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Banks Specific Variables and Sustainable Performance of Banks in Pakistan

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Abstract

The banking industry is essential to the modern economy, and the prosperity of growing nations is closely associated with the banking industry's performance. Sustainable finance research needs to be more comprehensive and addressed in the banking sector, especially in poor nations. This research aims to empirically investigate the impact of bank-specific variables on the sustainable performance of banks in Pakistan through bank size, loan intensity, financial leverage, and credit risk. This study uses mainly quantitative methods using time series data of five years from 2016 to 2021 about Pakistani banks analyzed using E-Views. A correlation test was applied to test the association among the variables, and the OLS panel method was used to test the study hypotheses using the fixed-effect model and the random-effect model. The results suggest that bank size, loan intensity, financial leverage, and credit risk significantly impact the sustainable performance of banks. The outcome of the study supports banking sector management to focus on sustainable performance to achieve banks' sustainability. Most of the literature showed recommendations to check banks' internal variables, such as bank size, loan intensity, and credit risk, except financial leverage, on the sustainable performance of banks. Banking sector sustainability will improve education, health, manufacturing, construction, and tourism in Pakistan, improving society wellbeing.

Keywords: Banks Sustainable Performance, Bank Size, Loan Intensity, Financial Leverage, Credit Risk

Introduction

A bank operates based on two theoretical principles. The first principle is the intermediation approach, in which banks provide loans to borrowers using the money placed by depositors (Abdul-Majid et al., 2011). The banking sector is crucial in the contemporary economy, and the economies of developing nations are strongly influenced by the performance of the banking sector (Ali, 2012; Janoundi, 2014; Duygun et al., 2015). The contingency theory of performance posits that sustainable performance in an organisation cannot be effectively measured using a single standardised process. Instead, the specific characteristics and context of the organisation play a significant role in determining its performance and sustainability (Ong et al., 2019). The second view is that banks operate under the production approach, generating loans and deposits by employing capital and labour (Majid et al., 2011). In order to be considered reliable and efficient, a banking system must successfully accomplish three objectives: generating substantial profits, providing clients with a superior level of service, and maintaining adequate capital to lend to borrowers (Al-Homaidi et al., 2018). The study conducted on the banking industry has a poor level of performance and lacks consistency. The performance of banks is still not a well defined area of knowledge (Arambreu et al., 2019). Contemporary literature indicates that research on the performance of the banking sector

primarily concentrates on American and European nations, with less emphasis on developing countries and emerging economies in Asia (Yu, 2017). Leading contemporary scholars advocate for undertaking more groundbreaking investigations on the performance of the banking industry, particularly in developing nations (Duygun et al., 2015; Brooks & Schopohl, 2018; Yu, 2017; Abreu et al., 2019). The understanding of banks' performance is incomplete, and in addition to banks' sustainable performance, there may be other variables that may be investigated to enhance banks' sustainable performance, leading to total bank performance (Arambreu et al., 2019). Sustainable banks, known for their strong reputation, instill confidence in investors and customers, hence attracting a larger client base. Consequently, these banks have enhanced profitability (Bussoli et al., 2019). An empirical investigation will be undertaken to assess the influence of bank size, lending intensity, financial leverage, and credit risk on the long-term viability of banks.

Scope and Significance

Sustainable studies are scarce in the finance literature, and these are mostly ignored in the banking sector studies, especially in developing countries. This study encompasses the financial, accounting, and economics variables that theoretically contribute to the banking sector and finance studies. The study focuses on the sustainable banking sector performance in Pakistan, a developing country. Pakistan is emerging as a big economy due to the peace accord in Afghanistan on February 29, 2020, and CPEC dividends. Currently, 32 banks are functioning in Pakistan. This study will encompass five years, specifically from 2016 to 2020, and will incorporate data from all banks operating in Pakistan. The banking industry in Pakistan will be categorized into three sectors: government-owned public banks, private banks, which are commercial, and foreign banks, which operate within the country.

Literature Review

Credit Risk and Sustainable Performance

Credit and liquidity risk, which are components of financial risk, have a substantial influence on the overall performance of commercial banks in Pakistan (Saghir & Ch, 2020). A significant increase in loans increases Return on equity, and the loan-to-deposit ratio is negative to ROE (Chitan, 2012). Risk-taking behavior and liquidity are vital to calculating the risk management capability of banks, and the banks with stable liquidity are highly risk-taking (Abbas et al., 2021). There is a negative correlation between loan-to-deposit ratios, and the banks are liable to take less risk with an increase in the loan-to-deposit ratio, resulting in sustainable performance (Lee & Chih, 2013). There is no relationship between the loan-to-deposit ratio and z-score (Dong et al., 2014). There is a direct correlation between the ability of banks to manage risk and their sustainable performance, specifically in relation to credit risk (Jeon & Lim, 2013). In their study, Lee and Chih (2013) examined the long-term effectiveness of both major and small banks in China from 2004 to 2011. The study suggests that credit risk, which is the loan-to-deposit ratio, impacts sustainable performance negatively and significantly in smaller banks. Therefore, to raise sustainable performance, the banks must concentrate on increasing loans. In contrast, Ariff and Luc (2008) conducted a study on Chinese banks from 1995 to 2004. They found opposite results as sustainable performance is affected by more lending, and results are the same in the Chinese banking industry (Zhang et al., 2012). There is a negative correlation between loan-to-deposit ratios and z-scores; the banks are liable to take less risk with an increase in the loan-to-deposit ratio, resulting in sustainable performance (Lee & Chih, 2013). There is no correlation between the loan-to-deposit ratio and z-score, as stated by Dong et al. (2014). There is a direct correlation between credit risk and sustainable performance, as stated by Jeon and Lim (2013). Matey (2021) has identified a strong inverse correlation between banks' ability to manage risk, credit risk, and sustainable performance.

