The Impact of Credit Risk and Bank-Specific Drivers on Banks' Performance: Evidence from the UAE Region

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Abstract

The COVID-19 pandemic has induced a series of credit risk problems for most commercial banks in the GCC region. Thus, the current paper aims to examine the impact of both credit risk and bank-specific drivers on commercial banks' financial performance in the UAE from the period 2017 - 2021. The study used NPLs, LLP, and DR as credit risk indicators while CER, LR, and NPLs were used as bank-specific drivers and ROA as financial performance measures. The Random Effect model was used for data analysis. The findings revealed that NPLs and LLP had a negative and significant effect on ROA while CER, LR, and, NPLs were found to have a negative and significant relationship with ROA. This paper implies that banks need remain prudent in their credit risk management and adopt the best strategies to manage and control bank-specific drivers to improve their performance

Keywords: Credit risk, Bank-specific drivers, banks' performance. Commercial banks. UAE

1. Introduction

Around the world, the financial sector performs an essential task in bringing economic growth and financial stability by mobilizing funds from surplus units across the world (Accornero et al 2018). In the financial sector, banks play an important role by mobilizing the surplus funds from surplus units (i.e. savers) and lending funds in the form of loans to the deficit units (i.e. borrowers), in return for net income in terms of a net interest margin (Ghosh, 2015 and Khan et al., 2020). Commercial banks improve their performance in terms of profitability through net interest margin by issuing various types of loans to the borrowers while playing their crucial intermediary function. During this process of intermediary role commercial banks are exposed to credit risk. According to the nature of banking activities, one of the significant commercial banks' risks is credit risk. Through an effective framework, strategies on credit risk management exposure commercial banks not only support banks' performance and stability but also assist in the efficient allocation of funds in the economic activities of a country (Psillaki et al. 2010). Accornero et al. (2018) in their study found that the main reason for the banking sector failure and collapses were due to high credit risk. The credit risk problem in the banks in the country contributes to the failure of the financial system as a whole (Siddique et al, 2021). The strength of the banking system is an essential prerequisite to ensuring the growth and stability of the country's economy (Halling & Hayden, 2006). Thus, the assessment of the financial performance of the banking system is a fundamental goal for banks' management and regulators. Several empirical studies on bank failure in different countries and the significant role which is played by credit risk in the bank's failure have been carried out around the world. The study carried out by Hasan et al (2014) found that high credit risk in the banking industry was the main reason for bank failure in both developed and developing countries. The banking industry crisis in the US and some European nations were contributed by credit risk management inefficient practices which led to an increase in interest in credit risk studies in the banking industry (Juta & Ingrīda, 2009). In UAE, the primary regulator of the banking institutions is the Central Bank of the UAE (CBUAE). The CBUAE is formulating and implementing the banking monetary policies and credit across the UAE. There are two major groups of commercial banks in the UAE's financial systems, the first locally incorporated banks are public shareholding companies licensed by wibynion Law No. (10) of 1980, and the second branches of foreign banks, which are those commercial banks that have obtained a license from the Central bank to operate banking services in the country (CBUAE, 2020). The banking

industry in UAE is largely dominated by domestic-owned banks due to licensing restrictions and entry barriers for foreign banks. The major components of the UAE commercial banks' assets are loans and overdrafts. The evidence has shown that during the COVID-19 pandemic banking industry in UAE was faced with the problem of credit risk due to the economic activities contraction which increased the overall non-performing loans for the banking industry (CBUAE, 2020). The level of NPL ratios increased from 5.0% in 2017 to 5.3% in 2018, and then the NPL ratios were shown an upward trend from 6.0% in 2019 to 7.3% in 2021 (IMF,2021). The soaring of NPLs causes a major burden on commercial banks' performance. The high ratio of NPLs caused a slowdown in financial market activities and the banking sector intermediary process. Recent statistics indicate that the ratios of NPLs were relatively high compared with the world average in 2020 based in 102 countries was 5.86% (IMF, 2021). The average trends of NPLs ratios for the banking sector in UAE during the period of 2016-2021 are shown in figure 1.1

