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PRIMARY RESEARCH

Efficiency Analysis of *Muḍārabah* and Leasing Firms in Pakistan

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Abstract. Leasing firms consider the conventional interest-based method whereas, the *muḍārabah* firms consider the Sharī'ah-based non-interest-based method to operate in the financial market. The role of both these Financial Institutions (FIs) is of much importance for the sustainable development of Small and Medium Enterprises (SMEs). While comparing *muḍārabah* firms and conventional leasing firms, in the first stage, the current paper has computed Technical Efficiency (TE), Pure Technical Efficiency (PTE), and Scale Efficiency (SE) of *muḍārabah* and leasing firms. Data Envelopment Analysis (DEA) is applied by following a value-added approach. Equity, liabilities, fixed assets, Operating expenses and are selected as input variables whereas, income and investments are selected as output variables. The results suggest that Sharī'ah-compliant *muḍārabah* firms are competing well with conventional leasing firms. It indicates that there is no major difference in the efficiency of both FIs. In the second stage, the study also analyzes the association of firm-specific factors with efficiency with the help of the Tobit regression model which suggests that leverage, tangibility, operating expenses, and profitability of the firm are significantly related to the efficiency of both Financial Institutions.

KAUJIE Classification: K2, K5
JEL Classification: L25, M1

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INTRODUCTION

The Efficient operations of Financial Institutions (FIs) have significant importance for the overall economic growth of any country as they channelize funds in different sectors of the economy (Asghar *et al.,* 2019). Sharī'ah-compliant *muḍārabah* and conventional leasing

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firms have a noteworthy contribution in the economic development along with the banks since they are financially facilitating the SMEs. Leasing firms provide heavy equipment on lease whereas, *muḍārabah* firms provide Sharī'ah-based financial products e.g. *ijārah* (Islamic way of leasing) and both these FIs mostly target the small and medium-scale industry. *Muḍārabah* by definition is a special kind of agreement between two parties, one provides the finance (*rabb al-māl*), whereas, other contributes through management skills and efforts (*muḍārib*). *Muḍārabah* firms offer various products such as; *ijārah*, *mushārakah*, *muḍārabah*, and *murābaḥah* but within the limits of Sharī'ah law.

SMEs in Pakistan consists of various small size firms like leather, fisheries, steel, garments, fisheries, and automobile vendors, etc. The commercial banks do not financially assist these SMEs as most of these don't have collateral for a large number of loans to purchase equipment and machinery. Their owners are not much resourceful with limited manpower which exposes them to a high level of uncertainty to keep running their businesses (Rehman, 2017). Both FIs provide leasing facilities to SMEs on ease financial terms to purchase costly machinery and raw material. Therefore, the contribution of both leasing and *muḍārabah* firms to support SMEs have much importance. If both these institutions are working efficiently, then it will help the SMEs to grow and contributes further to the economic progress of Pakistan. As both FIs have different methods of operations, therefore, it is interesting to investigate which of the sector is working efficiently. Therefore, the primary objective of the present study is to compare the efficiency of Sharī'ah-compliant *muḍārabah* firms with conventional leasing firms to know which one is outperforming since later is following conventional interest-based financial system whereas the former one is following Sharī'ah-based system.

The efficiency of a firm depends on various firm-specific factors that contribute either to increasing or decreasing the level of efficiency of financial institutions. The results regarding these factors are mixed in the literature (Asghar, 2015). Therefore, the second objective of the study is to examine what are the firm-specific factors which significantly influence their efficiency. This research study helps the management of both these FIs able to know where they are lacking and how they are performing in their industry and enables the regulators to know which of the industry is performing better so that they can introduce financial reforms accordingly to enhance their level of efficiency. The remaining of the paper is organized as follows; section II described empirical studies on this issue whereas, the methodology of the study is explained in section III. Section IV provides empirical results whereas the study concludes in section V.

