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Master in Finance

Dissertation

THE INFLUENCE OF MACROECONOMIC FUNDAMENTALS ON BANKS' PERFORMANCE IN THE GULF COOPERATION COUNCIL COUNTRIES

By Rasha Bahtiti

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Oriented by: Maria Cândida Rodrigues Ferreira

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Resumo

O objetivo deste estudo é determinar o efeito de algumas variáveis macroeconômicas selecionadas sobre o desempenho dos principais bancos comerciais nos países do Conselho de Cooperação do Golfo (CCG). O período- alvo é aplicado para os anos entre 1998 e 2014.

Um grupo de variáveis macroeconômicas independentes (crescimento real do PIB, inflação e abertura comercial da economia) foi determinado para medir os seus efeitos sobre o desempenho dos principais bancos comerciais nos países do CCG, o que poderia ajudar na avaliação das áreas onde essas variáveis reforçam melhores desempenho dos bancos.

A principal conclusão deste estudo foi que nos principais países do CCG, o desempenho dos bancos comerciais é impulsionado principalmente pelo crescimento anual do PIB e pela abertura comercial da economia.

Alguns resultados concluídos no estudo não foram antecipados e foram explicados com base em determinadas situações nesses países que podem diferir dos outros. Em particular, ao contrario de que nos previmos, a inflação tem uma contribuição insignificante sobre o desempenho dos bancos na região.

Abstract

The aim of this study is to determine the effect of some selected macroeconomic variables on the performance of the main commercial banks in the Gulf Cooperation Council (GCC) countries. The targeted period is applied for the years between 1998 and 2014.

A group of macroeconomics independent variables (real GDP growth, inflation and trade- openness of the economy) was determined to measure their effects on main commercial banks' performance in the GCC countries, which could help in assessing the areas where these variables enforce better banks' performance.

The main conclusion to retain from this study is that the commercial banks' performance in main GCC countries is driven mainly by GDP annual growth and the trade-openness of the economy (TGDP).

Some results of this study were not anticipated and they were explained based on the certain situations and rules in the GCC countries that may differ from others. Results concluded that inflation has insignificant contribution to the banks' performance in the region, although it is anticipated to have an influence on banks' performance as inflation affects the real interest rates which banks charge and receive.

Keywords: Macroeconomic variables, Commercial banks, GCC countries, Banks' performance, Panel data.

1. Introduction

The correlation between macroeconomic conditions and banks' performance has received a great attention by researchers on the soundness of the financial sector. Analysing the effect of the macroeconomic variables on the banks' performance could be considered a good contribution that is possibly helping to find out the determinants of banks' performance on macroeconomic level. Also, it may suggest some policies recommendation to improve banks' performance.

The macroeconomics variables are supposed to have a strong influence on the performance of the banks and their sustainability, as various studies showed that higher economic growth is having a higher impact on banks' performance, see for example (Athanasoglou et al, 2006 and Bilal et al, 2013). Furthermore, macroeconomic conditions are not equal everywhere. They are external factors beyond the control of the banks, and they are influenced by the policy makers in each country.

On the other hand, the financial performance of the banks may also play a critical role in the economic growth of the countries. Also, the good financial performance of the banks could encourage more investments and affect the economic growth.

Although the macroeconomic conditions are not the only factors contributing to the performance of the banks, they may have considered as important variables affecting their performance. The other factors that enhance the bank performance are known as banks

specific factors or internal factors, they are influenced by the management decisions which are done to better the banks' performance and efficiency.

This study aims to explore the link between macroeconomic variables and the commercial banks' performance, focusing precisely on the impact of some selected macroeconomic variables on the main commercial banks' performance in the Cooperation Council (GCC countries)[1]. Many researchers focused on the banks' performance in Europe, Africa and America. However, limited number of studies was conducted to analyse the bank performance in the Middle East and especially in the Gulf countries, although these countries have an important contribution to international economy. Hence, the lack of literature raised the importance to conduct such study in the Gulf countries, explaining certain factors that may affect the banks' performance measurement in the area.

Here we focus on three macroeconomic variables which are considered as the external parts affecting the banks performance ratio, they are: real GDP growth, inflation and the trade-openness of the economy.

The independent variables that are considered in this study to measure the performance of the banks are: Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM).

The aim of this study is to analyse the impact of the mentioned selected macroeconomic variables on the main commercial banks' performance in the GCC countries in the years between 1998 and 2014; with a panel data that includes one commercial bank of each country for the mentioned period. Moreover, further groups of panel data were

[1]GCC countries are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates (UAE).

conducted in this study, each one excludes one of the GCC countries respectively, aiming to analyse whether these effects are similar in magnitude and direction.

We contribute to the literature in the following ways. First, this paper is motivated by the fact that limited researches were done in analysing the impact of macroeconomic variables on the commercial banks. In addition, the study applied the panel data model which allows having larger data set with observations over multiple periods of time and of different countries.

