



Banks Soundness in Pakistan: SEM-PLS Approach

ABSTRACT

The research is conducted to test the soundness of 20 listed Pakistani banks post-crisis (2009-2018). The banks included Islamic, private, and publicly-owned banks. PLS-SEM technique was applied on CAMELS with 42 indicators, and the most significant parameter for Banks' soundness was identified. Stock Returns were taken as the dependent variable and direct indicator for Bank's soundness. Outcomes showed that Earning parameter contributed most significantly to Banks' soundness in Pakistan. Other parameters like management, capital, and liquidity were also significant, but results showed that banks are executing with a lower capital base and less liquidity, and management also needs improvement. The sensitivity parameter showed no relevance to banks' soundness in Pakistan. Overall, the Pakistani banking industry is sound, and worldwide banking crises affect Pakistani banks considerably.

Keywords

Banks Soundness, Partial Least Squares, CAMELS

JEL Classification

E59, G21, G33

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1. INTRODUCTION

The Bank industry plays a crucial role in developing a country economically, so there must be a sound and stable banking industry in any country. Banks are prone to periodic crises, which can lead them to Bank default can trigger financial crises throughout the economy. Financial crises can be infectious and damaging, inciting calls for quick reaction. Financial crises have driven economies into deep recessions and sharp current-record inversions in the past. [Laven and Valencia \(2008\)](#) describe systematic crises as when a country's financial and corporate sector encounters enormous numbers of defaults and monetary establishments, and companies confront extraordinary challenges in reimbursing contracts on time. Therefore, nonperforming loans increase drastically, and most of the aggregate banking capital is depleted. Discouraged resource costs might join this circumstance (for example, real estate and equity prices) on the impact points of run-ups before the crises, sharp increments in real interest rates, and a log jam or inversion in capital streams.

A systematic banking crisis is not a single-country event. It creeps from country to country, a prominent example of which is the global financial crisis of 2008. Financial crises, if they occur in the present day, financial crises would be bigger financial crisis than ever. This is due to the ripple effect, as most perspectives in the present financial sector are interrelated. The finance world is more reliant than at any other time in recent memory, with expanded and more extensive banking exercises that associate most monetary institutions on the planet ([Gofman, 2017](#)). This was seen by the latest financial crises that started in 2007 that influenced the worldwide economy. This crisis prompted a recharged enthusiasm for how a crisis of this scale was allowed to occur in any case and what sort of control could have been executed to counteract it. This premium mainly concerned the banking division which got a great deal of criticism in directing their tasks.

[Pennacchi \(2005\)](#) describes the requirement for bank control as a security net to ensure depositors' interest and maintain a strategic distance from other financial outcomes. [Dima et al. \(2014\)](#) conclude that global financial stability significantly depends on a sound banking framework. Instability in the banking division speaks to the primary transmission medium for different shocks that are endogenous or exogenous. Since the global financial crisis of 2007, catching early cautioning signs of potential banking or financial sector shocks has turned out to be progressively vital. In such a manner, a basic need has emerged from testing the health indicators and soundness of banking and financial sectors and perceiving how they can be improved.

"By Soundness of banking sector, it is meant that the principal components of the framework are capable of absorbing engrossing unfavorable unsettling influences and can manage risk effectively and efficiently." The study offers two main contributions. First, identify the most significant CAMELS parameters indicators to test the Bank's Soundness in the case of Pakistan. Second, investigate the effect of CAMELS constructs on Stock Returns and identify the most significant construct for Bank's Soundness in Pakistan.

2. LITERATURE REVIEW

Various financial soundness indicators (FSIs) have been used in various studies worldwide to measure financial soundness. [Čihák and Schaeck \(2007\)](#) are pioneers in studying potential banking sector crises by using FSIs. They run the main tests on the capacity of FSIs to clarify the emergence of banking crises. They used FSIs that were not arranged under a generally acknowledged worldwide system. Along these lines, some FSIs are not entirely comparable.