LITERATURE REVIEW

Efficiency analysis of FIs is intensively studied in Pakistan e.g. many studies analyzed the efficiency of mutual funds (Afza & Amir, 2013; Asghar *et al.,* 2019) whereas, there are also studies that have examined the efficiency of insurance firms (Noreen, 2009). There is a large number of papers on evaluating the efficiency of banks (Afza & Asghar, 2017; Zhu *et al.,* 2020). However, there is limited evidence that examined the efficiency of both leasing firms and *muḍārabah* firms. Marta (2009) applied the Stochastic Frontier Approach (SFA) and examines the efficiency of leasing firms in Italy. This study found 74% cost efficiency

throughout for 2002 to 2006 in leasing firms of Italy.

Although, there are studies in Pakistan that have compared the efficiency of Islamic banks with conventional banks (Aman *et al.,* 2016) and there are also studies on comparison of the efficiency of Islamic *takāful* companies with conventional insurance companies (Asghar *et al.,* 2019) However, to the best of author's knowledge there is a single significant study which has examined the efficiency of both *muḍārabah* and leasing companies. Asghar et al. (2013) analyzed the level of efficiency of both *muḍārabah* firms and leasing firms with the help of the SFA technique throughout for 2005 to 2010. The results suggested that the level of cost-efficiency in leasing firms was lower than *muḍārabah* firms, whereas, *muḍārabah* firms had lower technical efficiency than the leasing firms.

Taking the pieces of evidence from the previous literature related to determinants of FIs' efficiency, this study selected four inputs variables; Operating expenses (Masood & Ashraf, 2012; Moussa, 2015; Siraj & Pillai, 2012; Tarus *et al.,* 2012), liabilities (Plantin, 2015; Valverde & Fernandez, 2007), fixed assets (Anbar & Alper, 2011; Berger *et al.,* 2017; Ryan *et al.,* 2014; Yudistira, 2004) and equity (Groff & Morec, 2020; Mondal & Ghosh, 2012; Samad, 2004), and two outputs variables; income (Brar & Singh, 2016; Siraj & Pillai, 2012) and investments (Ashraf *et al.,* 2016; Zaher & Kabir, 2001) to analyses and compare the efficiency of *muḍārabah* and leasing firms.

This paper contributes to empirical literature in various ways since this study compared the level of efficiency in Sharīʿah compliance *muḍārabah* firms with conventional leasing firms with the help of DEA rather than SFA since the literature suggest that in the case of small sample size, DEA is a much better technique as compared to SFA (Cummins & Rubio-Misas, 2006). Moreover, DEA efficiency scores are highly correlated with conventional performance measures (Cummins & Zi, 1998). Furthermore, to the best of the authors' knowledge, there is no significant study that has included the effect of various firm-specific factors with various types of efficiencies of both *muḍārabah* and leasing firms in the empirical literature.

METHODOLOGY

Efficiency studies have analyzed the efficiency of FIs with various techniques. There are mainly two types of categories in this regard; parametric and non- approaches. Parametric approaches are SFA, Distribution Free Approach (DFA), and Thick Frontier Approach (TFA) whereas, DEA and Free Disposal Hull (FDH) are non-parametric approaches. As discussed earlier, this study has applied the DEA approach to measure the efficiency of *muḍārabah* and leasing firms. Charnes, Cooper and Rhodes (1978) developed DEA. DEA is the most suitable approach for the computing efficiency of both leasing firms and *muḍārabah* firms. It compares the efficiency of relative firms within the industry and determines efficiency between 0 and 1. If a firm reaches the efficiency level of 1, it shows that the DMU is efficient and inefficient if it's less than 1. This study has computed; TE, PTE and SE, each of these efficiencies describe diverse information about these FIs.

Input & Output Variables
It is difficult to select input and output variables for both these FIs since there are limited

studies on this issue. This study applied a value-added approach and selected four inputs; Operating expenses, liabilities, fixed assets and equity. Operating expenses depict the overall spending of the firm, total liability and equity include the financing side of the balance sheet whereas, fixed assets depict the financial health of the business. This study has selected two outputs; income and investments. *Muḍārabah* firms invest in "Sharī'ah compliance" investments, particularly in *ijārah* (Islamic way of leasing) whereas leasing firms invest in lease finance investments. Inputs and outputs are also presented in Table 1.

