

## Comparative analysis of Saudi sharia compliant banks: A CAMEL framework

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### ABSTRACT

A vibrant banking sector remains instrumental to the stability of every economy. Islamic banks are now considered as iris spuria of the banking industry. Countries such as Saudi Arabia have been hailed as the Islamic banking basin. Nevertheless, how well is this sector growing and performing in Saudi Arabia itself? This motivates us to carry out this study. The current study's key objective was to measure Sharia-compliant banks' efficiency on the CAMEL Framework, a commonly accepted framework for banks' financial health. CAMEL is fundamentally an acronym for which the first letter from the five primary segments of a bank operation is jumbled, i.e. “|C|apital adequacy, |A|sset quality, |M|anagement quality, |E|arnings ability and |L|iquidity”. The system is popularly being used for determining the financial soundness and stability of banks. The current study employs this framework to judge the financial performance of four fully Sharia compliant banks or Islamic banks in Saudi Arabia. The publicly accessible audited data of these banks over ten years was taken for analysis. From the final results of the analysis, it is found that all the banks performed stupendously well on the CAMEL framework. AlRajhi Bank was rated number one of all four Sharia-compliant banks. However other three banks namely Alinma Bank, AlBilad Bank, and Aljazeera bank have also done well and overachieved all the criterion of CAMEL's ranking. However, the study proposes a comparison of Sharia-compliant banks with conventional commercial banks. Moreover, it recommended that more banks should engage in offerings of Sharia based products.

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## 1. Introduction

The banking and Finance sector remained instrumental in the economic growth of any country. The economic well-being of an economy is sustained in a healthy and vibrant banking sector. As financial intermediaries, banks extend credit to economic actors and serve diverse economic stakeholders with financial services (Demirguc-Kunt et al., 2014; Turner, 2010). Therefore, the health of the banking sector remains a matter of concern for the government. Specifically, after the sub-prime crisis of 2008-09 and before, the banking sector's health always remains under the monitoring of policymakers and economic vectors. There are several predefined criteria to predict the performance and also the insolvency of banks. Their classification methods range from simple regression (Bonin et al., 2005; Chowdhury et al., 2017), discriminant analysis (Cox & Wang, 2014), logit/probit regression (Cole & Wu, 2017), Value Added Intellectual Coefficient (VAIC) (Naushad, 2019), Data Envelopment Analysis

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(Akhtar, 2010), Neural Network (Bakar & Tahir, 2009; Messai & Gallali, 2015) and CAMEL framework. Among others, the CAMEL framework is one widely used framework that provides a comprehensive view of any banking sector's overall health. CAMEL framework consists of (financial) indicators to rate a bank's financial soundness and, more importantly, the risk of insolvency (Roman & Şargu, 2013; Wang et al., 2013). The framework's name is an acronym jumbled by taking the first letter from the five primary segments of bank operations, i.e., "Capital adequacy, Asset quality, Management quality, Earnings ability, and Liquidity." The framework is popularly used for evaluating the financial soundness and stability of banks (Guan et al., 2019; Shaddady & Moore, 2019). It has become one of the supervisory tools which objectively measure bank performance (Rizvi et al., 2018). It is also used to describe covariates that reflect a bank's financial profile and analyze bank performance (Wang et al., 2013). There are studies available in various contexts (Ledhem & Mekidiche, 2020; Muhmad & Hashim, 2015; Roman & Şargu, 2013; Shaddady & Moore, 2019) that decode the banking performance and risk by using this framework. The applicability and reach of this framework make it a highly utilized and pervasive tool. This framework's pervasiveness can be understood because, in the United States, it is applied by almost three hundred banks, and in other countries, the banking regulatory authority also utilizes it to rate the banks.

However, Islamic banks or sharia-compliant banks seem to be untouched by this framework for rating purposes. Though there are studies available, e.g., Muhmad & Hashim (2015), Masood et al. (2016), Ledhem Mohammed Ayoub & Mekidiche Mohammed (2020), and Keffala (2020) explored the applicability, importance, and predictive capacity, and risk of this model among sharia-compliant banks in Malaysia, Pakistan and multi-countries sample respectively. Nonetheless, any research directly on Sharia/Islamic banks' survey in KSA has barely been seen. However, Sharia-compliant banks were evaluated in terms of Intellectual Capital efficiency by Naushad (2019), Rachmawati et al. (2018), Nawaz & Haniffa (2017), etc., and efficiency-wise by Bahrini (2017), Sufian (2007), and Yudistira (2004), etc. However, the growing distress among the current banking sector world around has increased Islamic banks' significance. Specifically, countries like Saudi Arabia always endeavor to shift the economy from oil to non-oil reliant economy. The massive development in terms of infrastructure and announcement of a highly advanced new city with an impetus to Vision 2030 of KSA made it mandatory to evaluate the banking sector efficacy, specifically among the Sharia compliant banks of KSA. It will help to understand the readiness and effectiveness of this segment of banks to cater to the new economy's need in a new paradigm.