Bank Size and Sustainable Performance

Some researchers suggest that large-size banks are profitable, efficient, less averse to risk, and sustainable. Few studies suggest that smaller banks achieve better sustainable performance (Ariff & Luc, 2008; El et al., 2011; Hasan & Marton, 2003). Many studies observed that the size of banks influenced their sustainable performance either positively or negatively (Sufian,

2009; Tan & Floros, 2013). In contrast, certain studies conclude that bank size has an insignificant relationship with sustainable performance (Garza-García, 2012; Wanke & Barros, 2014). Krishna et al. (2021) found that there is a positive and substantial relationship between bank size and banks' financial sustainable performance. The conclusions and findings of Houston et al. (2010), Bertay et al. (2013), and Chronopoulos et al. (2015) are consistent with those of Krishna et al. (2021). In contrast, David and Alhadeff (1964) found that bank size affects the financial sustainable performance of banks. Few other researchers also support the findings of David and Alhadeff (1964), such as De Haan and Poghosyan (2012) and Petria et al. (2015). Quan et al. (2019) propose that the size of banks does not have a substantial effect on their profitability and performance. Once the banks reach a certain level of profitability, their size begins to decrease in terms of profitability. In contrast, smaller banks start to exhibit better sustainable performance compared to larger banks (Berger, 1995). Similarly, Curak et al. (2012) and Tan and Floros (2013) reveal that banks' size is irrelevant to profitability. Bank size has been taken as the primary variable and sustainable performance, and a positive, negative, or no impact has been found on these variables. Some researchers suggest that large-size banks are profitable, efficient, less averse to risk, and sustainable. Few studies suggest that smaller banks achieve better sustainable performance (Ariff & Luc, 2008; El et al., 2011; Hasan & Marton, 2003).

Financial Leverage and Sustainable Performance

The relationship between financial leverage and sustainable performance has been examined by Abu-Alkheil et al. (2012). The initial phase of his research focused on examining the sustainable performance of banks in the U.K., Malaysia, GCC, and Turkey between 2005 and 2008. The study analyzed the factors and variables that influenced sustainable performance. Abu-Alkheil et al. (2012) proposed that there is a strong and adverse correlation between sustainable performance and financial leverage. In their study, Abu-Alkheil et al. (2012) investigated the correlation between financial leverage and the long-term financial performance of banks in Jordan from 2004 to 2016. They discovered that the use of financial leverage is a crucial factor in determining financial sustainability success. Banks' sustainable financial performance was adversely and considerably affected by financial leverage (Abu-Alkheil et al., 2012; Sikandar et al., 2021).

Loan Intensity and Sustainable Performance

One of the main functions and the bank's primary role is to provide loans. Most studies suggest that more loans increase banks' sustainable performance (Pasiouras, 2008; Semih et al., 2007; Sufian, 2009). Some researchers state that more loans make a bank more prone to risks (Noor & Ahmad, 2011). The loan intensity significantly and positively impacts banks' sustainable performance. A study on Chinese banks concludes that more loans result in higher profits (Lin & Zhang, 2009). Chronopoulos et al. (2015) state that reduced loans result in more profits. The loans increase risk-taking and decrease the bank's risk management capability (Berger et al., 2009). In contrast, a study reveals that banks with higher loan intensity have high z-scores (Köhler, 2015). A study on Chinese banks concludes that more loans result in higher sustainable profits (Lin & Zhang, 2009). Chronopoulos et al. (2015) state that reduced loans result in more profits.

Methodology

The primary research strategies encompass quantitative, qualitative, and mixed-method approaches (Saunders et al., 2019). Quantitative research is the systematic and empirical examination of phenomena using mathematical and statistical analysis of numerical data (Saunders et al., 2019). The present thesis uses a quantitative research approach based on secondary data collection, which was collected from the financial statements of the selected banks for this study, which were later self-evaluated. This study aims to examine and establish the correlation between the sustainable performance of banks in Pakistan and variables particular to the banking industry. The unit of analysis is the main entity of individuals or groups a researcher analyses in the research study—the present research analyses banks and the banking sector. The banks' data has been collected; the target for analysis is the banks, and

the beneficiary is the banks. Therefore, the panel data for a fixed period extended over five years (2016 to 2020) has been collected in a longitudinal study. To analyze the collected data, the researcher used E-views v14, which is prominent and is mainly used in secondary data analysis. The ordinary least squares (OLS) approach is frequently employed for the analysis of panel data. OLS is considered an effective estimate method, even with a small sample size. It has been asserted that OLS with panel-corrected errors is a dependable estimation methodology, as supported by studies conducted by Baltagi & Baltagi (2008), William (2018), and Yaffee (2003). In the fixed effect model, it is assumed that the variation between cross-sections can be accommodated from different intercepts (Hsiao, 2022), while In the random effect model, there may be interconnections among the residuals across time and cross-sections (Hsiao, 2022). For this study, the "panel unit root test" was utilized, considered superior to the "time-series unit root test" within the context of finite samples. The present study adopted the LLC test, which is widely used in research involving panel data (Worthington & Higgs, 2007). In the present study, two tests were conducted to test cross-sectional dependence. The Pesaran and Breusch Pagan tests were utilized (Hsiao et al., 2007; Pesaran, 2021).