TABLE 1
Input and Output Variables *Muḍārabah* and Leasing Firms

Variable Description	Type	Measure
Income	Output	Total Income of firm
Investment	Output	Financing lease financial assets and investments
Operating Expenses	Input	Total operating expenses of the firm
Equity	Input	Total equity of the firm
Liability	Input	Total liabilities of the firm
Fixed Assets	Input	Total fixed assets of the firm

Tobit Model

The current study further examines the relationship of company-specific features with the efficiency of both these FIs to find their association with various efficiencies. The firm characteristics include; a dummy variable which is 1 for *muḍārabah* firms and 0 for leasing firms to investigate whether Sharī'ah compliance *muḍārabah* companies are performing better or not, other firm-specific variables are firm size, leverage, operating efficiency, tangibility, lease finance assets profitability and age of firm after commencing business. This study has preferred Tobit regression analysis amongst other regression techniques by Pasiouras et al. (2008) since it also takes into account the censored nature of efficiency scores as they vary between 1 and 0. The final model is described in the below equation.

$$\theta_{i,t} = \beta_1 + \beta_2 DSharia_{i,t} + \beta_3 SZ_{i,t} + \beta_4 LVRG_{i,t} + \beta_5 OE_{i,t} + \beta_6 TANGBL_{i,t} + \beta_7 LEASEAS_{i,t} + \beta_8 ROA_{i,t} + \beta_9 AGE_{i,t} + \epsilon_{i,t}$$

Where:
DSHARIA: Dummy variable with a value of 1 for muḍārabah firms otherwise 0
SZ; natural log of total assets
LVRG; Debt to Equity ratio
OE: Operating Expenses to Total Expenses in percentage
TNGBL: Total Tangible Assets to Total Assets of the firm in percentage
LEASEAS: Assets kept for lease finance to Total Assets in percentage
ROA: EBIT to Total Assets in percentage
AGE: total number of years after commencement of business

Data

Data is gathered from financial reports of 24 *muḍārabah* and 9 leasing companies over the study period of 2011 to 2015. The descriptive statistics summary for all variables is shown in Table (2). The mean total income of both FIs is raised from Rs. 324 million to Rs. 382 million over the study period. The total lease investments are also improved from Rs. 1436 million to Rs. 1935 million over the study period, this can be attributed to overall growth in both FIs. Like both outputs, the inputs are also increased which indicates that the cost of doing business is also greater than before which can be attributed to inflation and the overall increase in the cost of financing. The descriptive statistics of firm-specific variables show that there is a high level of dispersion between the firms since most of the variables have a higher standard deviation. This is because both these industries are highly fragmented.

TABLE 2
Descriptive Statistics of *Muḍārabah* and Leasing Firms

Variables	Years =>	2011	2012	2013	2014	2015
Income	Mean	324.12	382.56	360.6	371.5	382.28
	S.D	616.69	702.92	774.66	812.53	882.12
Investments	Mean	1436.43	1405.19	1434.01	1806.02	1935.22
	S.D	3323.11	3362.73	3547.6	4176.57	4825.64
Operating Efficiency	Mean	142.57	173.66	154.01	177.22	194.63
	S.D	270.79	323.87	328.71	388.04	446.75
Equity	Mean	519.59	595.45	540.78	677.02	736.79
	S.D	628.83	707.46	700.41	903	1011.75
Liability	Mean	1413.92	1524.2	1530.16	1517.52	1604.53
	S.D	3522.23	3685.16	3881.29	3956.83	4526.54
Assets	Mean	91.44	213.66	142.81	109.9	119.59
	S.D	254.43	496.57	332.48	329.04	336.56

Table 2b: Descriptive Statistics of Tobit Model

	TE	PTE	SE	Dsharia	SZ	LVRG	OE	TNGBL	LEASEAS	ROA	AGE
Mean	0.88	0.916	0.956	0.701	2020.5	2.366	78.758	12.512	51.196	2.676	20.028
S.D.	0.171	0.143	0.089	0.458	4438.8	4.958	61.267	27.315	38.551	8.183	4.79