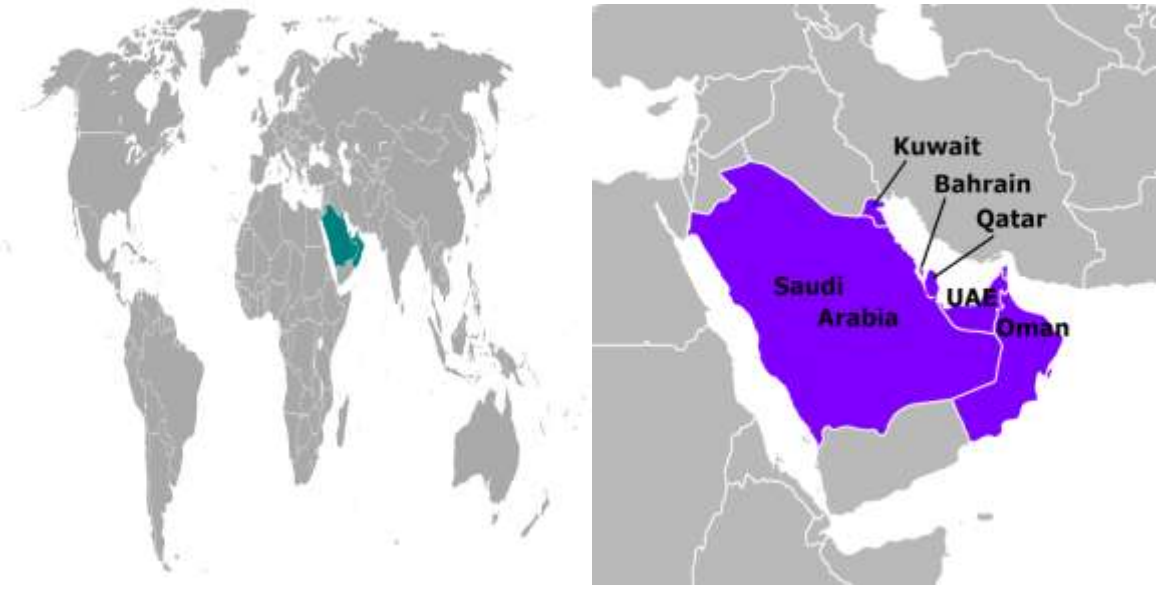
The current study needs to be carried out because we noticed a lack of consensus of various studies conducted on the main subject. Moreover, most of the studies that were conducted previously in the GCC countries addressed the Islamic banks or concerned in the comparison of different aspects between the Conventional and the Islamic banks. This paper's analysis is conducted to observe the results in the GCC commercial banks' performance that is under research area and need further attention.

This study is organized as per the following: the next part summarizes in brief historical overview of GCC countries; part three includes literature review and some previous studies. This is followed by part four which provides the data and the methodologies, whereas part five examines the data and provides the findings. Finally, part six summarizes the findings and the conclusion.

2. Brief historical overview- GCC countries:

The Gulf Cooperation Council consists of six Arabic countries located in the Persian Gulf of the Middle East as per the following map presented in this section. These countries share certain commonalities; they share the same language and culture, they are all oil and gas exporters and they have similar economic structure, also GCC countries account for a high crude oil reserve.

Each country of the Gulf Cooperation Council has its own currency. In fact, each GCC country can choose its exchange rate regime dependently from the other GCC countries. However, all GCC countries agreed in 2003 to peg their currencies to US dollar, and to maintain it until the future establishment of GCC monetary union. Kuwait went back to pegging to currency basket in 2007 that it can peg its currency to a portfolio of several currencies with different weightings. The regime of the basket peg can be useful in introducing some flexibility in exchange rate but at the same time would not provide monetary independence.



The GCC countries are ranked among the richest countries in the world as per the GDP per capita. Based on the average GDP per capita for the period between 1998 and 2014, we found that Qatar is considered as the biggest economy in the region which also considered rich comparing to the population size. In the second place, it comes United Arab of Emirates, then Kuwait. Following is Bahrain, Saudi Arabia and Oman, (Annex I).

The GCC countries have vigorously grown after the 2008 economic crisis, unlike most developed economies, which were still recovering from it. Generally, all GCC countries except Kuwait had healthy growth rates. Kuwait real GDP growth slowed down significantly in 2014, (Table I.).

Table I.

The real GDP growth (annual %) for each GCC country between 1998 and 2014:

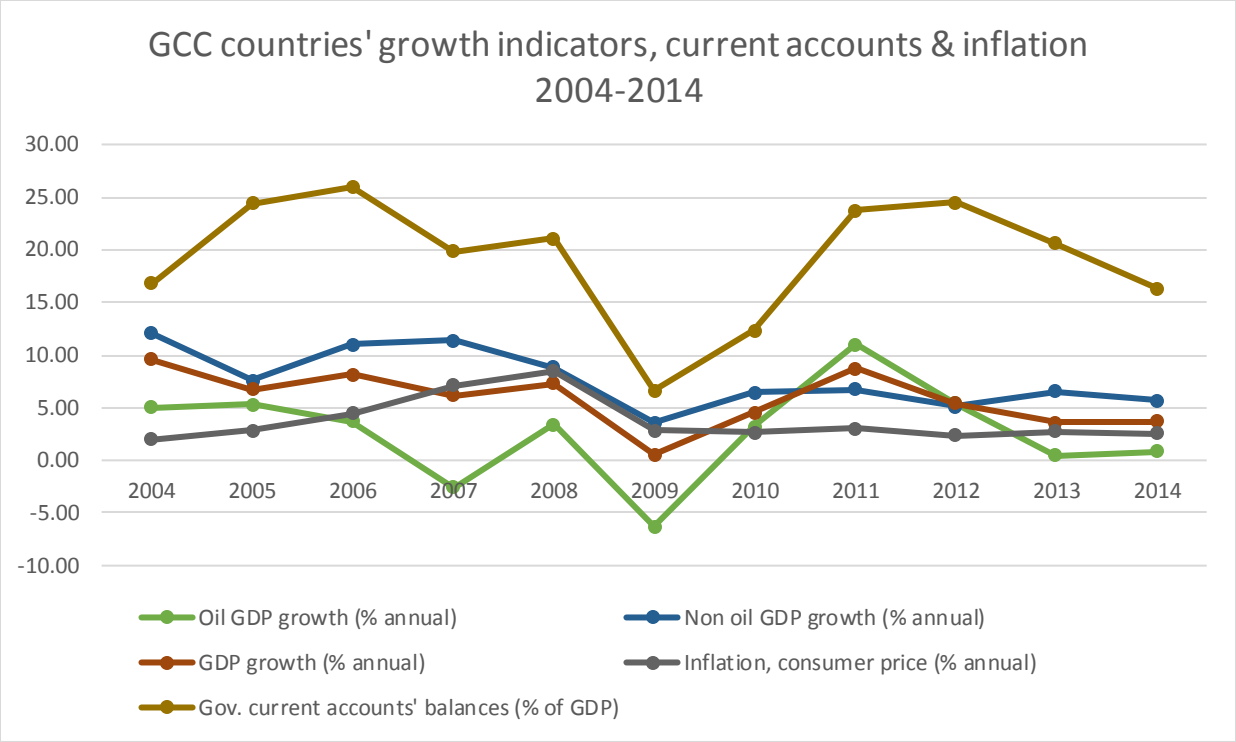
Year/Country	Bahrain	Kuwait	Oman	Qatar	KSA	UAE
1998	4.79	3.66	2.64	0.62	2.83	0.21
1999	4.29	-1.78	-0.12	1.14	-0.74	2.9
2000	5.29	4.69	5.4	2.11	4.86	10.85
2001	2.49	0.72	4.48	3.89	0.54	1.39
2002	3.61	3.00	-1.1	7.18	0.12	2.43
2003	6.02	17.32	-2.66	3.71	7.65	8.8
2004	6.98	10.76	1.29	19.22	9.25	9.57
2005	6.77	10.08	2.49	7.49	7.26	4.86
2006	6.47	7.52	5.37	26.17	5.58	9.84
2007	8.29	5.99	4.45	17.99	5.99	3.18
2008	6.25	2.48	8.2	17.66	8.43	3.19
2009	2.54	-7.08	6.11	11.96	1.83	-5.24
2010	4.33	-2.37	4.8	19.59	4.76	1.64
2011	2.1	9.63	-1.09	13.38	9.96	5.21
2012	3.59	6.63	7.08	4.88	5.38	6.89
2013	5.41	1.15	3.91	4.58	2.67	4.32
2014	4.48	-1.62	2.89	3.98	3.47	4.57

KSA: Saudi Arabia, UAE: United Arab of Emirates.
Source: World Bank indicators.

Over years, the GCC countries worked on improving the living standards, the infrastructure and developing the public and private sectors especially the services. The real non -oil GDP growth supported the total real GDP growth in the region, which in turn was enhanced by increased governments' expenditures and subsidies that depend on oil revenues, (Figure I). In most GCC countries, real GDP is mostly determined by the barrels of oil produced and most of them are exported. However, growth in GDP does not result in increasing purchasing power if the growth is due to the inflation and/or the population increase.

Figure I.

Chart of the GCC countries' GDP growth indicators, the current accounts and the inflation for the period between 2004 and 2014:



Source: IMF

Figure I. presents some growth indicators, account balances and inflation of the GCC countries for the years between 2004 and 2014 which may help to show the changes during 10 years, it could attribute to analyse the general financial situation in these countries. Although the GCC countries have the largest oil reserves in the world, Zeitun (2012), their current account balances continue to remain sensitive to the oil prices as presented in figure I. This is highlighting the need for diversification of their export base.

Even the governments are trying to control the inflation, there are some factors that continue to contribute to the inflation such as foreign markets which have effects on both the exports and the imports. The GCC countries' policies remain accommodative focusing on supporting the growth while keeping the inflation under monitoring and control. Figure I. presents the inflation rates during 10 years which shows that the inflation rates do not have big changes.

Since inflation affects the value for money, the purchasing power of people and the real interest rates that banks charge and receive, the inflation could influence the banks' performance.