[Vaithilingam et al. \(2004\)](#) used the 6 I's framework that included Intellectual capital, Integrity, Infrastructure, Interaction, Institutions, and Innovation to measure the bank's soundness of underdeveloped,

developing empirically, and developed countries. Results established a significantly higher value of GI for developed countries. It was also established that a high level of GI's contributed decidedly to the soundness of banks.

Dang (2011) used the CAMEL framework to examine the soundness of the banks. Authors discovered that CAMEL rating is critical to banking supervision and is a well-known approach among regulators around the world. The authors also used the stress test tool that indicated the banks that failed due to insufficient capital. The authors discovered huge similarities between the CAMEL model and Basel Regulations. Bastian et al. (2016) worked on Iranian Banks with CAMELS arrangement and used the Causal Loop diagram to study the causal structure in CAMELS. The research examined the correlations in the causal variables. The outcomes demonstrated that Iranian banks are low in capital and assets, and there found no excellent quality Management that translated into the most imperative issues of Iranian banks. Increased performance and soundness can be achieved by managing and building up the aforementioned variables.

Kolum (2016) used CAMELS and Z scores testing approaches to examine the performance of Kenyan commercial banks. His research discovered that the CAMELS approach is bet at conceiving distinct ratings than CAMEL. The study recommended that bank administrators center on guaranteeing that their banks are well-capitalized, limit nonperforming advances, quality administration, and satisfactory liquidity to accomplish bank soundness. Likewise, speculators and depositors ought to survey banks dependent on these significant elements when settling on their venture and banking choices.

Bergendorff and Osbäck (2015) performed quantitative research by taking d from the 30 largest banks in the European Union. They used CAMELS variables and discovered that there had been apparent changes in the banking division throughout the years in terms of betterment. Results showed a reasonable increment in the banks' capital proportions because of the new capital prerequisites. However, the discoveries demonstrated that productivity and liquidity are still too low for an utterly good banking segment which might be due to the ongoing retreat. They found that there is still space for further enhancement in both leverage and liquidity proportions and profitability.

Dima et al. (2014) took the data set for 63 developed and underdeveloped countries, including OECD and non-OECD countries, and measured banks' soundness using the Z score methodology. They examined that the development of capital, efficiency in the banking sector, and bank soundness form a financial nexus for the country. They discovered that various kinds of risks could be controlled, managed, and overcome by sound and large banks in the banking sector. Likewise, it is discovered that banks' soundness can robust by the enhanced actions of supervising and reducing banks' operational risks through advanced capital development.

Salina (2017) used the cluster analyses technique and Principle component Analysis to group sound and unsound banks in Kazakhstan. Authors tested, and re-estimated Altman Z' and EM score models and constructed logit, probit, and MDA models. Altman models demonstrated adequate capacity to anticipate banks' financial unsoundness in Kazakhstan. The MDA, logit, and Probit models demonstrated more than 80% predictive accuracy. The model coordinating the MDA, logit, and Probit types presents predominant consistency. The cluster analysis technique identified the degree of financial soundness in Kazakhstan banks.

In their paper, Masud and Haq (2016) examined Bangladesh's private commercial banks and checked their soundness. The data was taken from 2006 to 2014. They used trend analysis and statistical tools techniques. Based on financial indicators, they ranked the commercial banks. The outcomes showed that higher deposit branches, higher loans, and higher investments by a bank do not necessarily mean that it is sound and has higher profits. The general financial situation is forecasted through trend analysis of the available historical data.

Moyo (2018) investigated South African Banks to establish a relationship between efficiency and competition. Seventeen international and local Banks were taken in the study from 2004 to 2015. The author checked how the bank's soundness was affected by efficiency and competition using the Lerner index, Boone indicator, and Z score methodologies. Results demonstrated that the Lerner index negatively affected the competition's efficiency while the Boone indicator showed a positive effect. On account of bank soundness, the outcome is incompletely reliable with what different analysts have found. He observed that competition when utilizing the Boone indicator is negatively related to the Z score, inferring that challenge upgrades bank soundness.