Therefore, to fill the literature gap, the current paper, by adopting the CAMEL's framework, analyses Sharia-compliant banks' comparative performance in Saudi Arabia. The study's findings aim to help in accessing the current status quo and expedite readiness to meet the future challenges of the emerging Saudi economy. Since the information regarding the CAMEL's variables is not publicly available, appropriate proxies have been used based on previous literature (Guan et al., 2019; Gupta & Kashiramka, 2020; Karim et al., 2018). The paper is structured so that the following section delves into the literature and gains insights into the gap available in the literature. The next section discusses the methodology adopted for the study. However, the comparative study of banks based on the CAMEL framework's findings was carried out in the next section. The last section of the paper gives a deep sense of discussion and ends the paper with a note on the future direction of study on the topic.

## 2. Literature review

### 2.1 CAMEL Framework- A Perspective

CAMEL framework was initially introduced in 1979 as an internal supervisory tool to bring uniformity in evaluating the financial soundness/health of the USA's financial institutions (M. Rahman & Islam, 2018). Though it was developed as a tool for on-site rating by US Fed Reserve and other US rating agencies, it had been adopted by other regulatory authorities worldwide (Dang, 2011). It garnered many praises among policymakers and banking regulators. However, critics of this system can be seen (Parsons, 2013; R Alton Gilbert et al., 2002). Parsons (2013) viewed this framework as backward-looking. Cole & Gunther (1998) observed that the application information content of CAMEL's rating decay fairly and rapidly, and the forecasting accuracy is only for six months. Gilbert et al. (2002) criticize the CAMEL framework by highlighting its' on-site inspection nature, which is usually considered burdensome and costly. Despite its criticism, however, a galaxy of academic scholarship acknowledges its relevance and usefulness. Holdsworth & Barker (1993), Barr et al. (2002), and Indriastuti & Ifada (2016), etc. consider CAMEL as a useful tool for predicting banks' failure and indicator of overall financial soundness. Handorf (2016) discusses the use of CAMEL ratings as a quick and straightforward measure containing information indicating the bank's financial soundness. Bongini et al. (2001) found for a sample of East Asian banks that CAMEL ratings are closely linked to distress. As per Barr et al. (2002), "*CAMEL rating has become a concise and indispensable tool for examiners and regulators.*" Dang (2011) emphasizes that the CAMEL rating system has become a meaningful tool for examining banks' safety and soundness, which might mitigate the potential risk of bank failure (Petropoulos et al., 2020; Shaddady & Moore, 2019). Woo (2011) emphasized that CAMELS ratings could be considered better in terms of timeliness than the other ratings. It is considered

helpful to predict the banks' financial health and determine their competitiveness (Gavurova et al., 2017; Sayed & Sayed, 2013). It is sufficiently useful in arbitrating financial efficiency (Ledhem & Mekidiche, 2020).

## 2.2 Earlier Studies and Findings on CAMEL Framework

Researchers initially started realizing the strength of this tool in early 2000 and late 1990. Nevertheless, the approach becomes famous after the 2008 financial crisis. Several studies could also easily be cited after the year 2008. Before 2008, however, there were many studies available on the subject, but we set this year as a reference year and reviewed some studies in this segment. Researchers have performed studies in different contexts in the financial and banking fields. E.g., Derviz & Podpiera (2008) applied the CAMELS framework to the Czech Republic banking sector. The study accentuates the evolution of the five Czech largest banks' financial soundness. Di Patti & Kashyap (2009) investigated the Italian banks after the 2008 crises using CAMELS. It was found that changes in profitability triggered bank distress shifts. Similarly, Hays et al. (2009) applied CAMELS rating variables, including a specific set of ratios on US banks' data. The model set by the study was claimed to be 88 to 96 percent accurate in predicting the community bank performance in the USA (Hays et al., 2009). Sangmi & Nazir (2010) and Echekeba et al. (2014) determined the profitability from 10 years datasets of commercial banks in India and Nigeria, respectively, through CAMELS ratios. Dincer et al. (2011) assessed the performance of the banking sector in Turkey in the aftermath of the global crisis using CAMELS ratios. While Christopoulos et al. (2011) utilized financial ratios based on CAMEL to assess banks' soundness in the USA since 1979. Likewise, Iqbal et al. (2012) evaluated the banking sector's performance in Bangladesh upon CAMELS ratios. On the other side, Roman & Şargu (2013) assessed banks' financial soundness in Romania by CAMELS ratios. Similarly, in a study by Rodica-Oana (2014), the CAMELS method was used to explain the development of Romania's financial system during the before 2007 era and the after 2007 phase. The analysis concluded an alert signal, which produced cross-sectional results between the banking indicators. In a similar pattern, The financial performance of the new-age private sector banks operating in India for the period 2009-2014 was assessed by Subha & Kumar (2015). They concluded that in the emerging private sector banks, Kotak Mahindra Bank occupies the top spot. In one of analogous research, Rostami (2015), used the CAMELS model to measure the efficiency of the Iranian bank in 2009–2014. The findings suggest that CAMELS is a valuable method for measuring bank efficiency.