Empirical Results

Efficiency scores of each *muḍārabah* and leasing firm are provided in tables 3 and 4, respectively. The TE in the *muḍārabah* firms is found 0.879 whereas, it is 0.902 in the leasing firms. It indicates that leasing firms are comparatively efficient in their operational efficiency in contrast to Sharī'ah-based *muḍārabah* firms. The *muḍārabah* results suggest that First Equity, Allied Rental, B.F, First Habib, First Imrooz, First Punjab, First Habib Bank and Standard Chartered are technical efficient firms whereas, First Fidelity and First IBL are found least technical efficient. The reason behind their inefficiency is their comparative utilization of higher inputs as compared to other *muḍārabah* firms. Moreover, income and investments are also gradually decreased in both these firms.

The highest TE is achieved by NBP, ORIX Leasing Pakistan and Standard Chartered amongst the leasing firms with an efficiency score of 1. The reason behind this is their larger size as compared to other firms which enable them to utilize their resources with the advantage of economies of scale to produce their outputs as compared to their rival firms. The

lowest TE found in Security Leasing Corporation with 0.63, which might be lower output with high consumption of inputs. The main reason behind inefficiency is a decline in total assets, total income and total investment over the study period.

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TABLE 3
Input and Output Variables *Muḍārabah* and Leasing Firms

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Muḍārabah Firms	TE	PTE	SE
Allied Rental	1	1	1
B.F	1	1	1
B.R.R. Guardian	0.807	0.855	0.944
Crescent Standard	0.9	0.964	0.928
First Al-Noor	0.762	0.829	0.93
First Elite Capital	0.931	0.992	0.939
First Equity	1	1	1
First Fidelity Leasing	0.637	0.661	0.95
First Habib	1	1	1
First Habib Bank	1	1	1
First IBL	0.664	0.728	0.898
First Imrooz	1	1	1
First National Bank	0.977	0.978	0.999
First Pak	0.841	1	0.841
First Paramount	0.858	0.888	0.966
First Prudential	0.728	0.855	0.858
First Punjab	1	1	1
First Treet Manufacturing	0.755	1	0.755
First UDL	0.786	0.827	0.954
KASB	0.922	0.936	
Muḍārabah Al-Mali	0.777	0.831	
Standard Chartered	1	1	1
Trust	0.878	0.903	0.974
Mean Efficiency	0.879	0.924	0.948
Maximum Efficiency	1	1	1
Minimum Efficiency	0.637	0.661	0.755

TE: Technical Efficiency, PTE: Pure, Technical Efficiency,
SE: Scale Efficiency

There is no difference amongst both industries in PTE results that suggests both Sharī'ah-based and conventional leasing firms are operating managerially at the same level. This may be because there may be the same type of employees with related skills and structure. Allied Rental, B.F, First Habib Bank, First Equity, First Habib, First Imrooz, First Punjab and Standard Chartered are found most efficient firms with an efficiency score of 1.These firms indicate that they are optimally using their inputs. The most inefficient firms are First Fidelity Leasing and First IBL with an efficiency of 0.66 and 0.72, respectively and the reason behind

inefficiency is the lack of good managerial skills in these firms. Therefore, the firm has to increase its managerial procedures to raise its PTE. Moreover, both these firms have also the lowest level of TE which implies that they need to world on their managerial inefficiency to improve both PTE and TE.

Amongst the leasing firms, Grays, NBP, and Standard Chartered are found pure technical efficient, these results indicate that they did good management so that's why they are purer technical efficient than other leasing firms. Saudi Pak and Security are found least pure technical efficient since their PTE scores are 0.74 and 0.71, respectively. The lowest TE reveals that firms failed to optimally utilize their resources.

SE in the conventional leasing firms is found higher than the Sharī'ah compliance *muḍārabah* firms. It also makes leasing firms comparatively more technically efficient than *muḍārabah* firms since the PTE was found the same in both sectors. Therefore, *muḍārabah* firms need to adjust their scale and have to work at the right scale to raise their TE. Allied Rental, B.F First Equity, First Habib, First Habib Bank, First Imrooz, First Punjab and Standard Chartered are found most scale efficient firms with an efficiency score of 1 which may be due to increases in their size. The lease SE is found in First Treet Manufacturing *Muḍārabah* 0.71; the size of this firm is decreased in terms of total assets over the study period.

