Measurement and Determinants of Financial Performance of Modaraba Companies: A Case Study of Pakistan

Qaisar Maqbool Khan, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan

***Rehana Kouser**, Department of Commerce, Bahauddin Zakariya University, Multan, Pakistan

*Corresponding author's email: rehanakouser@bzu.edu.pk

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ABSTRACT

Purpose: Profitability measurement is a comparative statistic that describes the relationships between overall profit and other financial determinants of the firm.

Design/Methodology/Approach: The focus of this study is to measure the technical (TE), pure technical (PTE) and scale efficiency (SE) scores via Data Envelopment Analysis (DEA) of modaraba companies operating in Pakistan. The next stage is to study the empirical relationship between profitability, liquidity, leverage, and macroeconomic performance drivers. Financial statement data for 2010 to 2019 have been analyzed.

Findings: Empirical findings of descriptive statistics, correlation and regression were measured. These empirical results reveal that capital ratio (CR) and operating expenses to net income (OENI) had negative correlation with PTE, SE and TE. Whereas the age of the firm had a negative correlation with PTE and TE and positive correlation with SE, moreover, exchange rate (EXC) PKR to USD, log of total assets (LTA) and management expenses (ME) had negative correlation with SE and positive correlation with PTE and TE. Furthermore, inflation (INF) had negative correlation with PTE and positive correlation with SE and TE. Moreover, number of certificates (NOC) had negative correlation with SE and TE and positive correlation with PTE.

Implications/Originality/Value: Findings will be helpful to the management and policy makers for enhancing future financial performance by concentrating on these economic factors. More detailed and extensive data from the financial and non-financial aspects is suggested to support the hypothesized relationship of efficiency measures and determinants.

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Introduction

All over the world financial sector plays integral part of a sustainable economy. It also plays vital role in under developing country like Pakistan. In Pakistan it contributes around 5% of total GDP. So, it is necessary to maintain a strict, stable, and robust financial system for the country's economic well-being. As per State Bank of Pakistan (SBP), yearly financial data analysis reports Pakistani financial sector is a blend and integration of several institutions including public sector banks, private sector banks, specialized banks, foreign banks, development finance institutions (DFIs), micro finance banks, leasing companies, investment banks, mutual fund companies, modarba companies, exchange companies, life insurance corporations, non-life insurance corporations, takaful companies, housing finance companies and venture capital. Among these all Modaraba companies have special importance for a developing economy.

So, first we discuss: what exactly is Modaraba? “Modaraba refers to a firm in which some people invest their money and managers or Modaraba contribute their managerial skills. As per agreed-upon percentage/ratio the profit is divided between the two parties. In the event of a loss, it is dispersed among financiers in proportion to their invested capital.”

Major Features of Modaraba Companies

- It is a contract in which one party offers management expertise and the other party offers capital funding to run the firm.
- Profit is distributed in accordance with the agreed-upon ratio.
- It might be "Multiple Purpose" or "Special Purpose."
- The "Modaraba Companies Modaraba Rules, 1981" must apply to this firm.
- Under Modaraba guidelines, the entity providing management expertise must own at least 10% of the company.
- Company can float a Modaraba after getting registered status for Modaraba floatation.
- A certificate from the Religious Board stating that the enterprise does not violate Islamic law is also sought.
- Each Modaraba firm must select a chartered accountant as auditor, who will confirm finances and objectives.

The optimal balance between liquidity and profitability has become an unavoidable reality that needs pragmatic managerial attention in practically every firm. Profitability and liquidity are two distinct but interrelated arguments that need management's attention depending on the form of the economic unit. It is preferable to have a corrective and optimal level of liquidity because it is inversely related to profitability. Although liquidity increases protect against default risk, trussing important cash in unproductive segments immediately harms profitability. Maintaining low level of liquidity is ensuring that extra cash to be invested in profitable ventures. This also leads to failure since the metaphor “short term survival is vital for long run” is widely accepted in financial literature. According to Saluja and Kumar (2012) the management of current assets and current liabilities in such a way that profitability is optimal, as a firm seeks to preserve a high level of current assets and potential minimum current liabilities to maintain solvency, has become a major problem. This proposition has a negative influence on the organization's profitability.

The failure of Modaraba (profit and loss sharing contracts to be implemented is related to a major agency problem that leads to moral hazards and adverse selection (Khan, 1985; Haque and Mirakhor, 1986; Bashir, 1996; Bashir, 2001; Al-Jarhi. Because Islamic partnership contracts incorporate both a principal and an agent, a conflict of interest may exist between both parties. In some circumstances, the agent may have other interests and increasing the firm's worth is not their top goal; in these circumstances, the entrepreneur may not devote their full attention to the

project (Samadzadeh & Melande, 2012).

Sarker (2000) claimed that the main cause of asymmetric information in Modaraba contracts is the entrepreneur's self-interest which causes inaccurately reporting the project's outcome. Later, it was observed that entrepreneurs with lower-than-average profits prefer stock contracts to debt contracts to minimize loss in the event of failure. (Iqbal & Lewis, 2009; Sapuana, 2016. Because of insufficient information about the entrepreneur, their background, and their talents, only 20% of projects in Islamic banks globally are financed via PLS contracts (Jouaber& Mehri, 2012).

Research Gap Analysis

Only few studies are conducted in Pakistan on modaraba firm performance measurement and firm specific and macroeconomic determinants of its performance. Further to analyze their significant impact on technical, pure technical and scale efficiency scores. Therefore, the following study will be helpful for future studies and researchers to get useful information regarding the measurement and determinants of financial performance in the Modaraba companies of Pakistan. Nevertheless, this study takes various determinants related to profitability, liquidity, leverage and macroeconomic measures as well and other economic factors.

Objectives of the study

- To measure the efficiency scores (technical, pure technical and scale of Modaraba Companies of Pakistan, during last ten years financial period of 2010 to 2019 via Data Envelopment Analysis (DEA).
- To measure and analyze the impact of profitability, liquidity, leverage and macroeconomic determinants on efficiency scores of Modaraba companies of Pakistan.