Figure 1.1: NPLs Ratios of UAE Banking Industry 2016-2021
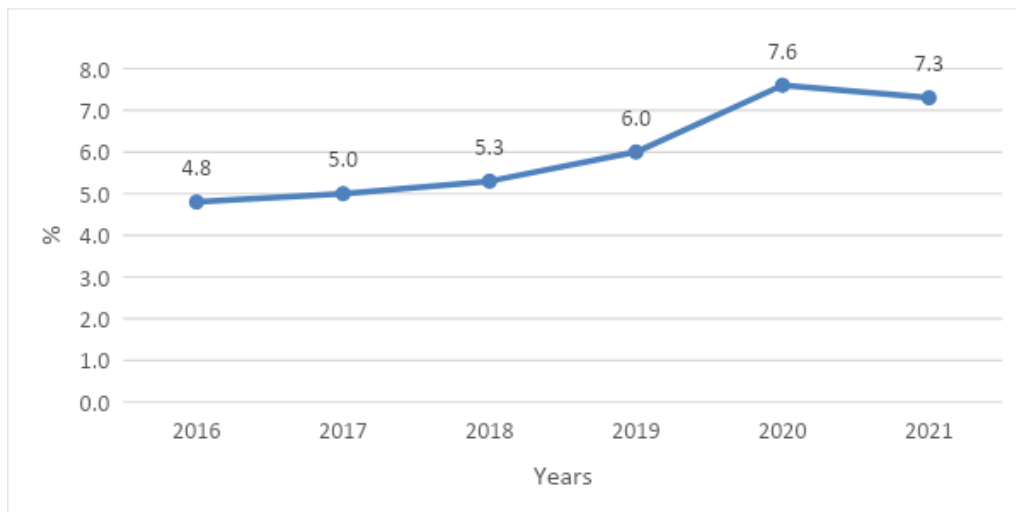
Source: IMF 2021

An increase in the level NPLs in the banking sector in UAE pauses a great risk to banks and the financial sector at large. In the same manner, failure to manage down NPLs over a long period gradually affects the performance of banks. This implies that the performance of banks in the UAE is low due to huge credit risk exposure. This trend of high NPLs for the banking industry in the UAE pauses a great problem not only for the financial sector but also for the economy at large. Therefore, by considering the importance of credit risk in the banking sector and the severe economic impact on banking sector performance, it is extremely important to conduct a comprehensive study to find out how credit risk is impacted the banks' performance in the UAE and to what extent. Credit risk empirical studies and their impact on the banking sector's performance in well-developed economies are widely presented in the banking industry performance literature. Such as the works of Altman & Saunders (1998): Weber et al. (2010): Acharya et al. (2013) and Rampini et al. (2014) who conducted studies on credit risk's impact on banks' performance in developed economies. The scarcity of empirical studies that examined the impact of credit risk and bank-specific drivers on commercial banks' performance in GCC countries, and UAE, in particular, during the COVID-19 pandemic. Most of the previous empirical studies used only credit risk as the driver of banks' financial performance, however, bank-specific drivers' effect on banks' performance and stability was not emphasized much in previous studies. Thus, the UAE was selected due to the following reasons. First credit risk ratios have been more volatile in the region during the period of study which raised concern about the financial system stability. Secondly, the UAE's banking sector attracts investors and bankers across the world. The position strategically makes the UAE region more competitive in the financial services sector. Thirdly, the UAE is facing various changes and challenges such as commercial banks competing and operating with Islamic banks' counterparts and the opening-up market to foreign banks' competition. Therefore, it is important to conduct this kind of study in the UAE region. This paper intended to fill the theoretical gaps in the literature by studying both bank-specific drivers and credit risk's impact on banks'

performance in the UAE covering the period of 2017 - 2021. The aim is to answer the following questions. What is the effect of credit risk on banks' profitability in the UAE? What is the relationship between banks' profitability and bank-specific divers in UAE and to what extent? The empirical findings of the study will provide information to banks' regulators and management on strategies for managing the credit risks and significant drivers influencing banks' performance towards achieving banking sector stability.

In this context the paper is structured as follows: section 2 consists of a literature review on the effect of credit risk and bank-specific drivers on banks' financial performance: section 3 consists of data and methodology: section 4 presents empirical results and discussion and Section 5 discusses the conclusion.

2.   Empirical Literature review and hypotheses development

The banking industry is highly exposed to credit risk problem during the process of intermediary roles, thus credit risk form one of the significant risks of banks by the nature of their traditional activities. This section briefly discusses empirically how credit risks and bank-specific factors affect banks' financial performance.