The banking sector plays a main role in financing the economic activities in the region and generally dominates the financial sector. As per the data at the end of the year 2008 that was presented in the research of Al-Hassan et al (2010), the banking sector in Bahrain is the largest in the region with total asset accounting for 258 % of the GDP. UAE has the second largest sector in the region with total asset (% GDP) close to 140% of the GDP. Also, Qatar comes in the third place after Bahrain and UAE with 94% total assets to the GDP. In the fourth place, it comes Kuwait with 84%, following is Saudi Arabia with 68% and finally Oman with 66%.

Furthermore, the banking sector consists of two different types of banks: The Conventional banks which are interest based banks and the Islamic banks that work based on the Islamic principles, the profit and loss sharing principle. Their performance could be affected by equity financing which is one of the main differences limited to the conventional banks (Hanif, 2011). Thus, most of the studies in this area compare the macroeconomics effects on the performance of the Conventional versus the Islamic banks because of the fast

growth of the Islamic banks in the region, concluding that the Islamic banks survived the financial crisis more than the Conventional ones. For example, the study of Zeitun (2012) indicated that both the GDP and the inflation affect the Islamic and the Conventional banks' performance in the region. It showed that GDP is positively correlated to profitability, while inflation is negatively correlated to bank profitability. This finding provides evidence of a strong relationship between both GDP and inflation and banking sector performance.

3. Literature Review:

This section presents some of the relevant studies dealing with the impact of selected macroeconomic variables on banks' performance applied in different countries and different methodologies. ROA, ROE and NIM had been used frequently as variables to measure the banks' performance in many countries. Furthermore, certain macroeconomic variables as the inflation rate, the GDP growth and the exchange rate were represented as indicators of macroeconomic conditions in the following researches.

Gerlach et al (2005) analyzed the relation between some macroeconomic variables and banking performance of a panel data in Hong Kong for the years between 1994 and 2002. They used NPL (ratio of classified loan to total loan) and NIM as dependent variables and the macroeconomic variables were GDP growth and inflation. This study suggested that the effect of macroeconomic variables on NIMs varies depending on the size of the banks, exposed to changes in GDP growth.

Rumler and Waschiczek (2010) investigated the impact of economic factors on the bank profits in the Austrian banks for the period between 1995 and 2009. The study suggested that the bank profits, more specifically the ROE showed a significant positive impact on the inflation.

Bilal et al (2013) observed the influence of banks' specific and macroeconomic factors on the profitability of the commercial banks in Pakistan for the years between 2007 and 2011. They used, among others, ROA, ROE, NIM as profitability measures, while the macroeconomic variables that were included are the GDP, the inflation and the industry production growth. The regression showed that the variables selected have given a better explanation on ROA rather than on ROE. The GDP growth rate has a strong positive and significant impact on ROA and ROE. As well, it showed that as the inflation increases, there is a decline in the bank profitability because there is a significant negative impact of the inflation on ROA.

Kanwal and Nadeem (2013) conducted a study on the impact of macroeconomic variables on the profitability of the listed commercial banks in Pakistan for the period of years between 2002 and 2011 using the pooled OLS regression. They examined the effect of some macroeconomic variables of the GDP, the interest rate and the inflation on the commercial banks' profitability. The indicators were ROA, ROE and EM (equity multiplier). They found that there was a negative significant impact of the inflation rate on the three factors. The relation between the GDP and ROA was insignificantly positive while the GDP with ROE and EM was insignificantly negative.

Ongore and Kusa (2013) conducted a study about the determinants of financial performance of the commercial banks in Kenya. The bank performance indicators that were

included in the study were ROA, ROE and NIM while the macroeconomic variables were the GDP growth and the inflation. They observed that the GDP growth showed an insignificant negative impact on ROA, NIM while it had a positive impact on ROE. The inflation indicated a strong negative effect on the banks' performance. It argued to enhance the managerial efficiency that would lead to higher performance.

El Alaoui et al (2014) conducted a study on some European banks' profitability drivers during the period between 2000 and 2009. The main profitability variables which were included in this study were ROA, ROE while the macroeconomics variables were the inflation rate, the GDP and the interest rate. The paper concluded that the inflation and the interest rate had positive significant impacts on ROA and ROE.

Kiganda (2014) observed the effect of macroeconomic factors on the commercial banks' profitability in Kenya for the period between 2008 and 2012. This study included the ROA as a dependent variable while the macroeconomics variables were the GDP growth, the inflation and the exchange rate. The study employed the multiple regression analysis using OLS. The study results indicated that there was no significant effect of macroeconomic variables on the banks' profitability applied on the sample. Showing that the GDP and the inflation had positive insignificant effect and the exchange rate had a negative insignificant one.

Simiyu and Ngile (2015) observed the effect of macroeconomic variables on profitability of the commercial banks listed in the Nairobi securities exchange for the years between 2001 and 2012. They used the fixed effects regression and found that the GDP growth had a positive insignificant effect on ROA of the commercial banks. The

macroeconomic variables of this study were the GDP growth, the interest rate and the exchange rate.