Roman and Sargu (2013) explored 15 commercial Romanian and investigated their soundness from 2004-2011. To accomplish this, they used a standout amongst the most prominent strategies for investigating the financial soundness of banks, the CAMELS ratio analyses analysis. The averages of the variables were computed separately, and banks were ranked according to the obtained averages. The acquired outcomes featured the banks' qualities and vulnerabilities, underlining the need to fortify the concerns of decision-makers to enhance and expand bank soundness.

Prompella and Dicanio (2016) measured the financial soundness and vulnerability of 246 listed banks worldwide by performing a stress test. They developed a stochastic method to test banks' resilience and formed banks' resilience index. Resilience was described as the ability to absorb shocks in distress situations. They inferred that bRi could establish another incredible choice to test financial soundness because it can prove which banks are solvent. They demonstrated that bRi could be the major well-being of the well-being of banks, and it is suitable for observation purposes.

Gagnis et al. (2006) developed a multi-criteria decision aid model for 894 banks from 79 countries and classified banks based on their soundness into three groups. UTADIS method was used to develop the model. The banks were assigned to the respected groups using the Fitch rating system. The outcomes demonstrated that capitalization, asset quality, and the market where banks operate are the most critical criteria in grouping the banks. Productivity and effectiveness are also critical properties, while stock exchange and size are the minimum imperative ones. UTADIS accomplishes higher-order precision than ordinary logistic regression and discriminant analyses utilized for benchmarking purposes.

Onyema et al. (2018) examined ten Nigerian commercial banks for 15 years from (2000 to 2015) for soundness. Instead of using traditional models like CAMELS ratio analysis and CLSA-stress test, another successful model for estimating the soundness of banks has been utilized in this examination named the "Bankometer S-score model." The outcome demonstrated a noteworthy contrast in banks contemplated utilizing the Bankometer S-score model. The investigation presumed that the Bankometer S-score model could help the administration of any bank determine the issue of insolvency and remove the inadequacy created by inefficient banking activities.

Rahman (2016) examined twenty-four Bangladeshi commercial banks and investigated their soundness. The study also utilized the Bankometer model instead of using other CLSA-Stress tests and CAMELS methodologies. The soundness of chosen banks has been estimated for the year 2015, and the consistency of soundness of these banks has been assessed for significant lot covering (2010-2015). The examination uncovers that every one of the banks has guaranteed good financial status exclusively. The banking industry has dependably been in an ideal position (2010-2015). At long last, this examination infers that the "Bankometer" model will help the internal administration of any bank in deciding indebtedness issues and expelling the inadequacy created from wastefulness in keeping money activities.

Literature Review regarding Pakistan:

In Pakistan, Ali and Ansari (2007) attempted to use CAMELS ratio analyses for Islamic and Conventional Banks. They investigated and compared the performance of both types of banking systems in Pakistan for four years (2008-2012). T-Test statistical measure was used to find the significance of mean differences between the two banks of these ratios. The investigation reasons that Conventional banks are increasingly productive and operationally effective while not so much solvent but rather riskier when contrasted with Islamic Banks.

Zeb and Sattar (2017) conducted a threefold study measuring the profit efficiency, and impact of financial regulations on soundness, efficiency, and profits of Pakistani commercial banks for six years (2008-2014). They used the methodology of Data Envelopment Analysis (DEA) and examined profit efficiency. They further applied the Z-score methodology to test the soundness of the said banks and applied Panel Regression Approach to examine the effect of financial Regulation on these banks. The research primarily influenced the efficiency of profits in larger banks. The outcomes of the research suggested that banks' financial soundness and profit efficiency are significantly affected by financial regulations.