Objectives

- To investigate the impact of bank size on the sustainable performance of Pakistani banks;
- To examine the impact of loan intensity on the sustainable performance of Pakistani banks;
- To analyze the impact of financial leverage on the sustainable performance of Pakistani banks.
- To explore the impact of credit risk on the sustainable performance of Pakistani banks.

Framework of the study

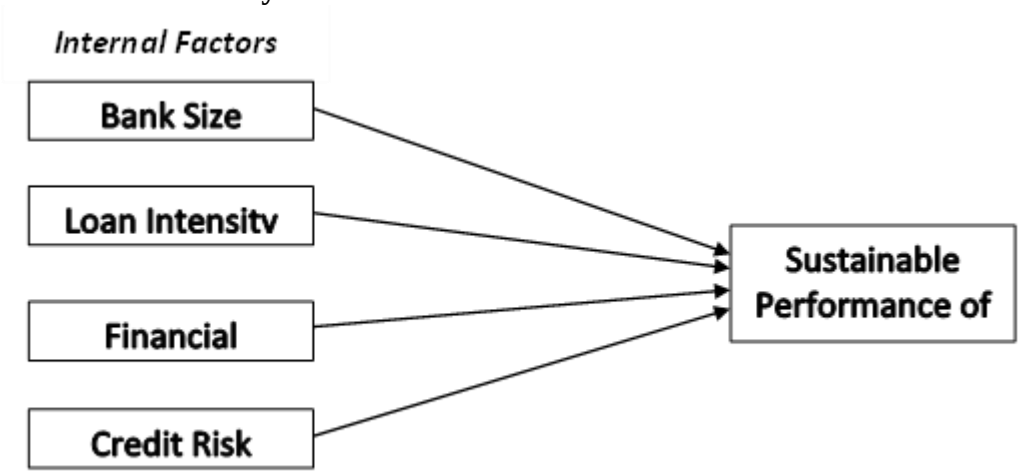

Figure1.1 : Framework

Econometric Model

The following main equation has been calculated to find the bank's sustainable performance and most suitable determinants in Pakistani Banks based on the OLS, Random, and Fixed Effect Model.

$$SP_{it} = \alpha + \beta_s BSize_{it} + \beta_L LoanInt_{it} + \beta_{CR} CRisk_{it} + \beta_{Lev} Lev_{it} + \varepsilon_{it}$$

Equation 3.1

Whereas *S.P. = Sustainable Performance, while subscripts "i" and "t" refer to the bank and year of observation.* $\beta_s = Bank\ Size, \beta_L = Loan\ intensity, \beta_{CR}\ Crdit\ Risk,\ \beta_{Lev} = Leverage$ *and* ε *= error term.*

Data Analysis Techniques

To analyze the collected data, the researcher used the EViews v10. In today's researcher's world, this software is prominent and mostly used in secondary data analysis. Researchers used different types of tests to complete the study purpose. First, the researcher applied the descriptive test to get the data's description. Finally, the OLS penal method was used to test the study hypotheses, the OLS penal methods used, i.e., the fixed-effect model and random-effect model.

Measurement

The following table 3.1 presents the final measurement proxies for the variables used in the current study.

Table 3.1: Measurement Proxies for the Variables

Variables	Dimensions	Proxies
Sustainable Performance	Financial Performance	Financial performance is measured as Return on assets.
Internal variables	Size	Size is the natural logarithm of total assets.
	Credit Risk	Credit Risk is measured as the deposit ratio.
	Loan Intensity	Loan Intensity is measured as the loans over total assets ratio,
	Leverage	Leverage is measured as the total assets to equity ratio.

Results and Discussion

Unit Root Test

The unit root test informs of the integration order of the variables, and stochastic trends are prevalent in the data and with suitability, stationarity of data, and signs of serial correlation, i.e., variables are associated with their own differenced versions (Gujarati, 2022). There are several unit root tests like the ADF, IPS, and P.P. tests); however, the stationarity of the variables was estimated via the LLC or the Levin Lin Chu test(Alam et al., 2021). The LLC also accounts for cross-sectional dependence and presents robust results, which is a frequent problem in panel data. In Table 4.2, it is evident that all variables were integrated at both levels I(0) and I(1) and that stationarity issues were not present and even had no unit root.