Together under the similar timeline, Suresh (2016) used the CAMEL rating tool for the period 2007-14 to determine and evaluate the success of conventional and Islamic retail banks in the Kingdom of Bahrain. Alemu & Aweke (2017), Gavurova et al. (2017) and Saif-Alyousfi et al. (2017) applied CAMEL model and ratios in combination to evaluate the commercial banks of Ethiopia, Czech republic, Slovakia and Saudi Arabia respectively. Karim et al. (2018), from 1999 to 2015, used the CAMELS model and Z-score to calculate the stability of 50 banks in Malaysia. The analysis shows that both traditional and Islamic banks are adequate for their degree of solvency. Combining Data Envelopment Analysis (DEA) with CAMEL, Shaddady & Moore (2019) evaluated that greater financial regulations are directly associated with bank stability. While, Guan et al. (2019) evaluated the Chinese commercial banks by applying the CAMELS approach. As far as the recent studies conducted in the current year, there are shreds of evidence available like Nguyen & more significant (2020) examined the Vietnamese banking system over the period 2007–2019 on CAMELS criterion. Mayakkannan & Jayasankar (2020) assessed the performance of public and private banks in India over a data of 5 years from 2015 to 2020. India remains a country where a good number of studies available on CAMELS Framework, e.g. (H. V. Kaur (2010), Sangmi & Nazir (2010), Kumar et al. (2012), K. V. N. Prasad & Ravinder (2012), Kaur et al. (2015), Bawa (2017), Gupta & Kashiramka (2020), G. Prasad & Rajput (2020)) are a few which can be cited. These studies approached the performance of Indian banking sector collectively and set of banks individually by CAMEL's Framework. These studies explicitly consider the traditional commercial banks. However, a few instances can be seen in the Middle East and North African regions where Islamic banks are found relatively in good numbers.

## 2.3 Application of CAMEL's Framework on Islamic or Sharia Compliant Banks

The CAMEL analysis approach is beneficial as it is an internationally standardized rating and provides flexibility between on-site and off-site examination; hence, it is the primary model for assessing bank performance. As far as the implications of CAMEL's model among the Council of Gulf Countries (GCC) and the Middle East and North Africa (MENA) region are concerned, it is found to be in line with the world around. Some instances could be cited like, Abdulrahman and Mushtaq (2011) appraised Islamic banks' performance in Jordan and Iraq for a period from 2000-2008. For five years from 2005-2009. Almazari (2011) deliberated on seven Jordanian commercial banks. The study found that banks with higher shareholder's equity, credits, deposits, and assets did not always have high profitability. In addition, Rozzani & Rahman (2013) noticed that Islamic and traditional banks were close in performance in Malaysia between 2008 and 2011. Their findings revealed completely no substantial gap in output standards between the traditional and the Islamic banks. Suresh (2016) analysed and contrasted traditional retail and Islamic banks success in the kingdom of Bahrain during 2007 to 2014. Rashid & Jabeen (2016) analysed the indicators of Islamic and commercial banks in Pakistan; they estimated the financial performance index (FPI) centred on CAMELS ratios and then extended the calculated index to the CAMELS variables. Besides, the CAMELS ranking model was

used in a study by Masood et al. (2016) researching the performance of Islamic Banks in Pakistan. Although the Islamic banks in question were fine, the others were in the correct shape.

However, if we investigate extending the CAMEL model to Sharia-compliant banks or Islamic banks, very few instances can be seen. Because of mainly two reasons (i) the model was developed and explicitly utilized among the USA and other Western banking models (ii) the intention, nature, and operation pattern of sharia banks are quite distinct from the traditional banks. Nevertheless, likely the commercial banks' sharia-compliant banks are also open or prone to the risk of failure that needs to be addressed. The current study fills this gap by taking the Sharia banks in KSA. Therefore, the current study will envisage CAMEL's role in predicting Sharia compliant banks' relative performance in KSA.