The highest scale efficient leasing firms are Grays, NBP and Standard Chartered. They have a higher efficiency level due to operating at the correct level. The lowest SE is found in Security Leasing which is at 0.85 which may be attributed to its small size.

TABLE 4
Efficiency Results of Leasing Firms in Pakistan Mean Efficiency

Leasing Firms	TE	PTE	SE
Capital Assets	0.884	0.947	0.928
Grays	0.981	1	0.981
NBP	1	1	1
ORIX	1	1	1
Pak-Gulf	0.943	0.956	0.987
Saudi Pak	0.729	0.744	0.983
Security	0.632	0.71	0.857
SME	0.951	0.959	0.991
Standard Chartered	1	1	1
Mean Efficiency	0.902	0.924	0.969
Maximum Efficiency	1	1	1
Minimum Efficiency	0.632	0.71	0.857

TE: Technical Efficiency, PTE: Pure, Technical Efficiency,
SE: Scale Efficiency

The efficiency trend analysis of modraba and leasing firms is presented in figures 1 and 2, respectively. It indicates that TE and PTE of both *muḍārabah* and leasing firms have fallen whereas, SE almost remains the same. The market share of both *muḍārabah* and leasing firms

is fallen as compared to other FIs working in Pakistan (Asghar, 2015). Both their sectors have less accessibility in wide geographics of Pakistan in comparison to commercial banks. Therefore, both these sectors need to work on enhancing the accessibility and awareness of their products to increase their market share which may ultimately increase their efficiency.

The relationship of firm-specific variables with the efficiency of both FIs is provided in Table 5. Although the association between Sharī'ah compliance and efficiency scores is found positive, it is not significant. Therefore, we cannot establish that there is a significant difference in the level of efficiency of both these FIs. A positive and significant association of firm size (SZ) is found with SE. It indicates that large FIs are performing better than the small leasing firms in terms of size efficiency. Leverage (LVRG) is found significantly and positively associated with efficiency scores which indicates that both these FIs with larger debt are more efficient than their counterparts. It may be due to the higher cost associated with equity capital.
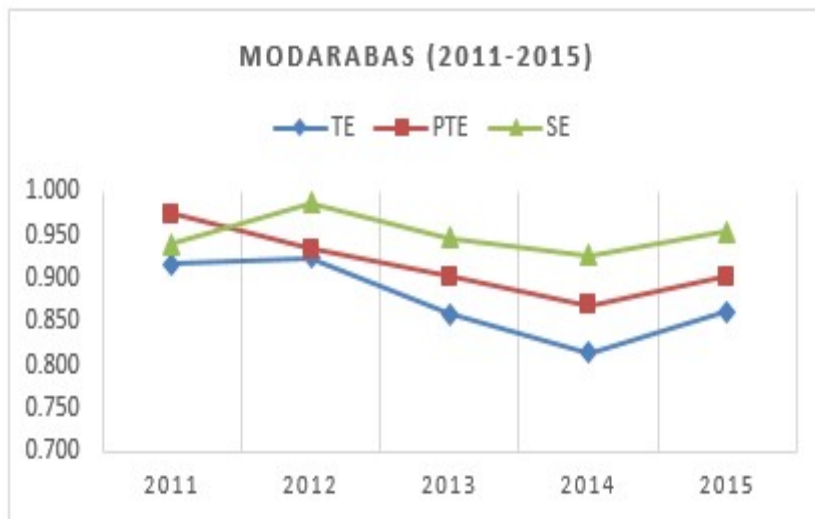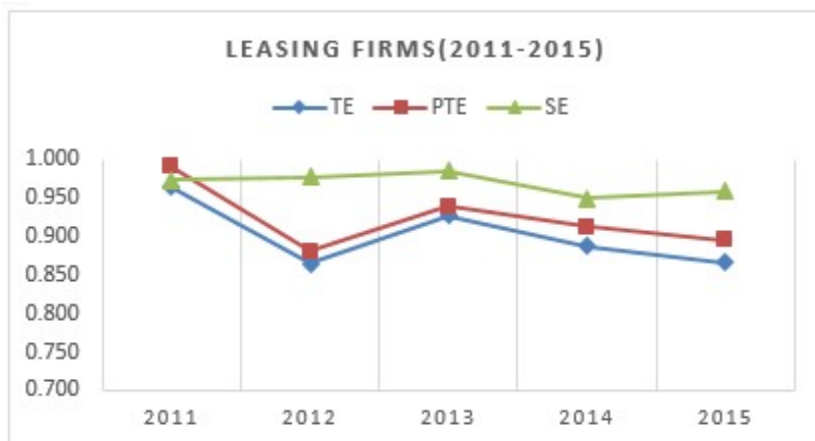