Table 4.1: Unit Root Tests

	I(0)	I(1)
CRISK	-7.08859***	-29.9125***
FSIZE	-6.99701**	-1290.35***
LEV	-5.20401**	-37.3296***
LOAN	-26.7098***	-56.0822***
S.P.	-27.3957***	-13.4049***

Means significance level 1%, ** Means significance level 5% and * means significance level 10%*

Cross-Sectional Dependence Test

The next test prior to the application of the regression analysis was the cross-sectional dependency test. The study sampled banks from the private and public sectors. Due to the fact

that the banks operate in the same country and under the governance of similar conditions and regulations, the values of one could influence the values of the other banks (cross-sectional dependence), which is a common problem observed in panel data and can lead to inaccurate results (Pesaran, 2015; Pesaran, 2021). Another reason for the occurrence of cross-sectionality can be the effect of unobserved factors on the variables (Bailey et al., 2016; Pesaran, 2007). Thus, the cross-sectional dependence test was conducted, and the findings are reported in Table 4.3. Tests indicate that the null hypothesis of the test, i.e., cross-sectional dependence is not present in the model, was accepted since $p<0.000$, the variables did not exhibit any signs of cross-sectional dependence, and therefore, further testing can be performed.

Table 4.2: Cross-Sectional Dependence

Test	**Statistic**	**d.f.**	**Prob.**
Breusch-Pagan LM	948.2548	496	0.0000
Pesaran scaled LM	13.34310		0.0000
Pesaran CD	-1.124380		0.2609

Cointegration Test

The cointegration analysis is performed for two reasons: to establish cointegrating relationships among the variables and to evaluate the presence of long-run associations among the variables Table 4.4. These findings imply that there will be a significant association between the predictors and sustainable bank performance.

Table 4.3: Configuration Test

	t-Statistic	**Prob.**
ADF	-7.106182	0.0000
Residual variance	8.98E-06	
HAC variance	7.50E-06	

Correlation Analysis

A correlation test or analysis is a method of statistical analysis or evaluation of the strength of the relationship between two continuous and numerically measured variables (Bolboaca & Jäntschi, 2006) as it can prove whether or not the increasing or decreasing of one variable causes increasing or decreasing impact in the other variable. Correlation can be either positive or negative. A positive correlation occurs when an increase in one variable leads to a simultaneous positive increase in the other variable. Conversely, a negative correlation is evident when an increase in one variable results in a decrease in the other variable.

Table 4.4: Correlation Analysis

Correlation Analysis	**CRISK**	**B SIZE**	**LEV**	**LOAN**	**SP**
CRISK	1.000				
	(000)				
B SIZE	-0.749	1.000			
	(000)	(000)			
LEV	-0.596	0.766	1.000		
	(000)	(000)	(000)		
LOAN	0.786	-0.874	-0.719	1.000	
	(000)	(000)	(000)	(000)	
SP	0.466	-0.599	-0.435	0.488	1.000
	(000)	(000)	(000)	(000)	(000)

According to Table 4.5, the correlation between credit risk and sustainable performance was significant, and the correlation value was 0.466, which is significant. The correlation between

sustainable performance and loan intensity is 0.488 and is significant as well, and the correlation is strong and positive. Furthermore, there is a correlation between sustainable performance and financial leverage, which has a significant correlation of -0.435. While bank size has a -0.599 correlation value, it is significant.

Normality (Quantiles of Normal)

Figure 4.1 represents the Q-Q plots for the data, which are the quantiles of normal distribution for sustainable performance and internal variables. This represents the analysis regarding whether a specific set of data comes from some specific theoretical distribution, such as exponential or normal (Jones, 1994). When the line is straight or diagonal, the graph represents that the collected data is normally distributed and there are no extremely high or low values. This table also represents the absence of outliers in the data, and most of the values lie around the diagonal. Most of the values for sustainable performance lie around the diagonal line straight, which represents that most of the values are closely related to each other. No value is extremely high or low. This figure represents that the data is normally distributed for sustainable performance and independent internal variables.

