558690.583	3006906.819	3.793493047	0	0

*The above figures are in (000) rupees.

Table 3 contains the Descriptive Statistics of efficiency determinants leasing firms. These shows the yearly Mean and SD of the size, investment, ROA, Liquidity, Equity, TEP and TEC.

Table No 3: Descriptive Statistics of Tobit Regression

Year		Size	Investment	ROA	Liquidity	Equity	TEP	TEC
2010	Mean	4,059,732	1447922	-0.008298	1.963609	0.328737	0.8641894	0.9970415
	SD	7522354.834	2912946.434	0.115264232	1.862408364	0.315932096	0.155249274	0.000021887
2011	Mean	3,693,935	1475739	0.016394	1.444932	0.335961	0.8986255	0.9970364
	SD	6885275.378	2916564.504	0.076155857	0.732748686	0.317995917	0.089355193	0.000020213
2012	Mean	3,690,898	2298748	-0.009887	1.485310	0.266312	0.8100535	0.9970434
	SD	7013234.578	5217392.459	0.116763615	0.983544426	0.344244748	0.274175697	0.000019782
2013	Mean	3,829,604	2323247	0.024543	1.460156	0.295782	0.9732249	0.9970340
	SD	7409819.328	5217583.142	0.062593555	0.530531696	0.259716613	0.038472615	0.000023726
2014	Mean	3,965,744	2520430	0.008806	1.230258	0.273867	0.8318913	0.9970220
	SD	7847950.147	5800939.874	0.068131039	0.585812111	0.291718437	0.070057638	0.000023493
2015	Mean	4,349,459	637078	-0.004834	1.450478	0.244859	0.9301622	0.9970530

	SD	9116202.118	913088.8459	0.083427299	0.698332816	0.365927303	0.067381428	0.000031601
2016	Mean	4,093,261	1168754	0.001543	1.370760	0.255084	0.9647984	0.9970377
	SD	9230388.137	2548404.991	0.089366096	1.137400149	0.387909702	0.055469836	0.000021695
2017	Mean	4,403,706	1319337	-0.008210	1.244954	0.111438	0.9683542	0.9970410
	SD	9586273.914	2773023.706	0.068255788	1.100887004	0.453250191	0.038573728	0.000026519
2018	Mean	4,546,375	1497106	0.029303	1.012277	0.107191	0.9657131	0.9970469
	SD	9798780.02	3175067.261	0.075927327	0.432397025	0.489860513	0.038519289	0.000033288
2019	Mean	4,458,401	1449917	0.007918	1.171604	0.122943	0.7352799	0.9970294
	SD	9529894.418	3006906.819	0.051076488	0.686889195	0.468867106	0.075463407	0.000023366

*The above figures are in (000) rupees.

Mean efficiency of leasing companies presented in table 4. Leasing companies attained more CE scores as compare to PE scores. Mean PE scores of modaraba sector are 0.897 and CE 0.997. Maximum PE 0.937 scores are and CE 0.997. Minimum PE 0.758 scores are and CE 0.997.

Table No 4: Mean Efficiency Scores of Leasing Companies

Company	TEP	TEC
Capital Assets Leasing Corporation Ltd.	0.911	0.997
Grays Leasing Limited	0.915	0.997
NBP Leasing Ltd. (formerly NBP Capital)	0.937	0.997
Orix Leasing Pakistan Limited	0.915	0.997
Pak Gulf Leasing Company Limited	0.920	0.997
Saudi Pak Leasing Company Limited	0.758	0.997
Security Leasing Corporation Limited	0.909	0.997
SME Leasing Limited	0.877	0.997
Standard Chartered Leasing Ltd.	0.930	0.997
Mean Efficiency	0.897	0.997
Max Efficiency	0.937	0.997
Min Efficiency	0.758	0.997

Table 5 shows leasing company's results, in the first segment TEP as dependent variable and Size, Investment, ROA, Liquidity, and Equity as independent variables. Size has negative (coefficient value= -0.0097674) and insignificant (t value= -0.99, $p>0.1$). Size has negative and insignificant impact on TEP. Investment has positive (coefficient value=0.0820371) and insignificant (t value= 1.56, $p>0.1$). Thus, Investment has positive but insignificant impact on TEP. ROA has positive (coefficient value=0.8653616) and significant (t value= 4.32, $p<0.01$). ROA has positive and significant impact on TEP. Liquidity has positive (coefficient value= 0.0018119) and insignificant (t value= 0.11, $p>0.1$). Liquidity has positive but insignificant impact on TEP. Equity has negative (coefficient value= -0.0380996)

and insignificant (t value= -0.66, p>0.1). Equity has negative and insignificant impact on TEP.