Ishaq et al. (2016) evaluated ten Pakistani commercial banks and examined how they performed from 2007 to 2013 using CAMEL ratio analyses. To measure the execution of the banks, regression and correlation techniques have been used. The study concludes that the CAMEL methodology is a significant and fit measure to examine banks' performance in Pakistan.

Shar et al. (2010) tested the vulnerability of Pakistani Banks individually in financial distress by using the Bankometer model covering the period from 1999-2002. They affirmed the precision of the barometer methodology by applying it to banks individually and measuring each bank's solvency. The outcomes were then contrasted with the CAMEL methodology and the CLSA stress test. Bankometer results were validated through a balanced standard for a stress test. Bankometer analyses classified the banks under pressure as insolvent, whereas sound banks of past examination were discovered to be solvent. Bankometer analyses could not classify the banks as sound banks that passed the standard of the stress test and were classified as sound banks by the stress test standard primarily because they were deficient in capital. The majority of the banks were found to be solvent under both the standards of the CLS stress test and Bankometer.

Irama et al. (2018) critically assessed loan securitization and bank soundness and evaluated the impact of loan securitization on bank soundness for 10 selected banks from 2007-2015 in Pakistan. Z score testing technique was applied to the Logit model to understand the impact of securitization on soundness. Various correlation tests were also performed. This study's outcome demonstrated that the securitization process looks unequivocally influenced by firm-specific uniqueness. Furthermore, it is found that banks participating in credit securitization likely lessen their liquidity. Furthermore, the expected credit risk of those banks was analyzed which came out to be high. Henceforth, it's reasoned that securitization is being utilized as a risk transfer tool in public and private banks.

Ashraf and Tariq (2016) used Bankometer in their study and tested the soundness of Pakistani banks. They applied the model to every bank recorded on Pakistan Stock Exchange over the period 2006-2014. The soundness of each bank has been figured independently, which exhibits which bank is too steady and which is near bankruptcy. A Z-score display is likewise utilized for banks recorded on Pakistan Stock Exchange for examination reasons. These two models revealed similar outcomes, yet some are marginally extraordinary anyway. According to the consequences of the two models, the Bank of Punjab's budgetary soundness is hazy and should be improved to reach the ensured zone of soundness.

Sarwar and Asif (2011) led this examination to check the wellbeing and soundness of the banking sector of Pakistan. CAMEL Framework was used to analyze soundness. Simply ratios were calculated and compared for the selected six banks, two from each major zone of the banks: Banks, Domestic Foreign, and Islamic

Banks in Pakistan for the last three years. The outcome demonstrates that regardless of monetary issues worldwide, Pakistan has a solid and sound banking framework to help its economy.

FSIs like the CAMELS ratio have also been used to examine and compare Islamic Banks' performance and commercial banks in Pakistan from 2005 to 2009 (Jaffar & Manarvi, 2011). It is also used to empirically test the overall execution of Pakistani commercial Banks for the period of 2000-2012 (Zafar et al., 2017).

3. DATA AND METHODOLOGY

The sample includes Government-owned and Private Banks. A total of 20 banks listed at the Karachi stock exchange have been taken and investigated for soundness of the banking sector in Pakistan for the financial year 2009-2018. Banks listed provide homogeneity in comparing banks, as done by Ayadurai and Eskandari (2018). The overall averages of the whole data were computed. There were three government-owned Banks and 17 Private sector Banks, including 2 Islamic Banks. This research covers ten financial years starting from 2009 to 2018. The financial year starts on January 1st and ends on December 1st of the same year, and the data analyzed in this research is purely secondary. It is collected from the yearly published Financial Statements by each of the respective Bank's understudies and from The State Bank of Pakistan published statistical reports.