2.1   The credit risk and banks' financial performance.

In banking operations, the identified key is credit risk which influences commercial banks' performance in terms of profitability, liquidity, and stability. Better banks' performance is evidence of effective credit management (Oduro et al. 2019). The banking industry is facing main three categories of risks while it is operating its banking activities which include financial, operational, and environmental risks. The income-generating of banks is obtained by issuing loans to their borrowers, however, in this process of lending credits to the borrowers, banks are exposed to credit risk (Siddique et al, 2021). There is a growing empirical study on credit risks' impact on the banking sector's performance. Evidence indicates that lending activities are the major indicator of credit risk reported across the world that affects the banks' performance and stability (Murith et al., 2016). The UK, USA, Japan, Sweden, and other emerging countries like East Asia and Latin America have recently experienced several crises associated with credit risks as a result of lending activities due to non-performing loans(Ferreti (2017). Ekinci & Poyra (2019) conducted a study on the credit risk effect on banks' profitability in Turkey by using 26 commercial banks from 2005 to 2017, the credit risk was measured by NPLs ratios while profitability was measured by ROA. The study found that credit risk had a negative and significant relationship with ROA. Oduro et al. (2019) evaluated the effects of bank credit risk on banks' corporate financial performance using financial data from banks on the Ghana Stock Exchange from 2003 to 2017. The findings revealed that profitability was inversely related to credit risk. Olobo et al. (2021) also investigated the effect of credit risk on banks' performance in South Sudan, the study used a cross-sectional survey design with 124 respondents and found a strong positive correlation between risk management practices and banks' financial performance. Hapsari (2018) conducted a study on the credit risk effect on commercial banks' financial performance using the NPL ratio and loan to deposit ratio (LDR) as a proxy of credit risks and ROA as a measure of financial performance and found that LDR has a positive effect on ROA while NPLs has a negative effect on ROA. Abbas et al. (2019) in their study of credit risk effect on 174 Asian countries' commercial banks' profitability for the period from 2011 to 2017, the results indicated that credit risk had a negatively significant on profitability. Recently Siddique et al. (2021) investigated credit risk effects on the performance of South Asia commercial banks using NPLs as a measure of credit risk and ROA to measure financial performance. The findings revealed that NPLs had a negative and significant relation to the ROA of the South Asian commercial banks. Harb et al. (2021) evaluated the impact of credit risk by using the regression technique of a sample of commercial banks in the MENA region for the period from 2010 to 2018 and found no relationship between banks' performance and credit risk. In reviewing of empirical literature discussed above found the mixing results from different authors. Based on the above-mentioned arguments, the study developed the following hypothesis

H₁. Credit risk negatively influences bank financial performance

### 2.2   Bank-specific drivers and banks' performance

Bank-specific drivers are those factors that influence the day-to-day operation of the banks and are within the scope of management to control and they differ from bank to bank. Diversification of credit risk in the banking sector is associated with bank-specific drivers and the credit risk can be minimized by efficient

management. Better performance of a particular bank depends upon proper management of these bank-specific drivers (Louzis et al. 2012: Siddique et al. 2021). In the banks' literature CAMEL framework is normally used by scholars to proxy the bank-specific internal factors. CAMEL stands for Capital Adequacy, Asset Quality, Management Efficiency, Earnings ability, and liquidity (Muriuki et al., 2019). Different authors conducted studies on bank-specific factors against banks' performance. Such as, Hasanov et al. (2018) examined the effect of bank-specific drivers on banks' performance in Azerbaijan by using the GMM and findings showed that size and capital adequacy had a positive and significant relation with banks' profitability while liquidity and deposits had the negative and significant effect. The studies conducted by (Chimkono et al. 2016: Ghosh, 2015) in their study evaluated the effect of management efficiency on banks' financial performance. The findings revealed a negative and significant between banks' performance and management efficiency. Aspal et al. (2019) in their study used a bank-specific factors to examine its effect on banks' financial performance in India by using the data of 20 banks from 2008-2014. The results revealed that all bank's specific drivers significantly affect the financial performance except capital adequacy. and liquidity risk. Based on the above-mentioned arguments, the study developed the following hypothesis

H₂. Bank-specific drivers influence bank financial performance

Based on the empirical literature discussions above the study has developed the following conceptual framework (figure 2.1) and specific hypotheses testing for credit risk and bank-specific drivers:

Figure 2.1 Conceptual Framework
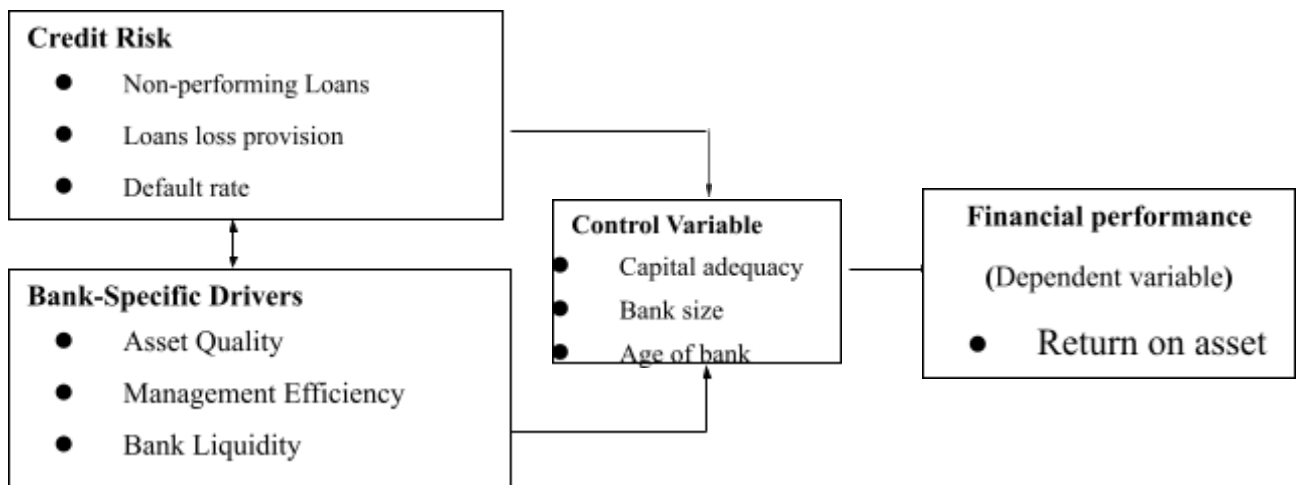
H_1:   *Non-performing loans ratio (NPL) negatively influences a bank's return on asset (ROA)*