Research Questions of the study

1. Does age of the firm impact on TE, PTE & SE?
2. Does log of total assets of the firm impact on TE, PTE & SE?
3. Does number of certificates of the firm impact on TE, PTE & SE?
4. Does return on equity of the firm impact on TE, PTE & SE?
5. Does return on capital employed of the firm impact on TE, PTE & SE?
6. Does return on asset of the firm impact on TE, PTE & SE?
7. Does return on revenue of the firm impact on TE, PTE & SE?
8. Does operating expense to net income of the firm impact on TE, PTE & SE?
9. Does management expense of the firm impact on TE, PTE & SE?
10. Does earning per certificate of the firm impact on TE, PTE & SE?
11. Does current ratio of the firm have a significant impact on TE, PTE & SE?
12. Does total liabilities to total asset of the firm impact on TE, PTE & SE?
13. Does capital ratio of the firm impact on TE, PTE & SE?
14. Does breakup value per certificate of the firm impact on TE, PTE & SE?
15. Does gross domestic product of Pakistan impact on TE, PTE & SE?
16. Does rate of inflation of Pakistan impact on TE, PTE & SE?
17. Does rate of interest of Pakistan impact on TE, PTE & SE?
18. Does exchange rate of Pakistan impact on TE, PTE & SE?

Literature Review

In the literature review of finance and economics, the term the capacity to "liquidate" is referred to as "liquidity." to exchange economic assets for cash without diminishing fair value. Liquidity is a flow concept, and the capacity to identify such flows is essential, failure results in illiquid operations, which damages profitability. Monetary policy is affected by financial institutions' liquidity policies. (Nikolaou et al, 2009).

The prospect of such a loss creates the default risk horizon for financial institutions, lowering their earning potential. Future fund inflows and outflows, as well as future price realization, are the two fundamental components of funding liquidity. In a money market governed by increasing financing availability, financial institutions are more likely to realize higher prices (Drehmann & Nikolaou, 2012).

Chamberlain (2009) The importance of profitability and efficiency variables in influencing significant enterprises' investment behavior was investigated utilizing a long-term survival model akin to profitability interpretation as the investment foundation. The paper examines the underlying link using both historical and replacement cost data, indicating that the long-term survival model to patronize investment behavior displays the same compatibility as other techniques, although liquidity flows in the model appear to be the most effective metric.

Every business seeks to maintain appropriate profitability and liquidity since liquidity has a significant impact on the firm's earnings per share (EPS), portion which is distributed to shareholders. Because one rises, the other falls, liquidity and profitability are inextricably related. (Saleem & Rehman, 2011).

Lamberg and Valming (2009) investigated the link between liquidity strategies and business profitability during times of financial difficulty, as well as the relevance of core liquidity ratios. The data show that liquidity adaptation tactics have no meaningful influence on profitability. In the aftermath of the financial crisis, short-term borrowing and faster usage of liquidity have a positive impact on ROA. It is also suggested that the impact of the liquidity ratio remained stable over the research period, and that the most often utilized liquidity indicator, among others, was the working capital ratio.

Shahchera (2012) investigated the effects of liquid asset holdings on Iranian bank profitability and discovered a statistically significant influence of liquidity assets on profitability. The profit of a financial institution is highly influenced by the business cycle and adversely influenced by restrictions. It is proposed that relaxing regulatory restraints will increase profitability.

According to Aminu (2012), a firm's steady development and survival are connected to the preservation of an optimal balance between liquidity and profitability in accordance with the firm's plans and primary objectives.

According to Saluja and Kumar (2012), there is a negative link between profitability and liquidity, and there is a need to maintain equilibrium between both dimensions because if a business attempts to optimize profitability, its capacity to satisfy liabilities falls.

in different studies of this subject, it is determined that the literature is inconclusive and that further evidence on this critical problem in financial management is required. The goal is to add to the current research by examining the effects of firm-specific and macroeconomic drivers of profitability and liquidity on the profitability of Modaraba enterprises operating in Pakistan.

Hypotheses

The following hypotheses are formed based on the preceding literature review.

H₁: Modaraba firm specific factors have a significant impact on efficiency of Modaraba Companies.

H₂: Macroeconomic factors have a significant impact on efficiency of Modaraba Companies.

Variable Addressed in the Study

Sr.	Variable	Abbr.	Calculation
1	Technical Efficiency Score (CRS)	TE	Calculated via DEA

2	DV	Pure Efficiency (VRS)	Technical Score	PTE	Calculated via DEA
3	DV	Scale Score	Efficiency	SE	Calculated via DEA
4	Other Item	Age of the Company	Modaraba	AGE	Calculated from the date of commencement of Modaraba Company
5	Other Item	Log of Total Assets		LTA	Natural log of total assets as per end of the period as shown in balance sheet
6	Other Item	Number of Certificates (000)		NOC	Outstanding certificates at end of the period as shown in balance sheet
7	Efficiency Ratio/Profitability Ratio	Return on Equity		ROE	(Net Profit after Tax / Total Shareholders' Equity) *100
8	Efficiency Ratio/Profitability Ratio	Return on Capital Employed		ROCE	(Profit before Tax / (Total Assets – Current Liabilities)) *100
9	Efficiency Ratio/Profitability Ratio	Return on Assets		ROA	(Net Profit after Tax / Total Assets) *100
10	Efficiency Ratio/Profitability Ratio	Return on Revenue		ROR	(Net income / Revenue) *100
11	Efficiency Ratio/Profitability Ratio	Operating Expenses to Net Income		OENI	(Operating Expense / Net Income)*100
12	Efficiency Ratio/Profitability Ratio	Management Expenses		ME	(Remuneration to Advisor / Total Expenses) *100
13	Efficiency Ratio/Profitability Ratio	Earning Certificate	Per	EPC	Profit after Tax / No.of Certificates
14	Liquidity Ratio/Current Ratio	Current Assets to Current Liabilities (times)		CACL	Current Assets / Current Liabilities
15	Liquidity Ratio/Current Ratio	Total Liabilities to Total Assets (times)		TLTA	(Total liabilities / Total Assets) *100
16	Leverage Ratio	Capital Ratio		CR	(Total Shareholders' Equity / Total assets) *100
17	Leverage Ratio	Break Up Value Per Certificate		BUVPC	Modaraba Certificate Holders' Equity / No.of Modaraba Certificates
18	Macroeconomic Variable	Gross Domestic Product		GDP	GDP Growth (Annual %)
19	Macroeconomic Variable	Rate of Inflation		INF	Inflation, Consumer Prices (Annual %)
20	Macroeconomic Variable	Rate of Interest		INT	Interest Rate Spread (Lending Rate minus Deposit Rate, %)
21	Macroeconomic Variable	Exchange Rate		EXC	Official Exchange Rate (LCU per US\$, period average)

Model Description Following research models have been used to measure the relationship among prevailing variables:

Econometric Model and Variable Description

Model-1

$$TE_{it} = \alpha_0 + \beta_1 AGE_{it} + \beta_2 LTA_{it} + \beta_3 NOC_{it} + \beta_4 ROE_{it} + \beta_5 ROCE_{it} + \beta_6 ROA_{it} + \beta_7 ROR_{it} + \beta_8 OENI_{it} + \beta_9 ME_{it} + \beta_{10} EPC_{it} + \beta_{11} CACL_{it} + \beta_{12} TLTA_{it} + \beta_{13} CR_{it} + \beta_{14} BUVPC_{it} + \beta_{15} GDP_{it} + \beta_{16} INF_{it} + \beta_{17} INT_{it} + \beta_{18} EXC_{it} + \epsilon_{it}$$

Model-2

$$PTE_{it} = \alpha_0 + \beta_1 AGE_{it} + \beta_2 LTA_{it} + \beta_3 NOC_{it} + \beta_4 ROE_{it} + \beta_5 ROCE_{it} + \beta_6 ROA_{it} + \beta_7 ROR_{it} + \beta_8$$

$$OENI_{it} + \beta_9 ME_{it} + \beta_{10} EPC_{it} + \beta_{11} CACL_{it} + \beta_{12} TLTA_{it} + \beta_{13} CR_{it} + \beta_{14} BUVPC_{it} + \beta_{15} GDP_{it} + \beta_{16} INF_{it} + \beta_{17} INT_{it} + \beta_{18} EXC_{it} + \varepsilon_{it}$$

Model-3

$$SE_{it} = \alpha_0 + \beta_1 AGE_{it} + \beta_2 LTA_{it} + \beta_3 NOC_{it} + \beta_4 ROE_{it} + \beta_5 ROCE_{it} + \beta_6 ROA_{it} + \beta_7 ROR_{it} + \beta_8 OENI_{it} + \beta_9 ME_{it} + \beta_{10} EPC_{it} + \beta_{11} CACL_{it} + \beta_{12} TLTA_{it} + \beta_{13} CR_{it} + \beta_{14} BUVPC_{it} + \beta_{15} GDP_{it} + \beta_{16} INF_{it} + \beta_{17} INT_{it} + \beta_{18} EXC_{it} + \varepsilon_{it}$$

Population and Sample Selection

The study covers ten years period from 2010 to 2019. The population for the study was 25Modaraba companies currently operating in Pakistan, whereas only one company named Awwal Modarba commenced in 2014 which do not complete the tenure of the study duration of 10 years, so it was dropped and analyses was done for remaining 24 modaraba companies.

Data Source and Statistics

To fulfill the above-mentioned performance assessment goal, a non-parametric linear programming-based frontier methodology known as Data Envelopment Analysis (DEA) was applied. The benefit of employing DEA over its nearest rival technique Stochastic Frontier Analysis (SFA) is that no functional relationship between inputs and outputs or weights of inputs and outputs are required. Chambers et al, (2018).SFA efficiency ratings are partly determined by how effectively the selected functional form reflects the underlying production function. This is not the case with the DEA. DEA may accept numerous inputs and numerous outputs at the same time to calculate relative efficiency and produce a scalar assessment of overall performance. It can also study changes in efficiency because of input savings and determine if the causes for such changes are increases in scale (scale efficiency) or management techniques (pure technical efficiency). We employed a directional distance-based meta-frontier production function that has been effectively employed by other authors to conduct an in-depth investigation of the efficiency across different ownership groups. Bogetoft et al (2019); Chambers et al.(2010); Fare and Grosskopf (2011); Huang et al.(2012); Ray et al (2013); Yao et al.(2014).

Selection of Input and Output Variables for DEA Scores Calculation

Because the DEA efficiency results are highly influenced by sample size, the number and selection of input and output variables, some consideration of sample size adequacy is justified here. The sample size used in this study is consistent with the numerous guidelines available in the DEA literature. Cooper et al (2007) propose two such rules that may be stated together.

- The first rule of thumb states that the number of DMUs should be greater than equal to the product of inputs and outputs.
- While the second rule states that the number of DMUs should be at least three times the sum of several input and output variables.

Given that in this study number of inputs are 3 and number of outputs are also 3, the sample size used in the present study exceeds the above-cited criterion. Further, the number of DMUs in each sub-sector also fulfills the desirable size, as suggested by the above-mentioned rules of thumb to obtain sufficient discriminatory power.

INPUT	Reference	OUTPUT	Reference
Total Equity	ADA, <i>et al.</i> , (2014)	Long-Term Investments	Elyasiani, <i>et al.</i> , (2012)
Total Liabilities	Adjei-Frimpong, <i>et al.</i> , (2013)	Profit/(Loss) after Taxation	Drake, <i>et al.</i> , (2006).
Total Assets	Ramanathan, <i>et al.</i> , (2007).	Earning Per Certificate	Zohdi, <i>et al.</i> , (2012).

The study compiled secondary data from a database maintained by the State Bank of Pakistan's (SBP) statistical division, as well as published financial statements also consulted for each

modaraba company from 2010 to 2019, which were analyzed for descriptive statistics, correlation, multiple regressions, and other statistical tests.

Results and Analysis

Descriptive Analysis of Variables

Figure 1 Line plot

Table 1 Descriptive Statistics

Variable	Mean	SD	Max	Min	Skewness	Kurtosis
AGE	23.63	7.58	38.00	2.00	-0.69	3.34
BUVPC	13.31	7.88	46.72	0.33	1.95	8.04
CACL_W	5.16	5.61	21.81	0.47	1.68	5.03
CR	0.63	0.27	1.00	0.02	-0.64	2.19
EXC	98.42	11.42	121.82	81.71	0.32	2.58
INF	7.85	3.84	13.65	2.53	0.19	1.59
LTA	13.47	1.33	16.32	11.07	0.32	2.02
ME_W	0.10	0.09	0.34	0.01	1.13	3.39
NOC_W	44125.72	47707.50	195600.00	5863.00	2.12	6.85
OENI_W	2.24	2.35	8.94	0.29	1.82	5.30
PTE	0.71	0.33	1.00	0.03	-0.57	1.72
ROA	0.05	0.04	0.21	0.00	1.79	6.56
ROR_W	0.26	0.19	0.70	0.03	0.85	2.82
SE	0.85	0.21	1.00	0.02	-1.57	4.74
TE	0.60	0.34	1.00	0.02	-0.03	1.47
TLTA	0.35	0.27	0.98	0.02	0.76	2.39

The variable CACL, EPC, ME, NOC, OENI, ROCE, ROE and ROR were highly dispersed and having outliers. These variables were winsorized at 5% level of significance. Table 1 show the result of descriptive statistics and it provide the detail of the variable in the form of mean, standard deviation, maximum, minimum, skewness and kurtosis. The maximum value for PTE,

SE and TE was 1 and the minimum value was 0.03, 0.02 and 0.02 for each efficiency measure respectively. The overall mean efficiency using PTE, SE and TE was 0.71, 0.85, 0.60 respectively. Modaraba Companies specific determinants have an average value of 23.63 for age, 13.31 for BUVPC, 5.16 for CALC, 0.63 for CR, 98.42 for EXC, 7.85 for INF, 13.47 for LTA, 0.10 for ME W, 44125.72 for NOC_W, 2.24 for OENI_W, 0.71 for PTE, 0.05 for ROA, 0.26 for ROR_W, 0.85 for SE, 0.60 for TE and 0.35 for TLTA.