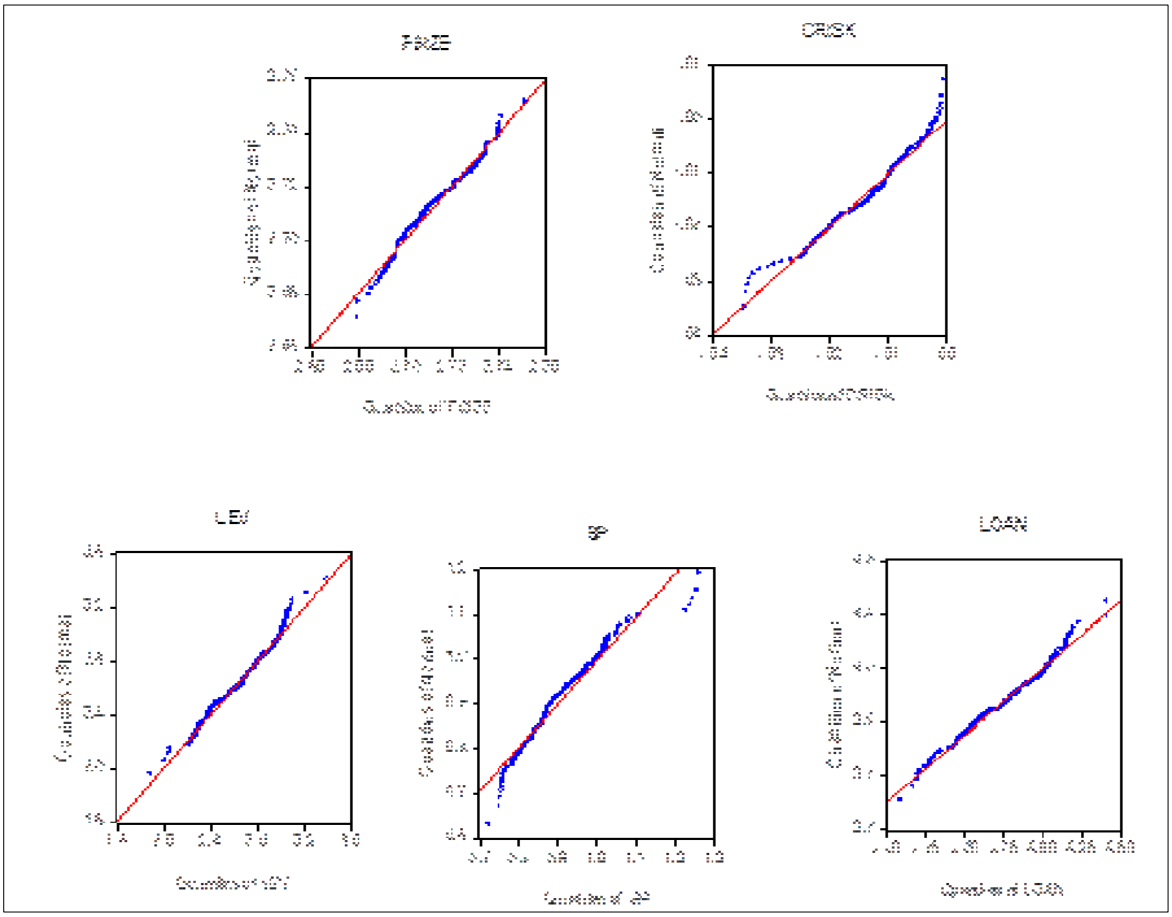

Figure 4.1: *Quantiles of Normal*

Results and Findings

Descriptive statistics involve descriptive coefficients summarizing a provided data set representing the entire population or a specific sample related to a population (Lawless et al., 2010). Table 4.5 of the descriptive analysis below represents the mean values of the data, median values, maximum and minimum values, and standard deviation. Furthermore, the table also represents the values of skewness, the value of kurtosis, and the total number of observations.

Table 4.5: Descriptive Analysis

Item	SP	FSIZE	CRISK	LOAN	LEV
Mean	0.912228	2.711581	-0.013857	3.753936	2.679824

Median	0.893555	2.709807	-0.012584	3.772624	2.700851
Maximum	1.260468	2.751120	-0.000550	4.410699	3.397860
Minimum	0.721512	2.679609	-0.034962	3.085147	1.885928
Std. Dev.	0.102463	0.014640	0.007754	0.270516	0.264205
Skewness	0.968188	0.266544	-0.583974	-0.126221	-0.300932
Kurtosis	4.558346	2.372473	3.052067	2.442988	2.839683
Jarque-Bera	41.18661	4.519828	9.112100	2.493264	2.586271
Probability	0.000000	0.104359	0.010503	0.287471	0.274409
Sum	145.9564	433.8529	-2.217065	600.6298	428.7719
Sum Sq. Dev.	1.669302	0.034079	0.009560	11.63546	11.09892
Observations	160	160	160	160	160

According to the values presented in the above table, the mean values for the variable sustainable performance, bank size, credit risk, loan intensity, and financial leverage are in between the maximum and minimum values. This represents that no value for these variables is significantly high or significantly low, representing that all the values lie in between the maximum and minimum value range, so there are no outliers or extreme values present in the data. Furthermore, the values for standard deviation and skewness represent that no value in the data is abnormal. The data is completely normal except for sustainability, and it is because of index measurement. The outcomes present positive results for the normality of data, whereas the total observations can be observed to be 160. The least-squares method is a statistical analysis method and procedure that is applied to find the best fit for a specific set of data points, with the minimization of the sum of the residuals or the offsets of the points from the curve that is plotted (Aish & Jöreskog, 1990).

Regression Analysis

The least-squares method is a statistical analysis and procedure applied to find the best fit for a specific set of data points, with the minimization of the sum of the residuals or the offsets of the points from the curve plotted (Aish & Jöreskog, 1990).

Panel OLS

Table 4.6 indicates that the effect of credit risk (p=0.0025, b=0.102586) on sustainable bank performance was positive and significant. A 1% increase in the sustainable performance of banks would lead to increased sustainable bank performance by 10% (p<0.05). The second hypothesis was related to the bank size and sustainable performance and postulated that increasing the bank size would lead to higher adoption of sustainable directives and, therefore, influence the sustainable performance of the banks (p=0.0000, b=5.429304). An increase in the financial leverage would decrease the sustainable performance of the banks by (p=0.0015, b=-0.055273). Another internal factor discussed in the study was Loan intensity. The values in Table 14.6 indicate that the effect of the loan intensity is insignificant (p=0.2816, b=0.036750), implying that the loan intensity did not have a significant and positive influence on their sustainable performance. The model has an R2 value of 0.79, indicating that 79% variation was produced in the sustainable performance of the banks by the selected internal predictors.