FIGURE 1. Efficiency of *Muḍārabah* firms in Pakistan

FIGURE 2. Efficiency of Leasing firms in Pakistan

TABLE 5
Tobit Regression Model Results

Variables	TE Coeff	TE *p*-value	PTE Coeff	PTE *p*-value	SE Coeff	SE *p*-value
C	0.960***	0.000	1.408***	0.000	0.843***	0.000
D_{Sharia}	0.020	0.682	0.020	0.694	0.019	0.510
SZ	0.021	0.314	-0.036	0.124	0.033***	0.007
LVRG	0.019*	0.095	0.028**	0.038	0.005	0.357
OE	-0.001**	0.024	-0.001***	0.003	0.000	0.141
TNGBL	-0.003***	0.000	-0.003***	0.002	-0.001***	0.002
LEASEAS	0.000	0.634	0.000	0.677	0.000	0.625
ROA	0.013***	0.000	0.018***	0.000	0.003*	0.085
AGE	-0.007	0.131	-0.007	0.135	-0.002	0.449
No. of Obs.		144		144		144
Log likelihood		-30.447		-36.990		11.102

Where: D_{Sharia}: Dummy variable with a value of 1 for *muḍārabah* firms otherwise 0

SZ; natural log of total assets, LVRG; Debt to Equity, OE: Operating Expenses to Total Expenses

TNGBL: Total Tangible Assets of the firm, LEASEAS: Assets kept for lease finance, ROA: EBIT

to Total Assets, AGE: total number of years after commencement of business

Operating expenses (OE) are found significantly and negatively related to the efficiency of the firms which implies that the firms with higher operating costs fail to produce at an optimal level. This is a fact since higher costs result in lower efficiency due to higher overall inputs. The same results were also found by Abel and Pierre (2016). Surprisingly, tangibility (TNGBL) is found significantly and negatively related to all of the efficiencies however, the coefficient is quite low. It implies that higher tangibility does not support these firms to enhance their efficiency level. This result is consistent with the finding of Alhassan and Kwaku (2016). Profitability (ROA) is significantly and positively related to all of the efficiencies. This association indicates that FIs with high profits can achieve not only operational efficiency (TE) but also managerial efficiency (PTE) and size efficiency (SE). The reason behind this relationship is the management's optimal utilization of resources to earn higher profits which ultimately enable them to be the most efficient firm. These results also indicate that most of the firm-specific variables are as expected which validates that the DEA efficiency scores are more related to conventional measure of performance.

Conclusion

In a Muslim majority country like Pakistan, it is important to investigate whether the Sharī'ah-compliant FIs can compete with the conventional FIs since they are recently evolved and have comparatively lower resources and products to compete in the market as compared to their conventional counterparts. This study compared the efficiency of Sharī'ah-compliant *muḍārabah* firms with conventional leasing firms over the period 2011 to 2015. Various conclusions can be deduced from this study, firstly, the efficiency results suggest that conventional leasing firms are slightly higher efficient in contrast to Sharī'ah-compliant *muḍārabah* firms

particularly in terms of; operating and size efficiency. Although the number of *muḍārabah* firms is higher still there is room for improvement. They need to improve their size to ultimately enhance their operational efficiency since managerial efficiency is found at the same level in both FIs.