This study selected Partial Least Square Structural Equation Modeling Technique for many reasons. The PLS-SEM model resolves measurement errors in variables (Chen, 2001), and it is a non-parametric technique. PLS-SEM has extensive applications to administrative difficulties, specifically, where a human association is found. For instance, the illustrative model utilized in this section clarifies administrative ability by watching other latent constructs, for example, relational aptitudes, innovative style, and passionate development and experience. Such builds are frequently estimated indirectly through composite markers dependent on metric or semi-metric information (Avkiran, 2018). PLS-SEM turned out to be especially prevalent in social sciences, for example, in marketing and family business by Sarsted et al. (2014), in Accounting, by Lee et al. (2011), and tourism by Rasoolimanesh and Ali (2017). PLS-SEM works well with the formative measures and answering the research questions. According to Babin et al. (2008), SEM's success is ascribed to its ability to measure latent variables and their relationships. It is a beneficial technique to investigate complete theories and understand concepts (Ridgon, 1998).

Table 1: List of Variables

S. No.	Category	Code	Variables
1	Capital	X1	CAR
2		X2	Tier 1 to RWA
3		X3	D/E
4		X4	E/A
5		X5	Capital to Asset
6	Asset	X6	NPLs to Total Loans
7		X7	Pr. to NPLs to NII
8		X8	Total Loans/ Total assets
9		X9	Net NPLs to Capital
10		X10	Equity to net loan
11		X11	Deposits/ Assets
12		X12	NPLs to net loan
13		X13	NPLs to Total Equity
14		Management	X14
15	X15		Total Loans/ Deposits
16	X16		Business per employee
17	X17		Net Income to No. of Br.
18	X18		Total Liabilities to No. of Br.
19	X19		Total Assets to No. of Br.
20	X20		Total Deposits to No. of Br.
21	X21		Total loans to No. of Br.
22	Earning		X22
23		X23	ROA (after tax)
24		X24	Cost/ Income
25		X25	NII to interest expensed
26		X26	NII to total income
27		X27	Non-interest income to total income
28		X28	ROE (before tax)
29		X29	ROE (after tax)
30		X30	ROCE
31		X31	Non-interest expense to total income
32	Liquidity	X32	Liquid Assets to Total Assets
33		X33	Liquid Assets to Total Deposits
34		X34	Deposits to Assets
35		X35	NPLs to Asset
36		X36	Investments to Assets
37	Sensitivity	X37	Log of Total Assets
38		X38	P/E
39		X39	Log of Total Assets + P/E
40		X40	DuPont Ratio
41		X41	Net NPLs to Net Loans
42		X42	Pr. To NPLs to Total Loans
43	Stock Returns	X43	BE/ME

The initial model design has six exogenous constructs (CAMELS) with 42 manifest variables. The manifest variables were reduced to 25. The path model shows the relationship between the six hypotheses and manifest variables. The inner model displays the relationship between the constructs, while the outer model displays the relationship between the construct and indicator variables.

4. RESULTS AND DISCUSSION

Twenty-five manifests variables were significant during the initial assessment of the measurement model based on Outer Loadings, AVE, Cronbach's Alpha, and Composite Reliability.

Table 2: Outer Loadings, Cronbach's Alpha, and Composite Reliability Values

Variables	Items	Loadings	(P-Values)	AVE	Cronbach's Alpha	Composite Reliability
Capital	X1	0.85	(0.00)	0.77	0.79	0.78
	X2	0.91	(0.00)			
Asset	X8	0.81	(0.02)	0.66	0.77	0.81
	X9	0.70	(0.01)			
	X12	0.87	(0.00)			
Management	X13	0.86	(0.00)	0.63	0.73	0.76
	X15	0.71	(0.00)			
	X16	0.87	(0.00)			
	X17	0.87	(0.01)			
	X18	0.73	(0.00)			
	X19	0.74	(0.02)			
Earnings	X20	0.79	(0.04)	0.69	0.70	0.82
	X23	0.93	(0.03)			
	X25	0.82	(0.02)			
	X26	0.78	(0.00)			
	X27	0.70	(0.00)			
	X28	0.94	(0.04)			
Liquidity	X30	0.82	(0.02)	0.69	0.86	0.88
	X32	0.75	(0.00)			
	X33	0.91	(0.00)			
Sensitivity	X37	0.47	(0.00)	0.50	0.82	0.83
	X38	0.74	(0.00)			
	X39	0.42	(0.03)			
	X40	0.90	(0.02)			
	X41	0.82	(0.00)			