Table 2 Correlation and Multicollinearity Diagnostic

	AGE	BU VPC	CA CL	CR	EX C	INF	LTA	ME	NO C	OE NI	PTE	RO A	RO R	SE	TE
BU VP C	-0.09 0.18	-													
CA CL	0.02 (0.71	0.15 0.02													
	0.12 (0.06	-0.2 0.00	0.55												
CR	)	)	0.00												
EX C	0.36 0.00	0.02 0.76	-0.1 0.11	0.04 0.55											
	-0.35 0.00	0.03 0.69	0.06 0.37	0.02 0.76	0.84 0.00										
INF															
LT A	-0.18 0.00	0.13 0.04	0.38 0.00	0.56 0.00	0.06 0.37	0.05 0.40									
	0.13 0.05	0.11 0.10	0.23 0.00	0.03 0.65	0.17 0.01	0.12 0.05	0.11 0.10								
ME															
NO C	-0.16 0.01	0.03 0.64	0.22 0.00	0.08 0.19	0.09 0.14	0.09 0.15	0.62 0.00	0.23 0.00							
OE NI	0.03 0.65	0.14 0.03	0.17 0.01	0.02 0.73	0.19 0.00	0.14 0.04	0.04 0.50	-0.5 0.00	0.14 0.03						
PT E	-0.22 0.00	0.22 0.00	0.09 0.17	0.15 0.02	0.06 0.40	0.03 0.64	0.29 0.00	0.22 0.00	0.27 0.00	0.29 0.00					
RO A	-0.33 0.00	0.36 0.00	0.02 0.81	0.06 0.39	0.18 0.01	0.12 0.07	0.06 0.38	0.25 0.00	0.14 0.03	0.37 0.00	0.3 0.00				
RO R	-0.05 0.47	0.06 0.39	0.26 0.00	0.23 0.00	0.15 0.02	0.1 0.12	0.08 0.23	0.55 0.00	0.38 0.00	0.52 0.00	0.27 0.00	0.52 0.00			
SE	0.12 0.05	0.04 0.51	0.08 0.23	0.12 0.06	0.02 0.74	0.07 0.31	0.15 0.02	0.06 0.33	0.41 0.00	0.17 0.01	0.03 0.65	0.08 0.20	0.08 0.23		
TE	-0.11 0.08	0.21 0.00	0.13 0.04	-0.2 0.00	0.02 0.79	0.02 0.72	0.16 0.01	0.16 0.01	0.01 0.93	0.35 0.00	0.84 0.00	0.31 0.00	0.2 0.00	0.49 0.00	
TL TA	-0.11 0.08	0.19 0.00	0.63 0.00	0.96 0.00	0.02 0.75	0.00 0.97	0.49 0.00	0.00 0.95	0.06 0.35	0.02 0.76	0.07 0.27	0.03 0.60	0.25 0.00	0.10 0.13	0.12 0.07
VI F	1.61 1	1.24 2	1.89 6	2.57 5	3.56 7	3.41 6	2.87 5	1.92 3	2.58 2	1.60 3	-	2.02 5	2.79 6	-	-

p-value for the significance of the correlation are shown in brackets.

Table 2 presents correlation matrix along significant level in bracket with VIF for each profitability measures of Modaraba Companies specific and macroeconomic variables. Concerning Modaraba Companies specific variables, the results indicate that capital ratio CR and Operating Expenses to Net Income OENI had negative correlation with PTE, SE and TE. Whereas the Age had a negative correlation with PTE and TE and positive correlation with SE, moreover Exchange Rate EXC, Log of Total Assets LTA and Management Expenses ME had negative correlation with SE and positive correlation with PTE and TE. Furthermore, Inflation INF had negative correlation with PTE and positive correlation with SE and TE. Moreover, Number of Certificates NOC had negative correlation with SE and TE and positive correlation with PTE.

Table 3 Regression Modeling

Variable	TE			PTE			SE		
	Pool	FE	RE	Pool	FE	RE	Pool	FE	RE
AGE	-0.001 0.003	0.005 0.022	-0.003 0.007	-0.007 0.003**	0.010 0.021	-0.008 0.007	0.005 0.002***	-0.008 0.017	0.004 0.004
BUVPC	0.003 0.003	-0.015 0.007**	-0.006 0.005	0.005 0.003*	-0.021 0.007***	-0.006 0.005	-0.001 0.002	0.005 0.005	-0.001 0.003
CACL	0.018 0.005***	0.006 0.005	0.008 0.005*	0.015 0.005***	0.000 0.005	0.003 0.004	0.005 0.003	0.007 0.004*	0.006 0.003*
CR	-0.293 0.113**	-0.029 0.150	-0.152 0.134	-0.174 0.112	0.183 0.145	0.022 0.130	-0.150 0.071**	-0.218 0.115*	-0.178 0.093*
EXC	0.008 0.003***	0.007 0.004*	0.008 0.002***	0.007 0.003**	0.004 0.004	0.007 0.002***	0.003 0.002	0.005 0.003*	0.003 0.002*
INF	0.016 0.009*	0.016 0.009*	0.014 0.007**	0.007 0.009	0.011 0.009	0.006 0.007	0.011 0.006*	0.006 0.007	0.010 0.005**
LTA	0.054 0.024**	-0.046 0.038	-0.024 0.032	0.042 0.024*	-0.021 0.037	-0.019 0.031	0.017 0.015	-0.025 0.029	0.005 0.021
ME	-0.353 0.279	-0.392 0.24	-0.375 0.235	0.050 0.278	-0.102 0.232	-0.086 0.227	-0.437 0.177**	-0.390 0.185**	-0.383 0.176**
NOC	0.000 0.000*	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000***	0.000 0.000**	0.000 0.000***	0.000 0.000***	0.000 0.000***
OENI	-0.040 0.010***	-0.036 0.009** *	-0.036 0.009***	-0.023 0.010**	-0.03 0.009***	-0.027 0.009***	-0.023 0.006***	-0.012 0.007	-0.017 0.007**
ROA	1.830 0.711**	1.940 0.683** *	2.201 0.643***	1.137 0.708	0.961 0.660	1.219 0.622*	0.970 0.450**	1.157 0.525**	1.212 0.472**
ROR	0.089 0.165	0.156 0.154	0.098 0.147	0.072 0.164	0.225 0.148	0.155 0.143	-0.007 0.104	-0.049 0.118	-0.046 0.109
C	-0.924 0.518*	0.488 0.642	0.220 0.540	-0.544 0.515	0.283 0.620	0.368 0.523	0.332 0.327	1.024 0.493**	0.510 0.378
R ²	0.302	0.673	0.267	0.292	0.688	0.193	0.296	0.513	0.226
S.E. of reg	0.290	0.209	0.211	0.288	0.202	0.207	0.183	0.161	0.160
SS resid	19.038	8.920	10.143	18.875	8.328	9.690	7.612	5.262	5.836
F-statistic	8.200	12.004	6.879	7.792	12.823	4.513	7.954	6.148	5.534
Durbin-Watson	0.857	1.555	1.410	0.926	1.822	1.629	1.295	1.853	1.246
LR Test	10.061 0.000			11.232 0.000			3.961 0.000		
Hausman Test	0.000 1.000			0.000 1.000			0.000 1.000		