Table 4.6: Regression Analysis (Panel OLS)

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	15.43320	1.930573	7.994103	0.0000
CRISK	0.102586	0.836357	0.122658	0.0025
FSIZE	5.429304	0.716679	-7.575645	0.0000
LEV	-0.055273	0.095927	-0.576197	0.0015
LOAN	0.036750	0.034004	1.080778	0.2816
R-squared	0.793211	Mean dependent var		0.912228
Adjusted R-squared	0.774799	S.D. dependent var		0.102463

S.E. of regression	0.048624	Akaike info criterion	-3.125949
Sum squared resid	0.345193	Schwarz criterion	-2.856872
Log-likelihood	264.0760	Hannan-Quinn criteria.	-3.016686
F-statistic	43.07961	Durbin-Watson stat	0.368606
Prob(F-statistic)	0.000000		

Fixed Effect Model

The findings of the fixed-effect model indicated that Credit Risk has a significant impact on sustainable performance (p=0.0000, b=-3.207270), whereas bank size has a significant relationship with sustainable performance (p=0.0058, b=-0.427229). Further, the value of loan intensity has a significant value (p=0.0511, b=0.017639) and a relationship with sustainable performance. At the same time, financial leverage has insignificant value with sustainable performance (p=0.7805, b=0.008013). Moreover, the revised analysis of the cross-section dependence test also solved the problem of correlation in weighted residuals. As the value of Pesaran CD is greater than 0.05, the null hypothesis can be rejected, and there is no issue of cross-sectional dependence.

Table 4.7: Regression analysis (F.E.)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.071066	0.621319	14.59968	0.0000
CRISK	-3.207270	0.221887	-14.45454	0.0000
FSIZE	-0.427229	0.151832	-2.813827	0.0058
LOAN	0.017639	0.008947	1.971604	0.0511
LEV	0.008013	0.028694	0.279266	0.7805

	Weighted Statistics		
R-squared	0.994330	Mean dependent var	1.750151
Adjusted R-squared	0.992161	S.D. dependent var	1.206398
S.E. of regression	0.016771	Sum squared resid	0.032346
F-statistic	458.3582	Durbin-Watson stat	1.545437
Prob(F-statistic)	0.000000		
	Unweighted Statistics		
R-squared	0.977795	Mean dependent var	0.912228
Sum squared resid	0.037067	Durbin-Watson stat	1.154016

Descriptive statistics in the chapter's initial part show each variable's normality. The following diagram shows the overall formality of the final model of this study. Figure 2.1 also represents the normality of the data; the bell-shaped graph represents the distribution of the data, and the least level of fluctuations represents that the data is distributed in a completely perfect bell-shaped trend and does not fluctuate significantly or with low values as well. The value of Jarque-Bera is significant, indicating that this study's overall model is abnormal.

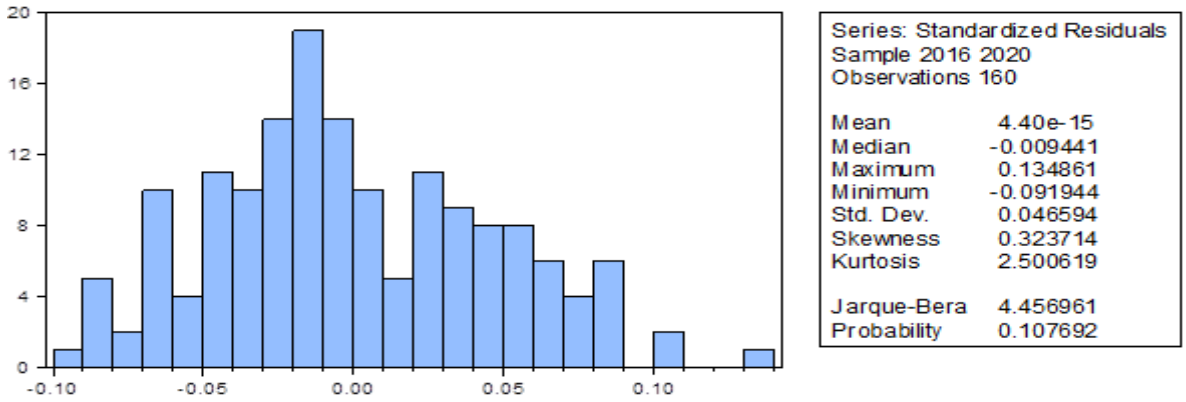

Figure 2.1: *Normality*

The simple Panel OLS model was re-estimated through the specification of Cross-section weights. The weighted OLS method was used for the estimation of the simple and fixed effects model, as both showed consistent and efficient results. The weighted OLS method assigns weights based on a particular method, which in this case were the cross-sections, and these weights are considered to increase the reliability of the estimates. The technique is used especially when the model is based on small sample sizes. Increased reliability means that the observations will imply a stronger effect and lead toward precise estimates.

Panel EGLS (Cross-section weights)

The outcome of Panel EGLS (Cross-section weights) indicated that credit risk has insignificant results on sustainable performance (p=0.9065, b=-0.056945), financial leverage (p=0.1299, b=-0.085275), and loan intensity (p=0.2712, b=0.023488), except the bank size (p=0.0000, b=-4.939565) Table 4.9. Furthermore, as the researcher applied the Panel EGLS (Cross-section weights) with the fixed-effect model, the finding changes are illustrated in
Table 4.8.

Table 4.8: Regression Analysis (PEGLS - C.S.)