Analysis

The capital construct shows weak path coefficients with stock returns and earnings. It has small predictive relevance with stock returns and earnings as f^2 stand at 0.061 and 0.027, respectively. Capital construct has established a significance at a 97.5% confidence interval for stock returns (0.282, 0.996) and with earnings (0.121, 0.884). Thus hypothesis 1 is accepted. The study is in line with [Berger and Bouwman \(2012\)](#) study results that bank capital improves the organizational execution of a small bank in any circumstance, while the medium or bigger bank's adequate capital improves the company's performance during banking crises. It inferred the significance of capital in deciding the survival of banks. Having sufficient capital helps the banks cope admirably during financial crises, thus positively ensuring bank soundness. [Dao and Ankenbrand \(2014\)](#) found that capital risk is directly related to capital adequacy in Vietnamese Banks. It empirically supported that the capital regulation approach should deal with banking risk. Weak and negative path coefficients in this study show that Pakistani banks are operating at low capital levels. [Chen \(2001\)](#) predicted that a low level of capital reduces a bank's lending ability, reducing aggregate investment. When aggregate investment falls, it reduces revenue. Persistent low revenue reduces banks' net worth, reducing the stock returns.

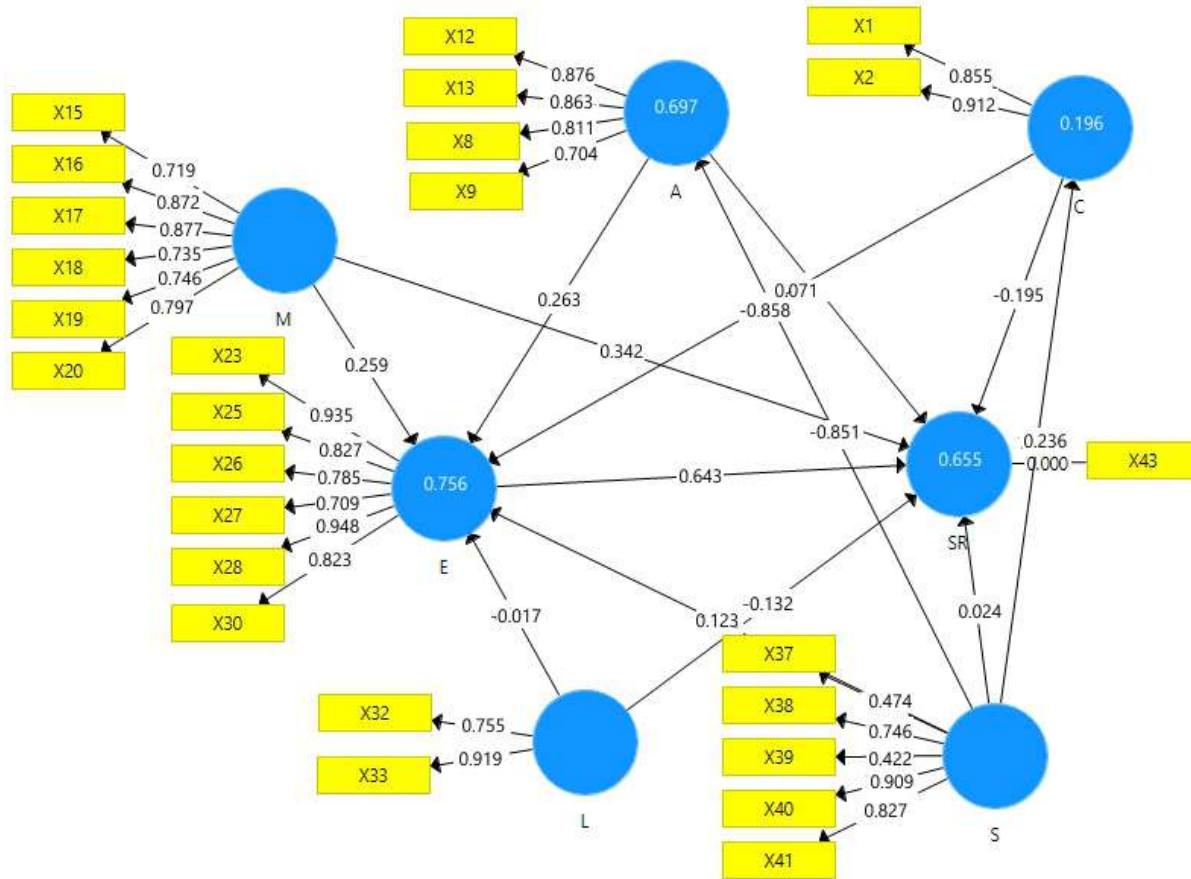


Figure 1: SEM Model of bank Soundness

Asset construct shows significance at a 97.5% confidence interval with stock returns (0.194, 0.245) and earnings (0.077, 0.181), thus supporting hypothesis 2. A weak path coefficient (0.341) with stock returns suggests that banks are operating at a low level of assets. The asset has minor predictive relevance with stock returns and no predictive relevance with earnings. [Sriwardany \(2006\)](#) showed in his study that the asset growth of a company is directly related to the change in stock prices of the company. According to him, the asset growth information of a company brings a positive response from the investors that increase the firm's stock price.