H_2:   *Loans loss provision ratio (LLP) negatively influences a bank's return on asset (ROA)*

H_3:   *Default rate (DR) negatively influences a bank's return on asset (ROA)*

H_4:   *Assets quality (NPL) negatively influence a bank's return on asset (ROA)*

H_5:   *Management efficiency (CER) negatively influence a bank's return on asset (ROA)*

H_6:   *liquidity ratio (CR) positively influences a bank's return on asset (ROA)*

3.0   Data and Methodology

The data sample included only the top domestic-owned commercial banks listed in the UAE market from 2017 to 2021. The reason behind this selection was that domestic-owned commercial banks largely dominated the UAE banking industry and account for more than 60% of the total banking assets (CBUAE, 2020). The sample selection was based on the following criteria, first, the bank selected had been in operation during the period of the study from 2017 to 2021, second, the banks that have reported full data in the whole period of the study and third the bank is among the top commercial banks in the UAE market. after filtering the sample using the above criteria a total of 10 commercial banks out of 16 domestic-owned commercial banks were selected. The study used panel data techniques. The data of the study were collected from financial reports of selected banks, the UCBUAE's published reports, IMF's published reports, and previous relevant studies. Tables 3.1 presents the selected number of commercial banks and total assets in billion U.S. dollars in each bank

Table 3.1 Sample Size of Selected banks in the UAE

S/N	Name of Bank	Total Assets (in Billions $)
1	First Abu Dhabi Bank	250.18
2	Emirates National Bank Dubai	190.03
3	Abu Dhabi Commercial Bank	111.92
4	Dubai Islamic Bank	78.82
5	Mashreq	43.15
6	Abu Dhabi Islamic Bank	34.79
7	Commercial Bank of Dubai	26.5
8	Sharjah Islamic Bank	14.59
9	RAK BANK	14.37
10	National Bank of Fujairah	10.85

Source: CBUAE 2020

3.1   Operational variables definition

Bank internal drivers are those banks' specific factors within the management's control (Chimkono et al. 2016 Siddique et al. 2021). Return on Assets is net profit divided by the bank's total assets, which indicates the ability of a particular bank to acquire deposits from surplus units at a reasonable cost and invest them in profitable investments in the form of credits and other investments (Ahmed, 2009). Nonperforming loans are loans rendered to borrowers and become unpaid loans when the duration of the loans has expired (Hamza, 2017: Siddique et al. 2021). The study used, a total loan to total customers' deposits to measure a bank's liquidity. Asset Quality, the trends of nonperforming loans, specific risks exposure, and the health and profitability of the borrowers of the banks will determine the quality of the assets which a bank has. Studies have shown that bank failure is mainly attributed to asset quality and low level of liquidity such as (Chimkono et al., 2016; Siddique et al. 2021). In literature, the total non-performing loans divided by total gross loans (NPLs) is used as the asset quality ratio of a bank and the expected relationship with the bank's financial performance is negative since more profitable banks have a better-quality portfolio (Chimkono et al., 2016; Siddique et al. 2021). In banks' performance, literature management quality represents all controllable costs assessing the management efficiency. Thus, the ratio of non-interest expenses to the average earning assets is frequently employed to measure management efficiency (Kosmidou et al, 2006). Liquidity management is an ongoing process to ensure that the funds required can be met at a reasonable cost to maintain the required level of reserves to meet the expected and contingent requirements. Table 3.2 presents the descriptions of the variables of the study.