Pool= Pooled OLS, FE=Fixed Effect, RE=Random Effect

Regression Analysis

Panel data regression modeling have three different model including, Pool regression model, Fixed effect model and random effect model for TE as dependent variable. Also, for PTE and SE, we have used pool, fixed and random effects models. If we check TE then we can see likelihood ratio is significant which shows that fixed effect is better than pooled effect, Value of Hausman test is 0.00, which shows that random effects model is better than fixed effect. In the second level, fixed effect is better again. Fixed effect is better than pooled effect and value of Hausman test is 0.00 which shows that random effect is best suited for this model, as compared to fixed effect. For SE, the fixed effect model is better than pooled effect and the value of Hausman test is 0.00 which shows that random effect is suitable for SE as compared to the fixed effect. From here if we estimate for SE model made for it values are lesser then other two DV models. If we want to suggest overall then we can say SE is working good and best fit, because its criterion is lesser then all other. Furthermore, the best suited model will be random effect model. The results with SE as dependent variable have minimum standard error of the regression model and similarly the sum of square S.S of residual is also minimum for SE, so we found the model with SE as the best selected model. The value of LR test for SE shows that the random effect model is better than the Pool estimation. And the p-value of Hausman test shows that the random effect model is highly significant then fixed effect model. The best fitted model for SE is random effect model and, in this model, the CALC_W, CR, EXC, INF, ME_W, NOC_W, OENI_W and ROA is found significant.

Conclusions and Recommendations

In the current study the financial performance of Modaraba Companies of Pakistan was analyzed in depth by using the determinants of its profitability. The financial performance of Modaraba Companies was measured based on three dependent variables calculated via data envelopment analysis DEA: technical efficiency TE, pure technical efficiency PTE, and scale efficiency SE. Using these three variables user can confine the key operations of Modaraba Companies.

The results of this study indicate that performance determinant variables concerning specifically to Modaraba Companies, the results indicate that CR and OENI had negative correlation with PTE, SE and TE. Whereas the age had a negative correlation with PTE and TE and positive correlation with SE, moreover EXC, LTA and ME had negative correlation with SE and positive correlation with PTE and TE. Furthermore, INF had negative correlation with PTE and positive correlation with SE and TE. Moreover, NOC had negative correlation with SE and TE and positive correlation with PTE.

In the early modern period, Pakistan's Modaraba Companies has been enthralled to enhancements in design and size with the help of some significant reform procedures and a powerful macroeconomic basis. Pakistan's Modaraba Companies have observed a swift because of the huge transformation of aggregated resources from public to private firms, and this largely resulted in minimized resource concentration in this industry. Denationalization is the chief cause for these huge enhancements and has influenced the presentation of insurance firm design in the future. Regardless of the denationalization of the insurance firm, the intercession wave has not been minimized.

The outcomes of the given research are concentrated on the Modaraba Companies. And these outcomes can be helpful for the financial support seekers for their business entities and provide an important direction to the administrators to effectively utilize the assets as well as resources in an extra effective manner. Moreover, for the authenticity and reliability of outcome, it is suggested that analysts can enlarge the data gathering and compare the Pakistani Modaraba Companies sector to other nation's Modaraba Companies sector to better understand the link among variables both external and internal. Additionally, the analyst can also lead necessary

study comprising contrast conduct elements that may affect the insurer advantage. Future research can be conducted with other verity of Modaraba Companies specific and macroeconomic variables along with extension of larger time for the study.

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Appendix

Sr #	DMU TITLE	Date of Commencement
1	Allied Rental Modaraba	2007
2	Awwal Modarba	2014
3	B.F. Modaraba	1989
4	B.R.R. Guardian Modaraba	1984
5	Crescent Standard Modaraba	1984
6	First Al-Noor Modaraba	1992
7	First Elite Capital Modaraba	1989
8	First Equity Modaraba	1991
9	First Fidelity Leasing Modaraba	1980
10	First Habib Modaraba	1985
11	First Imrooz Modaraba	1993
12	First National Bank Modaraba	2003
13	First Pak Modaraba	1991
14	First Paramount Modaraba	1980
15	First Prudential Modaraba	1989
16	First Punjab Modaraba	1992
17	First Treet Manufacturing Modaraba	2005
18	First UDL Modaraba	1991
19	IBL Modaraba	1989
20	KASB Modaraba	1980
21	Modaraba Al-Mali	1987
22	Orix Modarba	1987
23	Popular Islamic Modarba	1994
24	Sindh Modarba	1984
25	Trust Modaraba	1991

Frequency Table and Graph of Input & Output Variables for DEA Analysis

Input	Frequency	Output	Frequency
Deposits	9	loans and advances	14
Labor/ Number of employees	8	Deposits	5
Fixed assets	7	Financial Investments	4
Physical capital	5	Total other income	3
Personnel expenses	4	Non-interest income	3
Equity	3	Other earning assets	2
Operating Expense	3	Interest incomes	2
Interest expense	3	Financial earning assets	1
Price of Deposits	2	Total Operating Income,	1
Price of Labour	2	Profitability ,	1
Price of capital	2	Bank capitalization	1
Capital	2	Permanent assets	1
Personal cost	2	Off-balance sheet activities	1