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	8.021066	0.552131	18.67968	0.0000
CRISK	-0.056945	0.483744	-0.117717	0.9065
FSIZE	-4.939565	0.463924	-10.64736	0.0000
LEV	-0.085275	0.055987	-1.523131	0.1299
LOAN	0.023488	0.021267	1.104438	0.2712
	Weighted Statistics			
R-squared	0.893818	Mean dependent var		1.423371
Adjusted R-squared	0.884363	S.D. dependent var		1.108641
S.E. of regression	0.045250	Sum squared resid		0.298947
F-statistic	94.53833	Durbin-Watson stat		0.544712
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.782886	Mean dependent var		0.912228
Sum squared resid	0.362429	Durbin-Watson stat		0.283040

Panel Fixed Effects (Cross Sectional Weights)

Table 4.10 indicates the Panel EGLS (Cross-section weights) results based on the fixed-effect model. Credit risk (p=0.0058, b=-0.427229), loan intensity (p=0.0511, b=0.017639), and bank size (p=0.0000, b=-3.207270), regressors positively and significantly impact bank sustainability except the financial leverage (p=0.7805, b=0.008013). The overall model shows good indices as the adjusted R-square is .99, which is efficient and good fitness of the model. It is the same as the Durbin-Watson value near 1.54, which is near 2 (Gujarati, 2022), and indicates no autocorrelation problem among the variables..

Table 4.10: Panel Fixed Effects (Cross Sectional Weights)

	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
C	7.031056	0.652632	17.56868	0.0000
CRISK	-0.427229	0.151832	-2.813827	0.0058
FSIZE	-3.207270	0.221887	-14.45454	0.0000
LEV	0.008013	0.028694	0.279266	0.7805
LOAN	0.017639	0.008947	1.971604	0.0511
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.994330	Mean dependent var		1.750151
Adjusted R-squared	0.992161	S.D. dependent var		1.206398
S.E. of regression	0.016771	Sum squared resid		0.032346
F-statistic	458.3582	Durbin-Watson stat		1.545437
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.977795	Mean dependent var		0.912228
Sum squared resid	0.037067	Durbin-Watson stat		1.154016

Finally, the revised normality test, as illustrated in Figure 2.2, demonstrated that the overall model now is well and normal as we can draw a bell-shaped curve, which leads to normality. Moreover, Jarque-Bera is 6.07, and the probability value is 0.04, nearing .05; therefore, the overall model is now normal in all aspects.

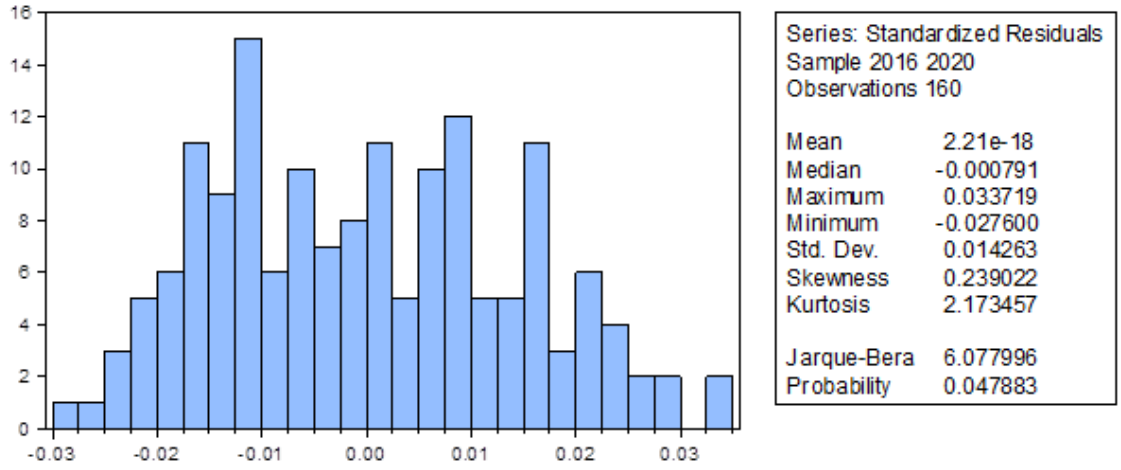

Figure 2.2: Model Normality

Hypotheses Results

This study also examined some bank-specific internal factors to examine their effect on banks' sustainable performance in Pakistan, including banks' size, loan intensity, financial leverage, and credit risk. Empirical findings through the regression model using OLS, fixed-effect, and random-effect models indicated that some factors significantly influenced banks' sustainable performance. In contrast, factors like credit risk, bank size, and loan intensity have a significant effect on bank performance, except for financial leverage. Previous studies like Orazalin et al.

(2019) included size, age, leverage, and financial capacity, which significantly impact sustainable performance.

Credit Risk

The findings presented in Table 4.11 demonstrate that H1 is supported, indicating a considerable positive correlation between credit risk and sustainable performance. The findings of Lee & Chih (2013), Chitan (2012), Zhang et al. (2012), and Hou, Wang, & Zhang (2014) are consistent with each other. They all found a relationship between credit risk and sustainable performance. Similarly, Ariff & Can (2008), Dong et al. (2014), Lee & Chih (2013), Matey (2021), and Saghir & Tabassam (2020) reached the opposite conclusion. Their findings confirm that credit risk has a negative and significant impact on the profitability of Pakistani banks. Therefore, fewer non-performing loans mean lower risk and bank risk management depends on risk-taking and liquidity. Banks with stable liquidity are risk-takers, and with higher loan-to-deposit ratios, banks take less risk. No correlation exists between the loan-to-deposit ratio and z-score. Credit risk and bank risk management are positively and negatively impacting banks' sustainable performance.