Management construct has not established a significance at a 97.5% confidence interval, thus rejecting hypothesis 3. Path coefficients show weak but positive values whereas the f square value for stock returns and earnings shows no predictive relevance. The results contradict the theory that better service and management quality play an important role in creating the company's value by influencing the purchasing pattern of the customers, hence affecting investment and profitability. Management quality is an internal determinant of the bank's profitability because management objectives, policy decisions, and actions are reflected in banks' operating results. [Zimmerman \(1996\)](#) found that an important contributing factor to bank performance is the management's decision regarding loan portfolio concentration. Good bank performance is often associated with many researchers' good management quality. Various investigations have reasoned that cost control is the essential determinant of a bank's profitability. Expense management offers noteworthy and predictable opportunities to increase profitability. With the enormous size and the huge contrasts in pay rates and wages, the efficient utilization of workers is a key determinant of relative profitability as the total operational cost of the banks is reduced by these costs. Staff expenses seem to negatively affect the bank's ROA. They investigated the effect of management and service quality on the

profitability of the banks in Nigeria and found no significant relationship between management and service quality and the profitability of the banks.

The earnings construct has established sound significance at a 97.5% confidence interval with share returns, thus failing to reject hypothesis 4. The path coefficient is 0.643, suggesting that earnings have a positive and moderate relationship with stock returns. F square value shows average predictive relevancy. Mshoka (2013) showed a significant and strong positive relationship between the earnings of the banking sector and their stock returns. Many studies investigated earnings by breaking down income into its fundamental factors: accruals and cash flow components. These investigations suggested accruals are lesser persevering as compared to cash flows According to the study of Mshoka (2013), cash flows and accruals, both of the components, have a significant positive relationship with the stock returns; however, the cash flow component is given more weightage than accruals. For the banking and servicing sector, the cash flow higher the stock returns.