Shuremo (2016) investigated the determinants of the banks profitability in Ethiopia, they applied the study covering the period between 2002 and 2012. They found that the macroeconomic variables showed a significant and positive impacts on banks' profitability. The macroeconomic variables that were analyzed were: the exchange rate, the GDP and the interest rate spread. The bank profitability was measured by ROA and NIM.

4. Data and Methodology:

This section contains the research design, the data collection, the model specification and the empirical work.

4.1. Research design:

The study focused on the financial statements of a sample that contains one commercial bank of each of the GCC countries during the years between 1998 and 2014 based on the Bankscope and the World Bank indicators (WDI). The study is conducted in purpose to determine the effect of the macroeconomics variables on the banks' performance.

The macroeconomic variables which mainly analyzed in relation to the banks' performance are the real GDP growth (annual %), the inflation using the GDP deflator

(annual %) and the trade to the GDP as a measure of the trade-openness of the economy. Furthermore, we had an intention to work on the exchange rate as one of the macroeconomic indicators because it may have an important impact in the banks' performance but unfortunately, the exchange rate data for the applied period in the mentioned countries was not available fairly.

Time series and cross sectional data (the panel data analysis) have been adopted in this research. Using a panel data set is advantageous for many reasons as it allows us to have more observations, more informative data and less collinearity among the variables, than is typical of the cross-section or the time-series data. However, a panel data technic has certain limitations like design and data collection problem. Also, it estimates all the countries as one because it treats all data as one group.

4.2. Data Collection /Model Specification:

The population for this study is the commercial banks operating in the GCC countries. The data was collected from the mentioned sources, then it is cleaned and coded by the Microsoft excel to be analyzed by the econometrics program, Eviews 9.

The sample contains six main commercial banks, one of each country for the period of 17 years. The most recent bank of the list is having 25 years old and their data for the mentioned period was available.

In Kuwait, the bank that was recognized in the study is the national bank of Kuwait (NBK). It was established in 1952 in Kuwait, NBK is the largest conventional bank in

Kuwait, operating in 16 countries on four continents. Its specialization is a commercial bank. (Bankscope).

In Saudi Arabia, the study conducted the National commercial bank that was established in 1938. It is the largest bank in the kingdom with almost 22 per cent of the market. The bank is 70 per cent owned by the Public Investment Fund, 10 per cent owned by the General Organization for Social Insurance and 20 per cent privately owned. Also, it specialized as a commercial bank. (Bankscope).

In Qatar, we included the data of Qatar national bank which was established in 1964 as the country's first Qatari-owned commercial bank. It has an ownership structure split between the Qatar Investment Authority (50%) and the private sector (50%). QNB Group is considered one of the biggest banks in Qatar and leading financial institution in the Middle East and the North Africa Region with a market share around 45% of the banking sector assets.

The bank that was recognized in Bahrain is the Arab banking corporation BSC – bank ABC was established in 1980, it has an international network of branches offices in 18 countries across the world.

In Oman, we chose the Dhofar bank - SAOG which is a public company that was established in 1990, with employees' numbers of 1371 as per the data of January 2016, (Bankscope).

While in United Arab of Emirates, we conducted the study on National bank of Abu Dhabi that was established in 1968. The National Bank of Abu Dhabi (NBAD) is a bank with an international presence. It is registered as a public joint stock company with accordance with UAE federal laws. Also, its specialization is a commercial bank, (Bankscope).

Following is the list of the banks that were considered in the study:

List of the commercial banks that were included in the panel data analysis:

Country	Commercial bank	Market capitalization (beginning of 2016) *	In Currency
Kuwait	National Bank of Kuwait S.A.K.	3,364.70	KWD
Bahrain	Arab Banking Corporation BSC-Bank ABC	1,228.50	USD
United Arab Emirates	National Bank of Abu Dhabi	42,198.80	AED
Saudi Arabia	National Commercial Bank (The)	77,380.00	SAR
Qatar	Qatar National Bank	108,738.00	QAR
Oman	Bank Dhofar SAOG	414.00	OMR

* The numbers are in millions as per the related currency mentioned in a separate column.
Source: Bankscope.

The current study is applying the panel regression analysis that allows having more observations. To select the most appropriate model, a Hausman test was applied to compare two sets of estimates, one of which is consistent with the null and the alternative hypothesis and another which only consistent with the null hypothesis. The null hypothesis (H0), is that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. A big difference between the two sets of estimates is taken as evidence in favor of the alternative hypothesis (H1).

Presentation of the variables:

As we mentioned earlier, the following variables are used in our study to determine the effect of the selected macroeconomic variables on the banks' performance and they are included in the regression analysis:

The selected variables presented in this paper to measure the banks' performance are ROA, ROE and NIM.

ROA is one of the main profitability ratios that are used to assess the efficiency of the business in using its assets to generate net income. The higher the ROA, the higher is the efficiency of the bank in using its resources.

ROE is also a profitability ratio that measures the ability of the bank to generate income by using shareholders fund. Better ROE shows the more effective utilizing the shareholders' capital by the management.