Bank Size

Table 4.11 demonstrates that H2 is supported, indicating a strong positive correlation between bank size and sustainable performance. Many studies support the notion that the size of a bank is the primary factor influencing sustainable performance, with a notable positive effect. Therefore, banks with large sizes are operating efficiently and profitably and have no risk of bankruptcy (Ariff & Can, 2008; Hasan & Marton, 2003); some studies show neutral results (Houston et al., (2010); Bertay et al., (2013); Chronopoulos et al., (2015) Krishna et al., (2021)Tan & Floros, 2013; Noor & Ahmad, 2011). In contrast, certain studies concluded no relationship with bank size (Alhadeff & Alhadeff, 1964; Garza-Garcia, 2012; Wanke & Barros, 2014 et al., (2019). Therefore, bank size greatly affects a bank's sustainable performance. Larger banks lose profitability after obtaining some level of profitability, while smaller banks achieve more profitability, so it is found that bank size positively affects bank sustainable performance.

Financial Leverage

Table 4.11 reveals the empirical result that H3 is rejected, and financial leverage has no significant positive relationship with sustainable performance. Sikandar et al. (2021) supported the same results. Other studies found positive results with sustainable performance (Abu-Alkheil et al., 2012). Sustainable performance and financial leverage are linked, so to attain sustainable performance, there must be high financial leverage, and financial leverage determines financial sustainability.

Loan Intensity

Table 4.11 demonstrates that H4 is supported, indicating a strong positive correlation between loan intensity and sustainable performance. The findings of other investigations (Yildirim & Philippatos, 2007; Pasiouras, 2008; Lin & Zhang, 2009; Sufian & Habibullah, 2009a; Garza-Garcia, 2012; Chronopoulos et al., 2015; Berger et al., 2009; Johnes et al., 2014) all corroborate the same conclusions. Several academics argue that increased loan exposure heightens a bank's susceptibility to hazards (Noor & Ahmad, 2011; Sufian, 2009). Conversely, (Kohler, 2015) presents conflicting findings. The high level of loans significantly enhances the profitability of banks. More loans boost Chinese bank profitability, according to a study. According to this, fewer loans boost earnings. Loans promote risk-taking and reduce bank risk management.

Table 4.11: Hypotheses Outcome

Hypotheses Statement	OLS	Status
H1: Credit Risk has a significant impact on sustainable performance	0.0058	Supported

H2: Bank Size has a significant impact on the sustainable performance of Banks.	0.0000	Supported
H3: Financial Leverage has a significant impact on sustainable performance.	0.7805	Not Supported
H4: Loan Intensity has a significant impact on sustainable performance.	0.0511	Supported

Conclusion

This study achieved all four of the objectives outlined in the literature review. The study found a substantial association between internal characteristics, bank size, credit risk, loan intensity, leverage, and sustainable performance. This study is innovative in that it examines the impact of bank-specific characteristics on the long-term sustainable performance of banks using internal bank factors. This paper contributes to the current literature on finance, economics, and the banking industry. Comparative research between regions is also feasible. In light of the recommendations of measuring the sustainable performance of banks in preventing fake accounts, money laundering, risks, and misappropriation, the government and senior management of Pakistani banks can take safeguards as demanded by the Financial Action Task Force (FATF) to avoid blocklisting. Furthermore, the banking sector will benefit from increased investor and customer confidence as a result of banks' consistent performance. The outcome is beneficial to investors in making investment selections for various banks. The sustainable functioning of the banking sector will benefit other sectors in Pakistan, such as education, health, industry, construction, and tourism, resulting in the overall well-being of society.

Implications

This research contributes to the body of knowledge in many domains and will assist in constructing future research models and objectives both in Pakistan and other countries. This research was designed to address the current issue of sustainable performance in the banking sector in general and particularly in Pakistan. The impact of bank-specific variables has been studied to measure the sustainable performance of banks. Sustainable studies related to the banking sector will lay the foundation for the researchers to conduct more sustainability studies in the finance and banking sectors. This research benefits policymakers, management, and investors of Pakistan to assess the sustainable performance of banks in Pakistan, and the same performance variables can be utilized by banking sector management in other countries.

Limitations and Recommendations

The focus of this study remained on the Pakistani banking sector; the future researcher can increase the database and analyze data for a minimum of 10 years in the context of Pakistan. The future researcher can expand the scope of research by conducting studies of the banking sector on various continents or regions, as only secondary data was used in this research by adopting a quantitative methodology. Future researchers may resort to interviews with banking sector experts and other stakeholders to compare the results of secondary data. Instead of simple regression through OLS and fixed effect, the database can be expanded using the latest techniques like ARDL or VAR model to get better visibility of the short-term and long-term impact of variables on sustainable performance. This study provides a new dimension for future researchers to replicate this study in other countries and regions.

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