Short term funding	2	Equity	1
Total Asset	2	Return on Equity	1
Shareholders' Equity	1	Earnings per share (EPS)	1
Return on owner's equity	1	Period Net Income/Loss	1
Equity capital	1	Surplus Income	1
Loan Loss Provisions	1	Net Income	1
Non- Interest expense	1	Liquid Assets	1
Factor Productivity Change	1	Non-performing loans	1
EfficiencyChange	1	Total Expense	1
Technological Change	1	Securities	1
Foreign-domestic	1	Sales Growth	1
Loanable funds	1	Quick Ratio	1
Administrative expenses	1	Current Ratio	1
Number of branches	1		
Liabilities	1		
Systematic risk,	1		
Price/earnings ratio	1		
Unsystematic risk,	1		
Borrowed funds	1		
Total Revenue	1		
Total Expense	1		

Sr #	Country / Region	Financial Period Analyzed	Input Parameters	Output Parameters	Reference
1	Turkey	2006 - 2009	Deposits, Fixed Assets, Shareholders' Equity, Personnel Expenses	Financial earning assets, Total Operating Income, Loans	Arslan, B. G., & Ergec, E. H. (2010). The efficiency of participation and conventional banks in Turkey: using data envelopment analysis. <i>International Research Journal of Finance and Economics</i> , 57, 156-168.
2	Hong Kong	1995 to 2001	Labor, Deposits Capital, Personal Expense, Other Operating Expense, Loan Loss Provisions	Net income, interest commission income, Total other income	Drake, L., Hall, M. J., & Simper, R. (2006). The impact of macroeconomic and regulatory factors on bank efficiency: A non-parametric analysis of Hong Kong's banking system. <i>Journal of Banking & Finance</i> , 30(5), 1443-1466.
3	China	1993-2000	Interest expense, price of deposits, price of labor, price of capital	Loans, deposits, non-interest income	Xiaogang, C., Skully, M., & Brown, K. (2005). Banking efficiency in China: Application of DEA to pre- and post-deregulation eras: 1993–2000. <i>China Economic Review</i> , 16(3), 229-245.
4	Turkey	1994 and 2001	Total Factor Productivity Change, EfficiencyChange,	Profitability, Bankcapitalization, Loanratio, Return	Aysan, A. F., & Ceyhan, Ş. P. (2008). What determines the banking sector performance in

			Technological Change, Foreign-domestic	on Equity	globalized financial markets? The case of Turkey. <i>Physica A: Statistical Mechanics and its Applications</i> , 387(7), 1593-1602.
5	Sri Lanka	2003 to 2007	loanable funds, physical capital and personal cost	Loans deployed	Wanniarachchige, M. K., & Suzuki, Y. (2010). Bank competition and efficiency: The case of Sri Lanka. <i>Asia Pacific World</i> , 1(1), 117-131.
6	Brazil	2000-2004	Personnel expenses, Administrative expenses, Number of employees, Number of branches	Permanent assets, Equity (ROE)	Wanke, P., & Barros, C. (2014). Two-stage DEA: An application to major Brazilian banks. <i>Expert systems with applications</i> , 41(5), 2337-2344.
7	Bahrain, Kuwait, Saudi, UAE	2000-2004	Fixed assets, Deposits, Short term funding, Equity, Personnel expenses	Loans, Other earning assets	Ramanathan, R. (2007). Performance of banks in countries of the Gulf Cooperation Council. <i>International journal of productivity and performance management</i> , 56(2), 137-154.
8	European union	1992-1997	Price of labor, Price of capital, Price of deposits, Operating costs + interest expenses	Loans (All forms of performing and nonperforming loans), Deposits, Financial Investments	Cavallo, L., & Rossi, S. P. (2002). Do environmental variables affect the performance and technical efficiency of the European banking systems? A parametric analysis using the stochastic frontier approach. <i>The European Journal of Finance</i> , 8(1), 123-146.
9	Saudia	2003-2008	Operating expenses, Equity capital, and deposits	loans and advances (net)	AlKhathlan, K., & Malik, S. A. (2010). Are Saudi banks efficient? Evidence using data envelopment analysis (DEA). <i>International journal of economics and finance</i> , 2(2), 53-58.
10	Tehran	Oct, Nov, Dec 2010	beta index or systematic risk, sigma index or unsystematic risk, price/earnings ratio (P/E), return on owners' equity, and total assets	Earnings per share (EPS), sales growth, current ratio, quick ratio, and net income.	Zohdi, M., Marjani, A. B., Najafabadi, A. M., Alvani, J., & Dalv, M. R. (2012). Data envelopment analysis (DEA) based performance evaluation system for investment companies: Case study of Tehran Stock Exchange. <i>African Journal of Business Management</i> , 6(16), 5573-5577.
11	Ghana	2001 - 2010	Deposits, Liabilities, labor, Capital expenses to fixed assets, Interest expenses	Loans, Demand and time deposits, Investments	Adjei-Frimpong, K. (2013). <i>Bank efficiency and bank competition: empirical evidence from Ghana's banking industry</i> (Doctoral dissertation, Lincoln University).
12	Turkey	1990-2000	Labor, funds, Borrowed Physical capital	Total loans	Alpay, S., & Hassan, M. K. (2007, November). A comparative efficiency analysis of interest free financial institutions and conventional banks: A case study on Turkey. In <i>Economic Research</i>

Forum Working Papers (No. 0714).