NIM is the net interest margin that measures the difference between the interest income and the interest paid of the banks' borrowed fund; it helps in tracking the bank's profitability of the bank investing's and lending's activities over specific periods of time. As well, high interest margins can contribute to strengthening the banks capitalization, through transfer of the profits to the capital.

Moreover, in developing countries this variable is considered important since the financial system is less developed and generally bank loans are the main sources of the funding.

On the other hand, the macroeconomics variables which have been selected in this study are:

Real GDP Growth (%): annual percentage growth rate of the GDP at the market prices based on the constant local currency. (Aggregates are based on constant 2005 U.S dollars).

Inflation using the GDP deflator is inflation as measured by the annual growth rate of the GDP. When the deflator is used, it allows to compare to other time periods in US constant dollars.

Trade to GDP ratio (TGDP): it measures how much does a country import and export in relation to its GDP. This ratio measures the country's degree of openness in the economy of the world.

The following table summarizes all the variables used in our study:

Presentation of the variables:

Variable	Variable Name	Var. type	Assessment	Data source
ROA	Return on Assets	Dependent	Net income/total asset	BankScope
ROE	Return on Equity	Dependent	Net income / total equity	BankScope
NIM	Net Interest Margin	Dependent	Net interest income/Average earning asset	BankScope
GDP	Real GDP growth	Independent	Annual GDP rate based on constant 2005 US dollars	WDI
INF	Inflation	Independent	GDP deflator	WDI
TGDP	Trade to GDP ratio	Independent	(Exports + Imports)/GDP	WDI

Source: BankScope & World Bank Indicators.
Note: This table lists the dependent and independent variables included in the sample. Further, it shows the assessment method of each variable.

The model is specified as:

$$Yit = \beta 0 + \beta 1X1it + \beta 2X2it + \beta 3X3it + €it \quad (1)$$

Where:

i refers to the banks, they are 1 to 6 banks.

t refers to the studied period between 1998 and 2014.

Yit is a dependent variable that may refer to ROA for the bank i at time t

Or ROE for the bank i at time t

Or NIM for the bank i at time t.

X1it is an independent variable that refers to the real GDP growth for the country of the bank i at time t.

X2it is an independent variable that refers to the inflation for the country of the bank i at time t.

X3it is an independent variable that refers to (TGDP) the Trade to GDP ratio for the country of the bank i at time t.

εit is the error term for the bank i at time t.

Following are the baseline models which have been used in the current study:

$$ROA = B0 + B1GDP + B2INF + B3TGDP + \varepsilon \quad (1.1)$$

$$ROE = B0 + B1GDP + B2INF + B3TGDP + \varepsilon \quad (1.2)$$

$$NIM = B0 + B1GDP + B2INF + B3TGDP + \varepsilon \quad (1.3)$$

4.3. Regression Analysis:

Starting our regression analysis, we are going to test the stationarity by applying the unit root test then determining the appropriate model which will help to end up with empirical results of this study.

4.3.1. Unit root test:

The time series are too short to conduct the (Dickey-Fuller) tests for each country separately. The panel data unit root test summary is applied for each time series to detect if it has unit root or not, for the methods of: Levin and Lin, Breitung, Im, Pesaran& Shin and Fisher type test. Table II presents the results of applying the tests on the dependent variables (the banks' performance variables), while Table III presents the results of applying the test on the independent variables (the macroeconomic variables).

Table II.

Panel unit root test for the dependent variables: Summary

Time series	NIM		ROA		ROE	
Methods	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
Levin, Lin & Chu t*	-10.400	0.000	-43.769	0.000	-15.965	0.000
Im, Pesaran and Chin W-stat	-3.293	0.000	-10.852	0.000	-4.947	0.000
ADF-Fisher Chi-square	72.853	0.000	123.146	0.000	91.119	0.000
PP- Fisher Chi-Square	93.845	0.000	166.319	0.000	135.496	0.000

Source: Author computation using Eviews 9.
Note: The table reports the results arising from the unit root test for NIM, ROA and ROE as (independent variables) using Levin, Lin & Chu t*, IPS test (Im, Pesaran and Chin) with three different equations. Probabilities for Fisher test are computed using an asymptotic- chi square distribution. All other tests assume asymptotic normality. Variables are used in ratios.

As per a significance level of 5%, the test results of all methods in the Table II show that all-time series of the dependent variables are stationary.

Moreover, as per a significance level of 5%, the test results of the mentioned methods in Table III show that majority of the independent variables time series are stationary.

Table III.

Panel unit root test for the independent variables: Summary

Time series	Real GDP-Growth		Inflation		Trade to GDP	
Methods	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
Levin, Lin & Chu t*	-11.402	0.000	-7.529	0.000	-12.539	0.000
Im, Pesaran and Chin W-stat	-2.689	0.003	-1.608	0.0538	-4.736	0.000
ADF-Fisher Chi-square	65.368	0.001	51.192	0.029	91.617	0.000
PP- Fisher Chi-Square	88.863	0.000	622.671	0.002	114.969	0.000

Source: Author computation using Eviews 9.
Note: The table reports the results arising from the unit root test for GDP-Growth, inflation and TGDP as (independent variables) using Levin, Lin & Chu t*, IPS test (Im, Pesaran and Chin) with three different equations. Probabilities for Fisher test are computed using an asymptotic- chi square distribution. All other tests assume asymptotic normality. Variables are used in ratios.