### 3. Methodology

The study is based on secondary data available in public sources for four fully Sharia-compliant banks of Saudi Arabia. The sample choice is based on one criterion that each observation of the sample must offer fully sharia-compliant banks. Therefore, there are only four banks in KSA that satisfy this criterion. However, other banks also offer Sharia-based products partially. For each observation, a data set of 10 years has been observed. In this way, our data for the final analysis consists of forty observations. The study chose CAMEL's framework for measuring the relative performance of the banks under study. Information regarding the original variables used in CAMEL's framework is not publicly available (Gupta & Kashiramka, 2020). The most suitable proxies for each component need to be adopted from the relevant literature. The appropriate proxies for each subcomponent of the CAMEL framework available have been utilized. The CAMEL framework is an acronym made of five different criteria. The first letter of each component was added to set the name for this framework as CAMEL. This abbreviation "C" stands for capital adequacy, a measure of whether a bank has enough capital to sustain losses. The letter "A" stands for the quality of assets, which depends on the quality of assets depending on the assets' credit quality and how much the assets are diversified. The letter "M" refers to "Management Quality," which is merely assessing management's capacity to take advantage of beneficial opportunities when mitigating risk. The quality of earnings is essentially implied by the letter 'E,' which corresponds to the return on capital concerning the cost of capital. Furthermore, eventually, the letter "L" is for liquidity, which is seen as banks' capacity to meet existing or short-term obligations. To determine the efficiency in these criteria, a rating on a scale of one to five is done where one is considered the best and five is the worst. This rating is made on each criterion selected for comparison. The choice of criteria is based on the literature available on the theme as CAMEL criteria are not publicly available (Gupta & Kashiramka, 2020). For the current study, we have adopted the criteria for each component of CAMEL's framework given in Table 1.

**Table 1**  
Rubrics for CAMEL Rating

Components	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
Capital Adequacy	≥ 15%	12-14.99%	8-11.99%	7-7.99%	≤ 6.99%
Assets Quality	≤ 1.25%	1.26 - 2.5%	2.6 - 3.5%	3.6 - 5.5%	≥ 5.6%
Management Quality	≤ 25%	26 – 30%	31 - 38%	39 - 45%	≥ 46%
Earning (ROA)	≥ 1%	0.80 - .9	0.7 - .35	0.34 - 0.25	≤ 0.24
(ROE)	≥ 22%	21.99 - 17%	16.99 - 10%	9.99 - 7%	≤ 6.99
Liquidity Ratio L1	≤ 0.55	0.56 - 0.62	0.63 - 0.68	0.69 - 0.80	≥ 0.81
Liquidity Ratio L2	≥ 50%	45 - 49.99 %	38% - 44.99%	33% - 37.99%	≤ 32%

**Source:** Adopted from (Babar & Zeb, 2011; Masood et al., 2016; Rozzani & Rahman, 2013)

### 4. Results and Discussions:

#### 4.1 [C]- Capital Adequacy

As prescribed in Basel documents, banks are supposed to maintain at least 8% capital to weighted risk assets ratio (Ariss & Sarriddine, 2007; Sarma, 2007). The most remarkable thing about Saudi banks that emerged from the Capital Adequacy Ratio (CAR) is that all banks taken for analysis appeared to do incredibly well. Interestingly, no bank among four fully sharia-compliant banks finds a CAR below 15 percent over a span of ten years. All the banks maintain a well CAR above the 15 percent. Furthermore, if the 10-year CAR average is taken, it is also considered to be a very decent level, twice the Basel requirements' minimum requirement. In contrast, Alinma bank's CAR is the highest, on average, i.e., 44.54%. This too high number of CAR is attributed to an extraordinary 2009 figure of 183.19 percent. However, in general, Alinma Bank's CAR is

relatively high among other players. Albilad, which maintains the lowest average CAR, has slightly lower than Bank Aljazeera, i.e., 17.84%. Finally, Al Rajhi bank comes in number two position among four banks with a CAR of 20.47%.

**Table 2**  
Capital Adequacy Ratio

Years	(C)apital Adequacy							
	AlBilad Bank		Alinma Bank		AlRajhi Bank		Aljazeera Bank	
	CAR		CAR		CAR		CAR	
2009	18.41		183.19		19.30		17.73	
2010	17.43		75.14		20.63		15.72	
2011	18.31		44.13		20.03		17.4	
2012	18.52		32.78		19.83		15.67	
2013	17.14		28.37		19.60		15.01	
2014	16.71		26.12		19.59		14.05	
2015	15.88		22.35		20.83		15.83	
2016	20.46		19.21		21.98		19.86	
2017	18.54		19.66		23.29		20.94	
2018	17.33		19.89		20.17		27.46	
2019	17.50		19.11		19.87		24.62	
Average	17.84		44.54		20.47		18.57	
Rank	4		1		2		3	
Rating	1		1		1		1	

Source: Researcher's compilation

#### 4.2 [A]- Assets Quality

The study adopted two main highly used ratios found in the literature to calculate the asset quality of four sharia-compliant banks, i.e. (i)-Non-Performing Assets (NPA) as compared to Total Assets (TA) (NPA/TA) and (ii)-Net Loan and Advances (NLA) as compared to Non-Performing Assets (NPA/NLA). The results of all the four banks over a span of 10 years are shown in Table 3.