Table 3.2. Descriptions of variables

		Name of Variable	Symbol	Measurement	Sign
Dependent variable	Financial performance	Return on Assets	ROA	Net income/TA	N/A
Explanatory variable	Credit risk	Non–performing Loans	NPLs	TNPLs/TL	–
		Loans loss provision	LLP	LLP/TL	–
		Default rate	DR	% L. outstanding	–
	Bank specific drivers	Bank Asset quality	NPLR	TNPLs/TL	–
		Mgt. efficiency	CER	TOC/TR	–
		Bank liquidity	LR	TL/TD	+
	Control Variable	Capital adequacy	CAR	RWA/TE	
		Bank size	Log A	Log (TA)	
		Age of Bank	Age	Age of banks	

Source: Authors (2022)

3.2   Model specification

The paper examined the impact of credit risk and bank-specific drivers on the financial performance of commercial banks in the UAE. The panel data Fixed Effect (FE) regression model was employed in this study. This model is an alternative way to remove unmeasured heterogeneity and focuses on within–unit comparisons: changes in y_{it} and x_{it} relative to their within-group means. First, note that taking the average of the y 's overtime for a given unit as presented below;

$$Y_i = \frac{1}{T}\sum_{t=1}^{T} \lfloor x_{it}'\beta + a_i + \mu_{it}\rfloor \qquad\qquad \text{(i)}$$

$$= \frac{1}{T}\sum_{t=1}^{T}\left(x_{it}'\right)\beta + \frac{1}{T}\sum_{t=1}^{T} a_i + \frac{1}{T}\sum_{t=1}^{T} u_{it} \qquad\qquad \text{(ii)}$$

$$= x_i'\beta + a_i + u_{it} \qquad\qquad \text{(iii)}$$

The panel data regression model is shown in the following form.

$$Y_{it} = \beta_0 + \beta_i X_{1,it} + \ldots + \beta_k X_{k,it} + \gamma_2 E_2 + \ldots + \gamma_n E_n + \mu_{it} \qquad\qquad \text{(iv)}$$

Where: Y_{it} represents the dependent variable, i is the firm, and t is time: $X_{k,\,it}$ represents the explanatory variable: β_k represents the coefficient for the explanatory variable: u_{it} is the error term: E_n is the firm n. Since they are binary (dummies) it has n–1 firms included in the model: γ_2 is the coefficient for the binary repressors.

The time effects could be added to the entity effects model to have a time and the entity fixed regression model as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1,it} + \ldots + \beta_k X_{k,it} + \gamma_2 E_2 + \ldots + V_n E_n + \delta_2 T_2 + \ldots + \delta_t T_t + \mu_{it} \qquad\qquad \text{(v)}$$

Where: Y_{it} represents the dependent variable, i is the firm, and t represents time.: $X_{k,\ it}$ is the explanatory variable: β_k represents the coefficient for the explanatory variable: u_{it} is the error term: E_n is the firm n. Since they are binary (dummies) it has n–1 firms included in the model: γ_2 represents the coefficient for the binary regressors: T_t is time as a binary variable (dummy) hence, t–1 time periods: δ_t is the coefficient for the binary time regressors. Therefore, by substituting the variables in the model, the following equations become the econometric models which were used to estimate the influence of credit risk and bank-specific drivers on the financial perforce (ROA) of the commercial banks. The equations are illustrated as shown in equations (3.6) and (3.7) for ROA as dependent variables respectively

$$ROA_{it} = \beta_0 + \beta_1 NPL_{1,it} + \beta_2 LLP_{2,it} + \beta_3 DR_{3,it} + \beta_4 CAR_{4,it} + \beta_5 LogA_{5,it} + \beta_6 AGE_{6,it} + \mu_{it} \qquad \text{(vi)}$$

$$ROA_{it} = \beta_0 + \beta_1 NPL_{1,it} + \beta_2 CER_{2,it} + \beta_3 CR_{3,it} + \beta_4 CAR_{4,it} + \beta_5 LogA_{5,it} + \beta_6 AGE_{6,it} + \mu_{it} \qquad \text{(vii)}$$

where: β_1- β_6 represent the estimated coefficient of control and explanatory variables and *uit* is the error term.

3.4   Selection of Regression Model

A linear regression analysis model established that the credit risk was measured by NPLs ratio, LLP ratio, and DR while bank-specific factors were measured by the asset quality, management efficiency, and bank liquidity. For the panel data analysis either a random effect (RE) or a fixed effect (FE) is used for the analysis, to specify the appropriate model to be used in this study, the Hausman test was applied to compare the RE and FE estimates of coefficients (Wooldridge, 2003). The summary of the hypothesis of the Hausman test correlated RE results are presented in Table 3.3. The results indicate that the null hypothesis was not rejected since the Chi-Sq. statistic was 3.486 and the prob. value was 0.341 (P-value > 0.05), which was statistically insignificant. Thus, the null hypothesis was not rejected and the Random-effects model was preferred

Table 3.3: The Hausman test

Test	Chi-Sq Statistics	Chi-Sq d. f	Prob.
Cross-Section	3.486	6	0.341

Source: Authors (2022)

The study used White's test to test for homoscedasticity, and the Wooldridge test (2002) for autocorrelation because the study consisted of panel data. The summary results of homoscedasticity and autocorrelation are shown in Table 4.4. The findings revealed that the p-value was 0.786 thus the null hypothesis was accepted at a 5% level of significance, hence there was homoscedasticity no further corrections were needed for the sample. The findings on autocorrelation showed the p-value was 0.686, the null hypothesis was accepted, and the findings concluded that no presence of autocorrelation errors.