The liquidity construct has negative path coefficients with stock returns of -0.132 and with earnings of -0.017. There is a sound significance at a 97.5% confidence interval with share returns and earnings (0.366, 1.592), thus failing to reject hypothesis 5. Negative path coefficients show there is insufficient liquidity. No predictive relevance is seen. Liquidity risk became the most dreaded financial risk of all time after the financial crises of 2007-2008. Liang and Wei (2012) demonstrated that continued fears of market illiquidity aggravated the global financial crises. Liquidity has become an important financial phenomenon since the Russian debt crisis in 1998, further impelled by the recent global financial crisis of 2007-2008. These eras were associated with a widespread deterioration in liquidity across countries and markets.

Table 3: Path Coefficients

Soundness Constructs	Path Coefficients	97.5% BCa confidence interval	F square values	Significance?
C-SR	-0.195	(0.282, 0.996)	0.061	Yes
C-E	0.071	(0.121, 0.884)	0.027	Yes
A-SR	0.341	(0.194, 0.245)	0.083	Yes
A-E	0.263	(0.077, 0.181)	0.004	Yes
M-SR	0.342	(-0.056, 2.082)	0.010	No
M-E	0.259	(0.003, 0.174)	0.023	No
E-SR	0.643	(0.224, 0.679)	0.134	Yes
L-E	-0.017	(0.234, 0.913)	0.007	Yes
L-SR	-0.132	(0.366, 1.592)	0.019	Yes
S-SR	0.024	(-1.331, 1.298)	0.027	No
S-E	0.123	(0.002, 0.77)	0.019	No
S-C	0.236	(-0.504, 0.711)	0.002	No
S-A	-0.858	(-0.037, 0.289)	0.006	No

The sensitivity construct highlights ineffective path coefficients with stock returns (0.024), earning (0.123) capital (0.236), and negative path coefficient with asset (-0.858). None of the constructs established a significant relationship at a 97.5% confidence interval, thus rejecting hypothesis 6. Minor predictive relevance is seen with stock returns and earnings, while no relevance is seen with capital and asset. The results suggest that sensitivity is not affecting bank soundness in Pakistan. Fama and French (1992) reported that the market beta has little or no ability in explaining the variation in stock returns on US stock on selected non-financial firms.

The summarized results show that earning is significant for bank soundness, whereas sensitivity is insignificant. Banks are executing their operations with lower liquidity ratios and capital levels, which can

cause bank failures. Bank failures with similar causes were seen during the 1930s Great Depression. Basel III established Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) seem insufficient to generate enough liquidity levels and capital.

5. CONCLUSION

The investigation exhibits PLS-SEM application on 20 listed banks to assess banking sector soundness in a parsimonious way in Pakistan. Forty-two ratios were taken as indicators of CAMELS, and the most relevant ratios in the case of Pakistani banks were identified. After identifying the ratios, the effect of CAMELS parameters on share returns was observed, and the most significant parameters were identified. Both processes were completed by using the PLS-SEM methodology. The most relevant ratios to measure capital adequacy was CAR and Tier1 to RWA. The ratios that determine asset quality are mostly NPLs ratios: Net NPLs to capital ratio, NPLs to net loans, NPLs to total equity, and total loans to asset ratio. The most relevant ratios for the Management parameter are the total loans to deposit ratio, management expense ratio, Net income to number of branches, and total deposits to no. of branches. The earnings parameter's most significant ratios are ROA (after-tax), NII to interest expense ratio, and NII to total income ratio, ROE (before tax), ROCE, and cost to income ratio. Significant ratios for the Liquidity parameter are found to be liquid assets to total assets and liquid asset to total deposit ratios.

In contrast, relevant ratios for Sensitivity are Net NPLs to Net Loans, DuPont ratio, price to earnings ratio, and log of assets. The most significant construct for Pakistani bank soundness is earning, whereas sensitivity is the least relevant. However, liquidity, capital adequacy, and management are significant to share returns hence, playing a considerable role in the banks' soundness in Pakistan. Outcomes also recommended that banks worked with lacking capital and liquidity to pad adversity. Basel III regulations were expected to deal with this situation, but no effective solution was seen for two major problems replacing lost capital in time and risk measurement.

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