**Table 3**  
Assets Quality

Years	AlBilad Bank		Alinma Bank		AlRajhi Bank		Aljazeera Bank	
	NPA/TA	NPA/NLA	NPA/TA	NPA/NLA	NPA/TA	NPA/NLA	NPA/TA	NPA/NLA
2009	3.61	5.71	0.00	0.00	2.26	3.43	4.06	7.85
2010	3.35	5.76	0.01	0.02	1.44	2.21	4.03	7.11
2011	2.47	4.97	0.03	0.04	1.09	1.70	2.65	4.42
2012	2.53	4.12	0.23	0.33	1.32	2.05	2.05	3.48
2013	1.27	1.97	0.48	0.67	1.07	1.61	0.72	1.23
2014	0.95	1.52	0.43	0.65	0.86	1.29	0.56	0.90
2015	1.00	1.50	0.48	0.75	1.04	1.55	0.63	0.95
2016	0.94	1.40	0.52	0.78	0.84	1.27	0.82	1.30
2017	0.84	1.22	0.71	1.03	0.52	0.76	0.74	1.27
2018	0.99	1.44	1.05	1.53	0.63	0.98	1.53	2.73
2019	0.85	1.24	1.40	1.94	0.60	0.93	0.78	1.36
Average	1.71	2.81	0.49	0.70	1.06	1.62	1.69	2.96
Rank	4	3	1	1	2	2	3	4
Rating	2	3	1	1	1	2	2	3

**Annotations:** NPA= Non-Performing Assets, TA= Total Assets, NLA= Net Liquid Assets.

Source: Researcher's compilation

Interestingly, the above ratios can be observed that, relative to three other banks, Alinma bank has retained the highest NPA, i.e., <1%. The asset quality of other banks is also found to be inexplicably good. Among others Bank, Albilad, and Bank Aljazeera NPA is higher. However, that number is also within the significant limit. Bank Aljazeera's NPA is found to be the highest among all. However, as per CAMEL rating standards, it still falls under the category of between 2<sup>nd</sup> and 3<sup>rd</sup> rating. Taken as a whole, no substantial growth in these banks' NPAs was cited. Overall, based on the group average of the asset quality sub-parameters, Alinma Bank holds the top position, followed by Alrajhi Bank, Albilad, and Aljazeera. Due to a reasonably high NPA score and a low score on asset quality control, Aljazeera Bank is in the last post. If the cumulative average of all the asset quality criteria is taken together based on the CMAEL rating criterion, it suggests that Alinma Bank still ranks first. Alrajhi bank, Bank Albilad, and Aljazeera bank respectively scored the second rank. The overall composite average rating indicates

that Sharia-compliant banks in KSA maintain an adequate asset quality level, which is an indispensable element of overall health and growth.

**Table 4**  
Ranking based on Composite Average of Assets Quality Parameters

Particular	AlBilad Bank	Alinma Bank	AlRajhi Bank	Aljazeera Bank
NPA/TA	1.71	0.49	1.06	1.69
NPA/NLA	2.81	0.70	1.62	2.96
Composite Average	2.26	0.595	1.34	2.33
Rank as per CAMEL's Rubrics	2	1	2	2

**Annotations:** NPA= Non-Performing Assets, TA= Total Assets, NLA= Net Liquid Assets.

Source: Researcher's compilation

#### 4.3 [M]- Management Quality

“Management quality” or “management efficiency” or “management soundness” is one of the critical elements of the CAMEL model. Management quality highly relies upon the management capacity to utilize the organizational resources to generate returns to various stakeholders (Christopoulos et al., 2011; Naushad et al., 2020). In CAMEL's framework, a subjective analysis of selected ratios is made to measure management's efficiency and effectiveness. Ratios/parameters considered in this component are fragmented in Return on Net Worth (RONW), deposits compared to assets, and profit per employee (PPE). Table 5 highlights the significant values of the ratios selected.

**Table 5**  
Management Quality

Years	AlBilad Bank			Alinma Bank			AlRajhi Bank			Aljazeera Bank		
	RONW	TA/TD	PPE	RONW	TA/TD	PPE	RONW	TA/TD	PPE	RONW	TA/TD	PPE
2009	-8.27	80.27	-12.36	1.38	74.25	20.47	23.55	91.85	81.46	0.59	70.02	1.58
2010	2.98	72.58	4.71	0.10	187.51	1.28	22.33	84.14	79.40	0.60	68.40	1.79
2011	9.65	59.81	13.41	2.71	142.10	30.61	22.03	79.16	79.49	6.13	74.80	19.24
2012	21.55	76.89	33.16	4.40	115.44	47.24	21.62	77.79	78.42	9.99	73.50	30.89
2013	14.29	80.44	22.74	5.97	105.05	60.35	19.32	80.67	70.15	11.36	72.78	36.57
2014	14.67	77.21	25.10	7.05	90.26	71.11	16.32	80.42	58.13	9.30	75.58	28.41
2015	12.24	81.21	20.30	8.01	86.77	75.38	15.29	82.14	57.62	17.36	84.75	59.15
2016	11.29	89.92	21.17	7.83	87.22	69.68	15.64	82.54	59.99	10.76	81.58	39.29
2017	12.41	90.93	24.47	9.77	88.77	89.08	16.36	85.53	69.75	9.71	79.14	38.01
2018	14.18	88.49	26.24	11.82	92.85	104.15	21.21	79.39	76.09	8.90	78.95	31.77
2019	13.19	88.46	28.40	11.29	92.89	100.67	19.84	79.92	75.59	8.55	76.75	30.72
Average	10.74	80.57	18.85	6.39	105.74	60.91	19.41	82.14	71.46	8.48	76.02	28.86
Rank	2	3	4	4	1	2	1	2	1	3	4	3
Rating	1	5	1	1	5	5	1	5	5	1	5	2