Table 3.4: Heteroscedasticity and autocorrelation testing

Prob> χ^2	Prob.
2.164	0.786
Ho: Homoscedasticity	*Ha: unrestricted heteroscedasticity*
2.656	0.686
H_0: *no first-order autocorrelation*	

Source: Authors (2022)

4.   Findings and discussion

The current paper presents the impact of bank-specific drivers and credit risk on the financial performance of commercial banks in the UAE throughout the study from 2017 to 2021. The big picture of the data first was analysed by using descriptive statistical analysis in Table 4.1 presents all variables employed in this paper, an indicator of credit risk (NPLs ratio, LLP, and DR), bank-specific drivers (NPLs ratio, CER, and LR), control variables (CAR, bank size, and Age) and the measure commercial bank financial performance (ROA), then correlation and regression analysis were presented in Tables 4.2 and 4.3.

4.1   Descriptive statistics results

Table 4.1 presents the summary of the descriptive statistics results of the study's variables: The summary results report the financial performance ratio which is ROA, three credit risk indicators, three bank-specific drivers, and three control variables. the results of the descriptive statistics revealed that the average value of ROA was 1.32% with a standard deviation of 0.86%. The mean value of ROA was positive which gives the implication that all the sample banks in UAE were profitable during the period of the study. The ROA range was between 1.82% and 0,80% and a recorded std. deviation of 0.86%, this indicated that there was a low dispersion level among the selected sample banks. This lower standard deviation of ROA was evident that the profitability among banks was not different from each other. The mean value of credit risk which was measured by NPLs ratio, LLP ratio, and DR was 6.24%, 6.18%, and 23.68 respectively with the standard deviation of 1.16, 1.26, and 6.82. A high credit risk ratio level indicated inefficient credit risk management. The NPLs ratio, LLP ratio, and DR among the banks in UAE varied from 1.16% – 7.60%, 1.26% – 8.40%, and 13.68% – 53.22% respectively indicating volatility existed in the commercial banks' ability in managing their credit risk. The CER mean value was 33.54%, and the ratio increased slightly and reached the maximum value of 33.38% in 2020 compared to 31.1% in 2019. The bank liquidity which was measured by TL/TD (CR), the ratio among the banks varied from 20.50% to 23.31% with the average value and recorded std. deviation of 21.98% and 1.0% respectively which indicated that the bank liquidity ratio did not differ among the banks. Bank size and CAR showed lower standard deviation values of 0.35 and 0.54, which indicated that the sample's dataset was not much spread from the average values. However, the CAR position of UAE banks remained stable during the period of study and CAR stood at 18.1%.

Table 4.1: Descriptive statistics of variables

Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
ROA	50	1.32	0.86	0.81	1.82
NPLs	50	6.24	1.16	5.13	7.61
LLP	50	6.18	1.26	5.32	8.43
DR	50	23.68	6.82	13.68	53.22
NPL	50	6.24	1.16	5.01	7.62
CER	50	32.54	6.81	31.12	33.38
LR	50	21.98	1.00	20.51	23.31
CAR	50	17.40	0.54	17.01	18.01
Log A	50	3.82	0.35	1.00	5.52
AGE	50	35.10	16.62	7.00	54.00

Source: Authors (2022)

4.2 Correlation Matrix Results

The summary results of the correlation analysis are shown in Table 4.1. The results indicated that the highest correlation was 0.446 which was the correction between LLP and ROA. However, the multicollinearity problem exists if the correlation coefficient reaches ± 0.8 or ± 0.9 (Vitolla et al, 2020). NPLs and CER were correlated negatively with other explanatory variables. The negative correlation of NPLs with ROA is 0.404. At the same time, two bank internal factors, NPL and CER were negatively correlated while LR was positively correlated with other variables. In addition, the variance inflation factor was used to test if multicollinearity

41

exists and assumes that if the value for the variance inflation factor is above 10 multicollinearity exists (Gujarati, 2007)).

Table 4.2: Correlation Matrix figures

Variables	ROA	NPL	LLP	DR	NPL	CER	LR	CAR	Log.A	AGE
ROA	1.000									
NPL	−0.404	1.000								
LLP	−0.446	0.143	1.000							
DR	0.425	0.427	0.114	1.000						
NPL	−0.404	1.000	0.411	−0.403	1.000					
CER	−0.336	−0.178	0.195	−0.058	−0.407	1.000				
LR	0.066	0.041	0.406	0.231	0.308	0.356	1.000			
CAR	0.021	0.032	0.022	0.494	0.402	0.448	0.448	1.000		
Log A	0.005	0.007	0.454	0.001	0.023	0.034	0.034	0.023	1.000	
AGE	0.166	0.070	0.044	0.399	0.241	0.189	0.268	0.189	0.238	1.000

Source: Authors (2022)

In regression, analysis multicollinearity exists when two or more of the independent variables demonstrate a linear relationship between them. if multicollinearity exists, the regression coefficients are still consistent but are no longer reliable since the standard errors are inflated. This paper used Variance Inflation Factor (VIF) to detect whether multicollinearity exists in a regression model. The summary results of multicollinearity analysis are shown in Table 4.3. the values of VIF for the explanatory variables being less than 10. These indicated that there was no multicollinearity among the variables.