13	Malaysia, Turkey	2009-2011	Total assets and equities	Total deposits and period net income/loss	ADA, A. A., & DALKILIÇ, N. (2014). Efficiency Analysis in Islamic Banks: A Study for Malaysia and Turkey. <i>Journal of Brsa Banking & Financial Markets</i> , 8(1).
14	India	2000-2010.	Fixed assets, Deposits, Number of employees	Loans and investments	Karimzadeh, M. (2012). Efficiency analysis by using Data Envelop Analysis model: evidence from Indian banks. <i>International Journal of Latest Trends in Finance and Economic Sciences</i> , 2(3), 228-237.
15	Greece	1993-1998	Labor, Physical capital, deposits	Loan, Investment, Liquid Assets	Tsionas, E. G., Lolos, S. E., & Christopoulos, D. K. (2003). The performance of the Greek banking system in view of the EMU: results from a non-parametric approach. <i>Economic modelling</i> , 20(3), 571-592.
16	Chinese	2003–2011	Fixed assets, Asset value of physical capital, Labor, Number of full-time employees hired	Non-interest income (fees, commissions, investment and other business income), Interest incomes, Non-performing loans or bad loans	Wang, K., Huang, W., Wu, J., & Liu, Y. N. (2014). Efficiency measures of the Chinese commercial banking system using an additive two-stage DEA. <i>Omega</i> , 44, 5-20.
17	Turkey	2012 and 2014	Total Revenues, Total Expenses	Total Expense for Goals and Services” and "Surplus Income"	Özbek, A. (2015). Efficiency analysis of the Turkish red crescent between 2012 and 2014. <i>International Journal of Economics and Finance</i> , 7(9), 322-334.
18	USA	1997– 2007	Labor; (ii) Fixed assets; (iii) Deposits; and (iv) Non-interest expenses	Loans (total loans and leases, net of unearned income), (ii) securities (iii) off-balance sheet activities total noninterest income	Elyasiani, E., & Wang, Y. (2012). Bank holding company diversification and production efficiency. <i>Applied Financial Economics</i> , 22(17), 1409-1428.
19	Bahrain	2000-2004	Fixed assets, Deposits, Short term funding, Equity, Personnel expenses	Loans, Other earning assets	Ramanathan, R. (2007). Performance of banks in countries of the Gulf Cooperation Council. <i>International journal of productivity and performance management</i> , 56(2), 137-154.
20	Australia	1995 to 1999	Labor and Physical capital	Deposits and Loans	Neal, P. (2004). X-efficiency and productivity change in Australian banking. <i>Australian Economic Papers</i> , 43(2), 174-191.

Determinants of financial Performance of Modaraba Companies

First Author Name	Year Of Publication	Dependent Variable	Independent Variable (Firm Specific & Macro Economic)	Regression Method	Reference (APA style)
Wasim ul Rehman.	2011	E.P.S., ROE,ROI,	Financial Performance.	VAIC .Value Added Intellectual Coefficients.	Rahman,w.u.chaudhary,AR.Rahman H.u.,zahid A.(2011)Intellectual capital performance and it's impact on corporate performance:An empirical evidence from MODARBA sector of PakistaN,Australian Journal of Business and management research,1(5),8.
Saher Aqel	2014	Di. ROA.	Firm Size .Leverage. Profitability. Liquidity.	Multicollinearity Analysis .Regression Analysis.	Abel,S.(2014).The determinants of financial reporting on the internet:the case of companies listed in the Istanbul stock exchange.
Easily Rehman.	2011	E.P.S.,ROE,ROI,	Financial Performance.	VAIC .Value Added Intellectual Coefficients.	Rahman,w.u.chaudhary,AR.Rahman H.u.,zahid A.(2011)Intellectual capital performance and it's impact on corporate performance:An empirical evidence from MODARBA sector of PakistaN,Australian Journal of Business and management research,1(5),8.
Talat Afza.	2014	T.C,ROE,ROR,F .C,O.C.,.	Profit Efficiency, Technical Efficiency, Cost Efficiency,	EMPERICAL STUDY,FA,FDH,DEA, DHA.	Gaza,R,Asghar,M.J.E.K.A.(2014)Ef ficiency of modarba and leasing companies in Pakistan.procedia,social and behavioral sciences,109,470-482.
Wasim ul Rehman.	2011	E.P.S.,ROE,ROI,	Financial Performance.	VAIC .Value Added Intellectual Coefficients.	Rahman,w.u.chaudhary,AR.Rahman H.u.,zahid A.(2011)Intellectual capital performance and it's impact on corporate performance:An empirical evidence from MODARBA sector of PakistaN,Australian Journal of Business and management research,1(5),8.
Sara Zafar, Aliza Nor	2019	ROI, Agency Cost, Risk	Monitoring Cost, Taxation, Firm's Size, Firm's Age, Financial Leverage	Basic Model, Extended Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Muham mad Azam	2019	FP, EAT	CSR, DIV(Dividend Distributon)	Epistemological Model Of The Unity	Azam, M., Akhtar, J., Ali, S. A., & Mohy-Ud-Din, K. (2019). The moderating role of Shariah compliance on the relationship between firm profitability and CSR activities. <i>International Journal of Ethics and Systems</i> .
Sara Zafar, Aliza	2019	ROI, Agency Cost, Risk	Monitoring Cost, Taxation, Firm's Size,	Basic Model, Extended Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH &

Nor			Firm's Age, Financial Leverage		MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Muham mad Azam	2019	FP, EAT	CSR, DIV(Dividend Distribution)	Epistemological Model Of The Unity	Azam, M., Akhtar, J., Ali, S. A., & Mohy-Ud-Din, K. (2019). The moderating role of Shariah compliance on the relationship between firm profitability and CSR activities. <i>International Journal of Ethics and Systems</i> .
Sara Zafar, Aliza Nor	2019	ROI, Agency Cost, Risk	Monitoring Cost, Taxation, Firm's Size, Firm's Age, Financial Leverage	Basic Model, Extended Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Muham mad Azam	2019	FP, EAT	CSR, DIV(Dividend distribution)	Epistemological Model Of The Unity	Azam, M., Akhtar, J., Ali, S. A., & Mohy-Ud-Din, K. (2019). The moderating role of Shariah compliance on the relationship between firm profitability and CSR activities. <i>International Journal of Ethics and Systems</i> .
Sara Zafar, Aliza Nor	2019	ROI, Agency Cost, Risk	Monitoring Cost, Taxation, Firm's Size, Firm's Age, Financial Leverage	Basic Model, Extended Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Muham mad Azam	2019	FP, EAT	CSR, DIV(Dividend distribution)	Epistemological Model Of The Unity	Azam, M., Akhtar, J., Ali, S. A., & Mohy-Ud-Din, K. (2019). The moderating role of Shariah compliance on the relationship between firm profitability and CSR activities. <i>International Journal of Ethics and Systems</i> .
Talat Afza.	2014	T.C,ROE,ROR,F .C,O.C.,	Profit Efficiency, Technical Efficiency, Cost Efficiency,	EMPERICAL STUDY,FA,FDH,DEA, DHA.	Gaza,R,Asghar,M.J.E.K.A.(2014)Ef ficiency of modarba and leasing companies in Pakistan.procedia,social and behavioral sciences,109,470-482.
Wasim ul Rehman.	2011	E.P.S.,ROE,ROI,	Financial Performance.	VAIC .Value Added Intellectual Coefficients.	Rahman,w.u.chaudhary,AR.Rahman H.u.,zahid A.(2011)Intellectual capital performance and its impact on corporate performance: An empirical evidence from MODARBA sector of Pakistan, Australian Journal of Business and management research,1(5),8.
Irfan Ullah, Wiqar Ahmad And Arshad		ROA And Investment Decisions.	The Monetary Stimulus, The Religiosity Stimulus And The Lubricants	In A Qualitative Research, Semi-Structured Interviews Were Conducted With The Investors Of The Scam Followed By	Ullah, I., Ahmad, W., & Ali, A. (2020). Determinants of investment decision in a Ponzi scheme: Investors' perspective on the Modaraba scam. <i>Journal of Financial Crime</i> .