Secondly, the operational efficiency and managerial efficiency are dropped over the study period suggesting that both FIs need to take care of their managerial efficiency since size efficiency did not change over the study period. Therefore, the management needs to reduce their cost of doing business or have to further enhance their outputs with better utilization in various financial markets. Thirdly, larger firms with higher leverage and profits and with lower operating expenses and tangibility can outperform their counterparts. Therefore, the shareholders need to select these firms while investing. Besides, management needs to finance its investment from debt and financing certificates rather than equity since the cost of debt is low. Moreover, they also need to reduce their operating expenses to further increase their level of efficiency.

In the future, researchers can measure the efficiency of *muḍārabah* and leasing firms with different input and output variable selection approaches or they can also compare the efficiency of both these FIs with other FIs operating in different Islamic countries for comprehensive evidence.

REFERENCES

Abel, S., & Pierre L. R. (2016). *An evaluation of the cost and revenue efficiency of the banking sector in Zimbabwe* (ERSA Working Paper No. 629). Economic Research Southern Africa, Cape Town, South Africa.

Afza, T., & Amir S. (2013). *Efficiency of mutual funds in Pakistan* (MS dissertation). COMSATS Institute of Information Technology, Lahore, Pakistan.

Afza, T., & Asghar, M. J. E. K. (2017). Efficiency of commercial banks in Pakistan: Application of SFA and value added approach. *Argumenta Oeconomica, 1*(38), 195-220. doi: https://doi.org/10.15611/aoe.2017.1.07

Alhassan, A. L., & Ohene-Asare, K. (2016). Competition and bank efficiency in emerging markets: Empirical evidence from Ghana. *African Journal of Economic and Management Studies, 7*(2), 268-288. doi: https://doi.org/10.1108/AJEMS-01-2014-0007

Aman, A., Sharif, S., & Arif, I. (2016). Comparison of Islamic banks with conventional banks: Evidence from an emerging market. *Journal of Management Sciences, 3*(1), 13-22. doi: https://doi.org/10.20547/jms.2014.1603102

Anbar, A., & Alper, D. (2011). Bank specific and macroeconomic determinants of commercial bank profitability: Empirical evidence from Turkey. *Business and Economics Research Journal, 2*(2), 139-152.

Asghar, M. J. K. A. (2015). *Efficiency analysis of financial institutions in Pakistan* (Ph.D dissertation). COMSATS Institute of Information Technology, Lahore, Pakistan.

Asghar, M. J. K. A., & Afza, T. (2013). Efficiency of *muḍārabah* and leasing companies in Pakistan. *Middle East Journal of Scientific Research, 17*(3), 305-314.

Asghar, M. J. K. A., Afza, T., & Bodla, M. A. (2013). Efficiency of mutual funds in Pakistan. *Middle East Journal of Scientific Research, 18*(8), 1055-1064.

Asghar, M. J. K. A., Khan, A. Z., & Khan, H. G. A. (2019). Economies of scale and efficiency of mutual funds in Pakistan. *Global Regional Review, 4*(1), 96-103. doi: https://doi.org/10.31703/grr.2019(IV-I).11

Ashraf, D., Rizwan, M. S., & L'Huillier, B. (2016). A net stable funding ratio for Islamic banks and its impact on financial stability: An international investigation. *Journal of Financial Stability, 25,* 47-57. doi: https://doi.org/10.20547/jms.2014.1603102

Berger, A. N., Klapper, L. F., & Turk-Ariss, R. (2017). Bank competition and financial stability. In J. A. Bikker., & L. Spierdijk (Eds.), *Handbook of competition in banking and finance.* Edward Elgar Publishing.