In the second segment we take TEC as dependent variable and Size, Investment, ROA, Liquidity, and Equity as independent variables. Size has positive (coefficient value=0.00000402) and significant (t value= 2.18, p<0.05). TEC is positively and significantly impacted by Size. Investment has negative (coefficient value= -0.0000277) and significant (t value= -2.82, p<0.01). Investment has negative but significant impact on TEC. ROA has negative (coefficient value= -0.0001228) and significant (t value= -3.27, p<0.01). ROA has negative but significant impact on TEC. Liquidity has positive (coefficient value=0.000000227) and insignificant (t value= 0.07, p>0.1). Liquidity has positive but insignificant impact on TEC. Equity has positive (coefficient value=0.00000719) and insignificant (t value= 0.67, p>0.1). Equity has positive but insignificant impact on TEC.

Table No 5: Tobit Regression Model Results

TEP	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Size	-.01	.01	-0.99	.325	-.029	.01	
Investment	.082	.052	1.56	.122	-.022	.187	
ROA	.865	.2	4.32	0	.467	1.264	***
Liquidity	.002	.017	0.11	.915	-.032	.035	
Equity	-.038	.057	-0.66	.509	-.153	.076	
Constant	1.005	.137	7.34	0	.733	1.278	***
var(e	.013	.002	.b	.b	.01	.018	

Mean dependent var	0.894	SD dependent var	0.135
Pseudo r-squared	-0.247	Number of obs	83
Chi-square	24.303	Prob > chi2	0.000
Akaike crit. (AIC)	-108.717	Bayesian crit. (BIC)	-91.785
*** p<.01, ** p<.05, * p<.1			

TEC	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Size	0	0	2.18	.032	0	0	**
Investment	0	0	-2.82	.006	0	0	***
ROA	0	0	-3.27	.002	0	0	***
Liquidity	0	0	0.07	.943	0	0	
Equity	0	0	0.67	.506	0	0	
Constant	.997	0	38857.76	0	.997	.997	***
var(e	0	0	.b	.b	0	0	

Mean dependent var	0.997	SD dependent var	0.000
Pseudo r-squared	-0.014	Number of obs	83
Chi-square	21.709	Prob > chi2	0.001
Akaike crit. (AIC)	-1535.391	Bayesian crit. (BIC)	-1520.878
*** p<.01, ** p<.05, * p<.1			

5. Conclusion

The leasing sector contributes to the development of the country like other FIs. To

take loan from the bank required to pledge assets so the small-scale enterprises does not own the heavy equipment and due to financial constraints, they need loans to purchase heavy machinery so the leasing sector facilitate these enterprises with machinery on installments operating and financial lease. A very few studies on this sector is conducting in Pakistan. The current study aims to explore the efficiency analysis of Pakistani leasing sector through employing the SFA by taking the companies listed at Pakistan Stock Exchange for 10 years (2010-2019). It also applies Tobit regression to check the factors that influence CE and PE scores calculated through SFA. Variables as determinants of efficiency are Size, Investment, ROA, Liquidity, and Equity. This study used the descriptive statistics to define variables as input and output and efficiency's determinants, which tells about the Mean and SD of the variables. This study used an unbalanced panel data. To check that these efficiency scores are determine by which variables a truncated regression is applied in the second stage. This will help the investors to choose whether they have to invest in which of the conventional leasing firms. The results of the Tobit regression revealed that in the conventional leasing sector Size has negative and insignificant impact on TEP while positive and significant impact on TEC. TEP is impacted positively but insignificantly by investment, while TEC is impacted negatively but significantly. ROA has a significant positive impact on TEP while having a significant negative impact on TEC. Liquidity has a positive but not significant impact on TEP while positive but not significant effect on TEC. Equity has negatively and insignificantly impacted TEP while positively but insignificantly impacted TEC. The unbalanced panel data is taken in this research. The input variables utilized in this paper are Operating Expenses, Equity, and Liability. The outputs are Income, and Investment. So, various techniques to input and output selection are recommended. Furthermore, the choice of input and output available in the existing literature of the researches which are previously conducted. Besides that, the sample size of the determinants / control variables can also increase. The future researchers are guide to conduct the combined analysis of both modaraba and leasing sector. Time span of the study can also be enhanced. It is recommended to the future researchers that they can make comparisons of these sectors with other sectors and also make a comparison of various econometric and non-econometric approaches or it can make comparisons of leasing and modaraba firms with other conventional and shariah compliant firms to know which sector is more efficient. Besides that it can also conducted studies between manufacturing and services sector.

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