**Annotations:** RONW= Return on Net Worth, TA= Total Assets, TD= Total Deposit, PPE= Profit Per Employee.

Source: Researcher's compilation

Remarkably, Alrajhi Bank has emerged as the champion over an average period of 10 years, i.e., 19.41 percent, to produce the highest return on its shareholders' net worth. Conspicuously, with an average of 6.39 percent that is the lowest number among other players, Alinma bank, which was in a leading condition in another dimension, was trailing in this dimension. Albilad and Bank Aljazeera have secured second and third spots in producing a return on net assets. Overall, a declining trend in RONW can be observed among all banks in the last five years. In Alinma bank, the total assets to total deposit ratio have increased from 74.25 to 92.89 percent from 2009 to 2019. The said ratio, on average, is highest in Alinma Bank among the other three banks. However, in Alrajhi Bank, this ratio has declined from 91.85 to 79.92 percent from 2009 to 2019. The other two banks, Albilad bank and Bank Aljazeera did not record a substantial increase in this ratio. Bank Aljazeera recorded an increase of around 6.73 percent over ten years, while Bank Albilad has recorded a minimal growth of only 8.19 percent. Bank Aljazeera remained last on this parameter with an average score of 76.02 percent. In the case of Bank Albilad and Alrajhi bank ratio is closer to each other in the last five years, which varies between 79 and 90 percent. However, Alrajhi Bank stood in the second position with an average ten years score of 82.14 percent. The profit per employee (PPE) ratio measures how efficiently a particular bank is utilizing its employees (M. Z. Rahman & Islam, 2018; Sayed & Sayed, 2013). Alrajhi Bank is found to be number one with a 71.46 percent profit per employee based on a ten-year average of this ratio. It is followed by Alinma bank and Aljazeera bank with 60.91 percent. Albilad bank is positioned at last.

**Table 6**  
Ranking based on Composite Average of Management Quality Parameters

Particular	AlBilad Bank	Alinma Bank	AlRajhi Bank	Aljazeera Bank
RONW	10.74	6.39	19.41	8.48
TA/TD	80.57	105.74	82.14	76.02
PPE	18.85	60.91	71.46	28.86
Composite Average	36.72	57.68	57.67	37.79
Rank	4	1	2	3

**Annotations:** RONW= Return on Net Worth, TA= Total Assets, TD= Total Deposit, PPE= Profit Per Employee.

Source: Researcher's compilation

Table 6 gives the cumulative estimates of all management efficiency parameters. Only the aggregate average has been taken into account, and the ranking has been rendered on that basis. The criterion of CAMEL is dispersed and varied under this dimension. The application of these requirements for a standardized ranking would, however, be entirely challenging. While taking the composite average, Alinma Bank stands in the first position with a slight difference from its predecessor, i.e., Alrajhi Bank. Bank Albilad and Aljazeera bank score the third and fourth rank respectively.

#### 4.4 [E]- Earning Quality

Earning quality as per CAMEL's framework is assessed by three highly utilized ratios commonly found in the literature. Three ratios were chosen to obtain the sampled banks' earning quality. The results of these ratios for the last ten years are reported in table 7. The most striking thing from the percentage change results in profit could be observed that Albilad bank, which was laggard on other parameters, became the leader in this parameter. The net profit of Albilad bank has grown up by an average of 34.17 percent over ten years. On the other hand, Alinma Bank, which seemed to be the leader on other parameters, has trailed by an average negative growth of 106.93 percent. The primary cause of this inexplicable result is the highest negative growth in 2010, which accounted for 1316.17 percent. The other two players Alrajhi Bank and Bank Aljazeera have generated a net profit at 3.72 percent and 16.37 percent, respectively.