Brar, A., & Singh, S. (2016). Bancassurance: A study in relation to total income & branch network of private sector banks in India. *IOSR Journal of Business and Management (IOSR-JBM), 16,* 43-47. doi: https://doi.org/10.9790/487X-15010020243-47

Charnes, A., Cooper, W. W., & Rhodes, E., (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research, 2*(6), 429-444. doi: https://doi.org/10.1016/0377-2217(78)90138-8

Cummins, J. D., & Zi, H. (1998). Comparison of frontier efficiency methods: An application to the US life insurance industry. *Journal of Productivity Analysis, 10*(2), 131-152. doi: https://doi.org/10.1023/A:1026402922367

Cummins, J. D., & Rubio-Misas, M. (2006). Deregulation, consolidation, and efficiency: Evidence from the Spanish insurance industry. *Journal of Money, Credit and Banking, 38*(2), 323-355. doi: https://doi.org/10.1353/mcb.2006.0029

Groff, M. Z., & Morec, B. (2020). IFRS 9 transition effect on equity in a post bank recovery environment: The case of Slovenia. *Economic Research,* 1-17. doi: https://doi.org/10.1080/1331677X.2020.1804425

Marta D. I. (2009). The strategic drivers of efficiency and productivity in the leasing Industry. Paper presented at the: *9th Global Conference on business and economics.* Cambridge University, Cambridge, UK.

Masood, O., & Ashraf, M. (2012). Bank-specific and macroeconomic profitability determinants of Islamic banks. *Qualitative Research in Financial Markets, 4*(2/3), 255-268. doi: https://doi.org/10.1108/17554171211252565

Mondal, A., & Ghosh, S. K. (2012). Intellectual capital and financial performance of Indian banks. *Journal of Intellectual Capital, 13*(4), 515-530. doi: https://doi.org/10.1108/14691931211276115

Moussa, M. A. B. (2015). The determinants of bank liquidity: Case of Tunisia. *International Journal of Economics and Financial Issues, 5*(1), 249-29.

Noreen, U. (2009). *Cost efficiency and total factor productivity: An empirical analysis of insurance sector* (MS dissertation). Islamic International University, Islamabad, Pakistan

Pasiouras, F. (2008). International evidence on the impact of regulations and supervision on banks' technical efficiency: an application of two-stage data envelopment analysis. *Review of Quantitative Finance and Accounting, 30*(2), 187-223. doi: https://doi.org/10.1007/s11156-007-0046-7

Plantin, G. (2015). Shadow banking and bank capital regulation. *The Review of Financial Studies, 28*(1), pp.146-175. doi: https://doi.org/10.1093/rfs/hhu055

Rehman, H., Awan, M. S., & Ahmad, I. (2017). *Role of SMEs in the economy of Pakistan: A critical analysis.* FC College, Lahore, Pakistan.

Ryan, R. M., O'Toole, C. M., & McCann, F. (2014). Does bank market power affect SME financing constraints?. *Journal of Banking & Finance, 49,* 495-505. doi: https://doi.org/10.1016/j.jbankfin.2013.12.024

Samad, A. (2004). Performance of interest-free Islamic banks vis-a-vis Interest-based conventional banks of Bahrain. *International Journal of Economics, Management and Accounting, 12*(2), 1-15.

Siraj, K. K., & Pillai, P. S. (2012). Comparative study on performance of Islamic banks and conventional banks in GCC region. *Journal of Applied Finance and Banking, 2*(3), 123-163.

Tarus, D. K., Chekol, Y. B., & Mutwol, M. (2012). Determinants of net interest margins of commercial banks in Kenya: A panel study. *Procedia Economics and Finance, 2,* 199-208. doi: https://doi.org/10.1016/S2212-5671(12)00080-9

Valverde, S. C., & Fernandez, F. R. (2007). The determinants of bank margins in European banking. *Journal of Banking & Finance, 31*(7), 2043-2063. doi: https://doi.org/10.1016/j.jbankfin.2006.06.017

Yudistira, D. (2004). Efficiency in Islamic banking: An empirical analysis of eighteen banks. *Islamic Economic Studies, 12*(1), 1-19.

Zaher, T. S., & Kabir Hassan, M. (2001). A comparative literature survey of Islamic finance and banking. *Financial Markets, Institutions & Instruments, 10*(4), 155-199. doi: https://doi.org/10.1111/1468-0416.00044

Zhu, N., Shah, W. U. H., Kamal, M. A., & Yasmeen, R. (2020). Efficiency and productivity analysis of Pakistan's banking industry: A DEA approach. *International Journal of Finance & Economics.*

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