4.3.2. Fixed Effects or Random effects:

To decide between the fixed and the random effect models, the Hausman test is run at 5% significance level to select either the fixed or random effect model is most appropriate for the analysis of the panel regression as mentioned earlier in the model specification.

If the probability is bigger than 5% then it is null hypothesis where the random effect is appropriate, otherwise it is the alternative hypothesis where the fixed effect model is appropriate.

Table IV. presents the probabilities of our models, using Hausman test:

The ROA and NIM models show probabilities of 2% and 0.4% respectively, they are less than 5%, which suggest the fixed effect model.

The ROE model shows a probability of 21% which is bigger than 5%, this is suggest the random effect model.

Table IV.

Correlated Random Effects-Hausman test

Dependent Variable	Test Summary	Chi-Sq. Stat.	Chi-Sq. def.	Prob.
ROA	Cross-section random	9.761	3	0.020
ROE	Cross-section random	4.507	3	0.211
NIM	Cross-section random	12.871	3	0.004

Source: Author computation using Eviews 9.

The application of the hausman test for most of the dependent variables at 5% significance level rejects the random effect model in favor of the fixed effect model as per the previous results in Table IV.

5. Empirical Results:

The focus of the current analysis is on the extent to which macroeconomic changes affect the banks' performance, which may help the banks' management in qualifying the effects of some macroeconomic variables on the banks' performance. The correlation matrix of our variables included in the empirical studies is presented in Annex II.

Also, the paper examines whether that impact differs across the countries. Accordingly, our study shows the results of different panel data. The first panel includes all GCC countries, then six sets of panel data are presented in which we exclude one country of the GCC countries respectively.

i. Table V. shows the empirical findings coefficients for the three models in the analyzed panel data including the all GCC countries:

Table V.

The results of the panel estimates including the six GCC countries:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	0.0001	0.0032	-0.0006**
Inflation	-7.22×10^{-5}	-0.0021	3.94×10^{-5}
TGDP	-0.0001**	-3.66×10^{-5}	-0.0002**

(** denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using fixed effect model on 102 observations (17 years*1 bank in each of the 6 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated using a pooled sample of the 6 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

Following is the resulted models (1.1), (1.2) and (1.3) which include the coefficients of the panel of the all GCC countries as per the fixed effects model:

$$ROA = 0.0301 + 0.0001GDP - 7.22 * 10^{-5}Inf - 0.0001\ TGDP$$

$$ROE = 0.1333 + 0.0032GDP - 0.0021\ Inf - 3.66\times10^{-5}\ TGDP$$

$$NIM = 0.0583 - 0.0006GDP + 3.94\times10^{-5}\ Inf - 0.0002\ TGDP$$

It is anticipated that the real GDP growth rate has an influence on NIM since it affects the loan demand, the supply of deposits, as well as the loan default rate. The regression results induced a significant negative association between the GDP growth and NIM at 5%

significance level, this relationship supports the view that the GDP growth is not necessarily positively related with the banks' performance which resembles the results of the study of Flamini et al (2009) that suggested a significant negative association between the GDP growth and NIM in their sample.

The real GDP growth may have a significant influence on the interest rate spread. More precisely, the increasing GDP growth usually means an increased loan demand i.e., greater necessity of the banks' lending. In such scenario, the banks tend to increase the deposit rate to attract more deposits to boost their lending capacity. Also, at the same time they may charge lower rates to the loans since during good economic conditions, the credit risk is generally lower. Under these conditions, the banks' net interest margin will tend to decrease.

On the other hand, results indicated insignificant impact of the GDP growth on ROA, this output is like the one obtained in the study of Kanwal and Nadeem (2013), which also suggested that the GDP had an insignificant positive impact on ROA in their study sample.

Moreover, the results show at 5% significance level that the trade-openness (TGDP) has a negative significant impact on NIM, meaning that higher TGDP could contribute in increasing the banks' lending because an increase in the international trade would increase demand for the loans and consequently, it would increase competitions in the banks and enforce them to charge lower interest rates on the loans.

In addition to the above findings, the analysis indicated that the trade-openness has a negative significant impact on ROA. The negative and significant impact of the trade-openness on the banks' profitability could be attributed to an increase in banks' lending as explained earlier. Also, higher TGDP could encourage the banks to allocate more assets for

the loans because the trade-openness may increase demand for the loans as companies would require more funds to produce for the international markets.

Furthermore, results indicated at 5% significance level, the impact of the inflation on the commercial banks' performance in the GCC countries in the study periods have been insignificant. The inflation showed a negative impact on ROA and ROE and a positive one on NIM. As we mentioned before in the historical part, the explanation may lay in the fact that in the GCC countries, the governments are trying to control the inflation rates and with inflation under control, the central banks are working upon expectations of keeping the interest rates low to support the lending growth.

ii. We applied the regression analysis to various panel data including all countries of our original panel data except one country respectively. The results did not show significant differences in each analysis results except for the one that excludes Saudi Arabia, in which results showed more significant impact of the TGDP on ROE.