Ali				Thematic Analysis To Conclude On The Subject Matter.	
Sara Zafar, Eliza Nor	2019	ROI, AGENCY COST, RISK	Firm's Age, Size And Financial Leverage	Data Will Be Collected From The Annual Reports Of Mudarabah Companies Listed In The Pakistan Stock Exchange (PSX).	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Sara Zafar	2019	ROI	Agency Cost, Monitoring Cost, Taxation, Firm Size. Firm Age, Risk	Regression Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Sara Zafar	2019	ROI	Agency Cost, Monitoring Cost, Taxation, Firm Size. Firm Age, Risk	Regression Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Sara Zafar	2019	ROI	Agency Cost, Monitoring Cost, Taxation, Firm Size. Firm Age, Risk	Regression Model	Zafar, S., & Nor, E. (2019). DETERMINANTS OF ROI IN MUDARABAH & MUSHARAKAH CONTRACTS IN PAKISTAN: AN APPRAISAL. <i>International Journal of Business and Society</i> , 20(3), 1112-1129.
Satwind er Singh	2017	TQ, ROA, ROE	Board Size, Board Independence ,Age, Size, Leverage	Estimation Method	Singh, S., Tabassum, N., Darwish, T. K., & Batsakis, G. (2018). Corporate governance and Tobin's Q as a measure of organizational performance. <i>British Journal of Management</i> , 29(1), 171-190.
Muham mad Jam-E-Kausar Ali Asghar	2013	Labour & Business Services investment In Lease Finance lease & Investment Income:	Total Profit total Cost: Price Of Debt: Debt: Price Of L & Labour & Business Services investment total Income	Parametric Stochastic Frontier Approach (SFA)	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. <i>Procedia-Social and Behavioral Sciences</i> , 109, 470-482.
Talat Afza	2014	Total Income From Sharia Compliance. Investments And Lease Finance Income		Stochastic Frontier Approach (SFA).	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. <i>Procedia-Social and Behavioral Sciences</i> , 109, 470-482.
Muham mad Jam-E-Kausar Ali	2013	Labour & Business Services investment In Lease Finance	Total Profit total Cost: Price Of Debt :Debt: Price Of L & BS:Labour	Parametric Stochastic Frontier Approach (SFA)	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. <i>Procedia-Social and Behavioral Sciences</i> , 109, 470-482.

Asghar		lease & Investment Income:	& Business Services investment total Income		
Talat Afzaa	2014	Total Income From Sharia Compliance. Investments And Lease Finance Income		Stochastic Frontier Approach (SFA).	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. Procedia-Social and Behavioral Sciences, 109, 470-482.
Muhammad Jam-E-Kausar Ali Asghar	2013	Economic Value Added (Financial Performance)	Total Profit total Cost: Price of Debt: Debt: Price of L & BS:Labour & Business Services investment total Income	Parametric Stochastic Frontier Approach (SFA)	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. Procedia-Social and Behavioral Sciences, 109, 470-482.
Talat Afzaa	2014	EVA	Leverage, Liquidity, Size, Risk, And Tangibility	Stochastic Frontier Approach (SFA).	Afza, T., & Asghar, M. J. E. K. A. (2014). Efficiency of modaraba and leasing companies in Pakistan. Procedia-Social and Behavioral Sciences, 109, 470-482.
MA Siddique	2020	ROI,ROA	Interest Rate, GDP, Number Of Employee	Uses Salam, Murabaha, Diminishing Musharakah (DM), Ijarah, And Istisna As Dependent Variables. Four Fully Fledged And Five Standalone Of Conventional Banks Were Selected. Unbalanced Panel Data For 2004 To 2017	Siddique, M.A., Haq, M. and Rahim, M., 2020. The Impact of the Islamic Banking Industry on Economic Growth and Poverty Reduction in Pakistan. In Enhancing Financial Inclusion through Islamic Finance, Volume II (pp. 259-279). Palgrave Macmillan, Cham.
WH Ahmad AA ALI	2020	ROA	Interest Rate, GDP, Number Of Employee	In A Qualitative Research, Semi-Structured Interviews Were Conducted With The Investors Of The Scam Followed By Thematic Analysis To Conclude On The Subject Matter	Ullah, I., Ahmad, W. and Ali, A., 2020. Determinants of investment decision in a Ponzi scheme: Investors' perspective on the Modaraba scam. Journal of Financial Crime.
Islam,A hmad	2019	Profit And Loss Sharing, Islamic Microfinance, Poverty Alleviation	Identification, Measurement, Monitoring,Controlling,Religiosity,Knowledge,Entrepreneurship	Chi Square, RMSEA,NFI,TLI	Islam, R., & Ahmad, R. (2020). Applicability of Mudarabah and Musharakah as Islamic Micro-equity Finance to Underprivileged Women in Malaysia. The European Journal of Development Research, 32(1), 176-197.
Islam,A hmad	2019	Profit And Loss Sharing, Islamic Microfinance, Poverty Alleviation	Identification, Measurement, Monitoring,Controlling,Religiosity,Knowledge,Entrepreneurship	Chi Square, RMSEA,NFI,TLI	Islam, R., & Ahmad, R. (2020). Applicability of Mudarabah and Musharakah as Islamic Micro-equity Finance to Underprivileged Women in Malaysia. The European Journal of Development Research, 32(1), 176-197.
MA Siddique	2020	ROI,ROA	Interest Rate, GDP, Number Of Employee	The Study Uses Salam, Murabaha, Diminishing Musharakah (DM),	Siddique, M.A., Haq, M. and Rahim, M., 2020. The Impact of the Islamic Banking Industry on

				Ijarah, And Istisna As Dependent Variables. Conventional Banks Were Selected. It Employs Annual Unbalanced Panel Data For 2004 To 2017	Economic Growth and Poverty Reduction in Pakistan. In Enhancing Financial Inclusion through Islamic Finance, Volume II (pp. 259-279). Palgrave Macmillan, Cham.
WH Ahmad AA ALI	2020	ROA	Interest Rate, GDP, Number Of Employee	Semi-Structured Inter-views Were Conducted With The Investors of The Scam Followed By Thematic Analysis	Ullah, I., Ahmad, W. and Ali, A., 2020. Determinants of investment decision in a Ponzi scheme: Investors' perspective on the Modaraba scam. Journal of Financial Crime.