Table 4.3: Results of Multicollinearity (VIF)

Variables	VFI	1/VFI
NPL	1.62	0.821394
LLP	1.12	0.676738
DR	1.13	0.662454
NPL	1.62	0.821394
CER	1.16	0.685736
LR	1.13	0.662652
CAR	1.67	0.624642
Log. A	1.12	0.655308
AGE	1.21	0.675739
Mean VIF	1.51	

Source: Authors (2022)

4.3   Empirical Findings and discussion

This paper applied Random Effect (RE) regression model to examine the impact of credit risk indicators and bank-specific drivers on commercial banks' financial performance in the UAE. Table 4.4 presents the regression results summary. The F-statistic value in the models indicates that the variables were jointly

significant at 1% and 5% significance levels. The adjusted R^2 and R^2 are 61.2% and 63.3%. The implication is that variation of ROA was explained by the variables included in the model by 61.25%. The finding shows that the NPLs ratio was found negative and significant with ROA, the finding supports H_1. The significant negative with ROA indicated that a high NPLs ratio reduced the profitability of commercial banks. The finding of the study is consistent with (Siddique et al. 2021; Masood & Ashraf 2012) who found a significant negative relationship. Therefore, NPLs hinder commercial banks' financial performance in the UAE. Thus, NPLs adversely affected the financial sector in the UAE. The LLP ratio was found negative and significant with ROA which supports H_2. The finding of the study is in line with (Rasa, 2021; Abbas et al., 2019) found a negative and significant relationship between LLP ratio and banks' profitability. The significant negative relationship between the LLP ratio and ROA indicated that a high level of the LLP ratio reduced commercial banks' profitability. The implication is that if more profits as a buffer as loan loss reserve are employed, the lower will be banks' profitability (Rasa, 2021). Thus, to remove the negative effect of the LLP on banks' profitability. The banks' management is needed to have sound and effective credit risk strategies as a precondition to minimize the LLP. DR is a parameter measure the likelihood of a default of a customer over a given period, if a bank market shares decline in such a way that it becomes less than the bank's debt value, then a particular bank is in the position of default or close default (Khan, et al., 2021). The finding showed that the DR was found negative but insignificant with ROA. The finding supports the findings of previous studies by (Khan, et al., 2021: and Waqas & Ms-Rus 2018) found a negative and insignificant association between DR and ROA. The finding showed that the asset quality which was measured by NPLs was found negative and significant with banks' ROA, the result supports H_4. The management efficiency measured by CER was found to have a negative and significant relationship with ROA. the finding supports H_5. The findings are consistent with those (Siddique et al. 2021: Elshaday et al., 2018: and Francis et al. 2015). This implies that an increase in CER has been associated with a decrease in banks' profitability. This finding implies that banks with managerial inefficiencies are exposed more to lower performance in terms of profitability. Therefore, commercial banks in UAE need to adopt better strategies to manage their asset quality and control operating costs to improve their financial performance. In contrast, LR has a significantly negative relationship with financial performance measured by ROA. The implication of this is that the more liquidity the bank has and maintained, the lower level of the profitability bank earns. This finding is in line with (Rajkumar & Hanitha 2015: Elshaday et al. 2018: Siddique et al. 2020 and Siddique et al. 2021) who found similar results. The control variables CAR and SIZE were found positive and significant with ROA except for AGE which was found insignificant with ROA. The findings of the paper are matched with Siddique et al. (2021) and Pervan et al. (2015) proving that total asset increments are proportional directly to the financial performance of the bank.

Table 4.4: Results of Regression Model Random Effect

Variables	Coefficient	Std. Error	t. Statistics	Prob.
Cons.	0.074	0.014	0.548	0.685
NPL	–1.418	0.327	5.337	0.000*
LLP	–0.122	0.322	4.234	0.032**
DR	–0.121	0.328	1.761	0.456**
NPL	–0.178	0.823	5.678	0.001*
CER	–1.035	0.564	4.867	0.000*
LR	–0.464	0.438	4.674	0.001**
CAR	1.261	0.876	3.456	0.003**
Log. A	0.010	0.264	1.784	0.038
AGE	3.981	0.784	0.874	0.846
R^2	0.633			
Adjusted R^2	0.612			
(χ^2)	0.001			

Note(s): *Indicates significance at1%level and ** Indicates significance at 5%level