**Table 7**  
Earning Quality

Years	AlBilad Bank			Alinma Bank			AlRajhi Bank			Aljazeera Bank		
	% Change in NP	NP/ TA	II/ TA	% Change in NP	NP/ TA	II/ TA	% Change in NP	NP/ TA	II/ TA	% Change in NP	NP/ TA	II/ TA
2009		-1.43	3.17		1.24	2.99		3.96	5.48		0.09	2.24
2010	-137.17	0.44	2.97	-1316.71	0.06	2.32	0.05	3.66	4.95	4.80	0.09	2.20
2011	257.05	1.19	2.57	96.48	1.17	3.04	8.23	3.34	4.14	90.45	0.78	2.03
2012	185.72	3.16	2.86	41.18	1.36	2.83	6.42	2.95	3.51	39.49	0.99	1.89
2013	-22.58	2.01	2.64	27.03	1.59	2.95	-6.01	2.66	3.47	23.08	1.08	2.05
2014	18.50	1.91	2.28	20.53	1.56	2.59	-8.80	2.22	3.21	-13.65	0.86	2.18
2015	-8.75	1.54	2.29	13.99	1.66	2.59	4.12	2.26	3.15	55.52	2.03	2.53
2016	2.45	1.50	2.63	2.15	1.43	2.55	12.26	2.39	3.32	-47.62	1.31	2.36
2017	16.63	1.49	2.76	25.31	1.75	3.06	10.91	2.66	3.52	-1.68	1.26	2.66
2018	17.88	1.51	2.94	20.10	2.07	3.13	11.42	2.83	3.65	14.27	1.37	2.66
2019	12.00	1.44	3.16	0.69	1.92	2.23	-1.36	2.64	4.28	-0.94	1.15	2.37
Average	34.17	1.34	2.75	-106.93	1.44	2.75	3.72	2.87	3.88	16.37	1.00	2.29
Rank	1	3	2	4	2	2	3	1	1	2	4	3
Rating	-	1	-	-	1	-	-	1	-	-	1	-

**Annotations:** NP =Net Profit, TA = Total Assets, II = Interest Income.

Source: Researcher's compilation

Net profit relative to total assets is another ratio to access the earning quality. A higher number of assets to net profit ratio indicates the better income-generating capacity of the assets. From the table above could easily be noticed an increasing trend among all four banks where Alrajhi bank leads others with the highest average ratio of 2.87 percent. It is followed by Alinma bank and Albilad bank with an average ratio of 1.44 and 1.34 percent. At the same time, Bank Aljazeera comes on last with an average ratio of 1.0 percent. These numbers depict the efficiency of these banks in utilizing their assets. The following ratio in this category is interest income in comparison to total assets. However, Sharia-compliant banks do not provide funding on direct interest rates. Earning interest capacity is found highest among the Alrajhi bank with an average rate of 3.88 percent. Surprisingly, Alinma bank and Albilad bank have earned interest income with a similar rate, i.e., average 2.75 percent. While Bank Aljazeera comes on last with an average earning rate of 2.29 percent.

**Table 8**

Ranking based on Composite Average of Earning Quality Parameters

Particulars	AlBilad Bank	Alinma Bank	AlRajhi Bank	Aljazeera Bank
% Change in NP	34.17	-106.93	3.72	16.37
NP/ TA	1.34	1.44	2.87	1.00
II/TA	2.75	2.75	3.88	2.29
Composite Average	12.75	-34.25	3.49	6.55
Rank	1	4	3	2

**Annotations:** NP =Net Profit, TA = Total Assets, II = Interest Income.

Source: Researcher's compilation

#### 4.5 [L]- Liquidity

A bank's liquidity is known as the capacity to satisfy financial commitments once they are due. There are many standards available in the literature in CAMEL's framework to measure this bank's ability. However, understanding the liquid position in terms of overall deposits obtained by it is a highly accurate and trusted indicator, known from the ratio of total deposits and liquid assets. Another measure of liquidity can be understood in knowing the proportion of liquid assets and total assets. The results of these parameters are reported in Table 9.

**Table 9**

Liquidity

Years	AlBilad Bank		Alinma Bank		AlRajhi Bank		Aljazeera Bank	
	LA/TD	LA/TA	LA/TD	LA/TA	LA/TD	LA/TA	LA/TD	LA/TA
2009	9.49	7.48	24.12	2.09	9.29	6.68	7.37	5.44
2010	14.78	11.85	7.91	2.47	13.61	10.54	10.28	8.52
2011	25.47	21.16	7.95	3.84	11.49	9.25	14.80	11.86
2012	12.55	10.01	8.58	5.12	14.12	11.69	18.05	14.46
2013	14.53	11.64	11.63	7.89	12.94	10.71	15.88	12.73
2014	12.34	10.02	10.21	7.50	13.12	10.91	12.74	10.45
2015	11.00	9.06	7.81	5.79	10.56	8.57	7.49	5.89
2016	11.36	8.50	8.81	6.78	15.46	12.41	10.07	7.84
2017	11.99	9.06	8.20	6.36	17.68	14.07	11.88	8.75
2018	11.37	8.83	8.17	6.07	14.71	11.87	9.58	6.80
2019	11.80	9.20	7.88	6.10	12.58	10.23	8.47	6.33
Average	13.33	10.62	10.11	5.45	13.23	10.63	11.51	9.01
Rank	1	2	4	4	2	1	3	3

**Annotations:** LA =Liquid Assets, TD = Total Deposits, TA= Total Assets.

Source: Researcher's compilation

It is interesting to note that AlBilad bank stands first with a minor insignificant difference with AlRajhi bank. The Liquidity ratio of AlBilad bank is 13.33 percent; while nearing this, AlRajhi maintains an average ten years liquidity ratio of 13.23 percent, which is the highest and second-highest among all. Alinma Bank maintains an average liquidity ratio of 10.62 percent, which is the lowest, and Aljazeera banks' liquidity ratio is slightly higher than Alinma bank, which is 11.52 percent. Comparing liquid assets to total assets is concerned, we can observe that AlBilad bank and AlRajhi bank maintain the almost same percentage of liquid assets to total assets, i.e., 10.62 percent. In comparison, Aljazeera Bank comes on an average of 9.01 percent. Here, unprecedentedly Alinma bank comes to the bottom among all three banks with an average of 5.45 percent. However, Alinma bank's ratio is improving over the years, but still, it remains the laggard in this parameter.

**Table 10**

Ranking based on Composite Average of Liquidity Parameters

Particular	AlBilad Bank	Alinma Bank	AlRajhi Bank	Aljazeera Bank
LA/TD	13.33	10.11	13.23	11.51
LA/TA	10.62	5.45	10.63	9.01
Composite Average	11.98	7.78	11.93	10.26
Rank	1	4	2	3

**Annotations:** LA =Liquid Assets, TD = Total Deposits, TA= Total Assets.

Source: Researcher's compilation

#### 4.6 Composite Ranking as per CAMEL Framework

The comprehensive analysis of CAMEL's framework is discussed in detail in the earlier sections. The primary aim of the CAMEL system is to rate banks according to various parameters. Table-11 compiles the CAMEL Framework's composite values. Therefore, it is clear from the study carried out in the present paper and the composite average values accumulated in table-11 that AlRajhi Bank ranked first with 18.98% of the composite average. Bank AlBilad ranked second with a composite average of 16.31%, followed by Alinma Bank than Aljazeera bank at the bottom, with 15.10%. Thus, this study's findings suggest that AlRajhi Bank emerged as the leader on the CAMEL framework. However, it is also an obvious fact that Alinma Bank remains the top performer in almost all other criteria. Nevertheless, due to an unprecedented event at Alinma Bank dragged it down. Table-11 below portrays the final CAMEL's ranking for the Sharia-compliant banks in Saudi Arabia.

**Table 11**

CAMEL Ranking based on composite Averages

Particulars	AlBilad Bank	Alinma Bank	AlRajhi Bank	Aljazeera Bank
C	17.84	44.54	20.47	18.57
A	2.26	0.595	1.34	2.33
M	36.72	57.68	57.67	37.79
E	12.75	-34.25	3.49	6.55
L	11.98	7.78	11.93	10.26
Composite Average	16.31	15.27	18.98	15.10
Rank	2	3	1	4

Source: Researcher's compilation

#### 5. Conclusions and Suggestions

The current study's objective was to compare Sharia-compliant banks in Saudi Arabia by applying the CAMEL framework. Moreover, the broader objective was to scan the financial health of Sharia banks in KSA by adopting a reliable and comprehensive tool/framework. It is evident from the discussion made in the study that CAMEL is a sufficiently broad framework that not only tells the financial health but also ranks banks based on their performance. It is clear from the results discussed in the last section of the paper that AlRajhi bank topped among all four Sharia banks on CAMEL's criterion. However, the other three banks, namely Alinma Bank, AlBilad Bank, and Aljazeera, have also performed well and over succeeded all the CAMEL's ranking criterion. The banks chosen for the study have adequate levels of CAMELS indicators. Thus, sample banks have in-general over succeeded the fit performance during the period 2009–2019. Bank AlBilad has retained a "bulky" liquidity level, while an increased liquidity status can impact profitability. And it is evident from the profitability results of the same. A major impact from the findings may be learned by allowing more Sharia-complaint/Islamic banks to function and expand in Saudi Arabia, as there is both a religious and a business growth aspect for these banks. Most importantly, in the KSA, these banks are doing well. However, policy makers and regulators should specify their evaluation criteria to monitor risk management practices in banks. However, no study is free from limitations, the limitation of our study is that the sample used in the study was only for four banks, however there are only four fully Sharia compliant banks in KSA. It should be extended to other sharia banks in the GCC region. Moreover, the current study utilizes the basis CAMEL model only, though at later "S", sensitivity aspects were also added to the framework which made it CAMELS. In future researchers can employ the added framework along with the original CAMEL framework.

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