Figure 4.1 shows the trends of NPLs ratio and LLP ratio against ROA during the period from 2016 to 2021 in the UAE commercial banks. The graph indicates an upward trend in the NPLs ratio in the four years of the study prior to 2021. The NPLs ratio has slightly declined by 0.3% in 2021 from 7.6% in 2020 to 7.3% in 2021. however, the economic contraction, in the UAE during the COVID 19 pandemic affected the pace of increase in the overall NPLs. The graph indicates a significant upward trend in the LLP ratio from 2018 to 2019 slightly started to decline. Forward-looking, the LLP increased in 2019 as the result of a sharp contraction in the UAE's economic activities. The banks' ROA ratio shows a downward trend during the period of the study from 2018 to 2020 and the ROA slightly increased. The increase in the NPL ratio during the period contributed to the falling of the ROA ratio of banks in the UAE. However, the reduction in non-interest income and other banking fees was caused by the lower business activities during the period of lockdown and also contributed to the decline of banks' ROA in the UAE (CBUAE,2021

Figure 4.1: Credit risks Vs ROA of UAE Commercial Banks (2016-2021)
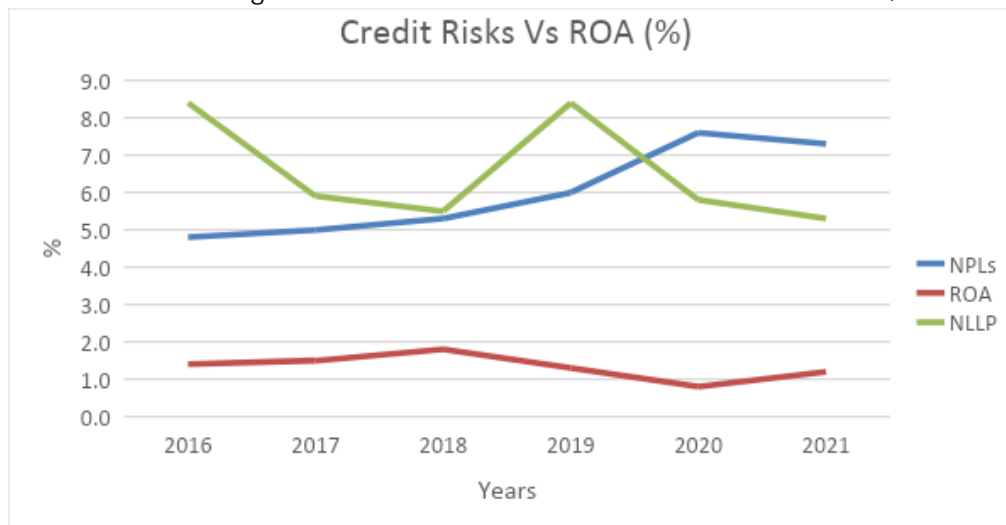
Source: Authors (2022)

5   Conclusion

The present paper evaluated the impact of bank-specific drivers and bank credit risk's on commercial banks' financial performance in the UAE over the period 2017-2021 by using the Random-Effect regression model. The findings revealed a robust significant negative relationship between credit risks measured by (NPLs ratio and LLP ratio) and financial performance measured by ROA, the findings support H_1 and H_2 of the study. The findings revealed that the NPLs ratio and LLP had a negative and significant effect on banks' financial performance in the UAE, however, the NPLs ratio was recorded with a greater coefficient than other credit risks. Hence, the impact of the NPLs on banking financial performance in the UAE was very significant. Therefore, the findings suggest that banks' managers should be focused on the contraction of non-performing loans by implementing the best framework and strategies for managing credit risk. All indicators of the bank-specific drivers showed a negative and significant relationship with banks' profitability. Control variables were positive and significant in the model except for the age of the bank. The findings of the study provide the banks' management with a deep understanding of credit risk, and bank-specific drivers and serve as the underpinning for regulatory efforts aimed at strengthening credit risk management. The policy implications of this paper are that credit risk was found a major threat to the profitability and stability of the commercial banks in the UAE. Therefore, banks' management should be efficient enough in judging whether their borrowers have viable means of repaying their loans or not. The bank needs to remain prudent in managing its credit risk, restructuring practices, and identifying and resolving credit quality deteriorations within its lending portfolios once the loan repayment was expired. In addition, banks can offer expert opinions to borrowers on the viability of their projects. Banks should adopt the best strategies to manage and control bank-specific drivers to improve their financial performance. Also, the findings can give policymakers and regulators better insight into the efficiency and stability of the banking industry and its behavior toward credit risk management and give policy support to loan deferment programs managed to

prevent large-scale loan defaulters. The paper's scope was only limited to UAE's commercial banks and internal bank-specific factors. Future researchers can also apply other variables of credit risk and banks' external factors. In addition, the data set of the study can be increased by adding a greater number of banks and increasing the time frame.

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47