- The following four sets of panel data that excludes one country respectively presented in (Table VI), (Table VII), (Table VIII) and (Table IX), they almost showed the same results.

Table VI.

The results obtained for the panel data that excludes Oman:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	8.01×10^{-5}	0.0038	-0.0003**
Inflation	-0.0001	-0.0039	8.39×10^{-5}
TGDP	-0.0001**	2.43×10^{-5}	-0.0002**

(** denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using fixed effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

Table VII.

The results obtained for the panel data that excludes Qatar:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	2.44×10^{-5}	0.0035	-0.0008**
Inflation	0.0002	0.0016	0.0001
TGDP	-0.0001**	0.0001	-0.0002**

(**denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using fixed effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

Table VIII.

The results obtained for the panel data that excludes Kuwait:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	0.0002	0.0050	-0.0007**
Inflation	-0.0002	-0.0053	2.58×10^{-5}
TGDP	-0.0001**	0.0001	-0.0002**

(** denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using random effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

Table IX.

The results obtained for the panel data that excludes UAE:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	0.0001	0.0040	-0.0006**
Inflation	-6×10^{-5}	-0.0027	0.0001
TGDP	-0.0002**	-0.0004	-0.0003**

(**denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using random effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

At 5% significance level, the above tables' findings are almost the same in the mentioned sets of the panel data, and they are in line with the results concluded of the main panel data that includes the all GCC countries. This indicates a similarity between the first panel data and the ones that exclude each of Oman, Qatar, Kuwait and UAE which may suggest a similarity of the effect of the selected macroeconomics variables on the banks' performance of the mentioned countries.

Moreover, as per 5% significance level, the analyses show a statistically insignificant impact of the inflation on all other variables. These results match with a study that was previously obtained by Kiganda (2014), the paper also suggested an insignificant impact of the inflation on both ROA and ROE. It has been explained that it may happen that the banks' management couldn't adequately anticipate a future inflation in the sample that was applied in Kenya.

- The following table presents the panel data that includes the six GCC countries except Bahrain, the related coefficients are presented in Table X:

Table X.

The results obtained for the panel data that excludes Bahrain:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	0.0001	0.0028	-0.0006**
Inflation	-0.0002	-0.0035	3.79×10^{-5}
TGDP	-1.19×10^{-5}	-0.0011	-0.0001**

(** denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using fixed effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

In the previous results obtained in the GCC countries' panel data and the other four panels, the TGDP showed a significant impact on ROA at 5% significance level. While in this panel that excludes Bahrain, results induced an insignificant impact of the TGDP on ROA. It may be explained by a reduction in the scope of operations of some of the major commercial banks.

Other significant results of the panel that excludes Bahrain were like the previous analyses at 5% significance level.

- Table XI presents the results obtained with the panel that includes the GCC countries except Saudi Arabia.

Table XI.

The results obtained for the panel data that excludes Saudi Arabia:

Variables	**ROA**	**ROE**	**NIM**
Real GDP-growth	4.88×10^{-5}	0.0013	-0.0006**
Inflation	9.32×10^{-5}	-0.0020	8.81×10^{-5}
TGDP	-0.0001**	-0.0010**	-0.0002**

(**denotes significant at 5% significant level).

Source: Author computation using Eviews 9.
Note: The table reports the results of the regression model using random effect model on 85 observations (17 years* one bank of each of the 5 countries). The dependent variables are the NIM, ROA and ROE.NIM is the ratio of net interest income to total asset, ROA is a ratio of net income to total asset and ROE is total income to total equity. The model is estimated by using a pooled sample of the 5 countries over the period beginning in 1998 and ending in 2014. Variables are used in ratios.

As mentioned and explained in the first panel data analysis, the regression outputs showed a significant negative impact of the GDP growth on NIM. This finding indicates that a greater economic growth contributes to a greater lending and to a lower credit default.

Moreover, the analysis indicated that the trade-openness has a negative significant impact on our banks' performance variables of ROA, ROE and NIM. The results suggest that the trade-openness effect is not in favor of the banks' performance as it has been explained earlier.

6. Conclusion:

We conducted our study in the GCC countries for the time periods between 1998 and 2014, the effect of some selected macroeconomic variables of the real GDP growth, the inflation and the trade-openness on the banks' performance based on three selected indicators of ROA, ROE and NIM.

Our results were already explained in details, but we can emphasis on the main findings on the first panel data that includes the all GCC countries, it showed as expected that the GDP-growth has a negative significant impact on NIM. And the TGDP has also a negative significant impact on ROA and NIM.

Other macroeconomic variables that were considered in the first panel data resulted in insignificant impact on the banks' performance. Hence, the inflation insignificantly and negatively affects ROA and ROE and has a positive impact on NIM.

On the other sets of the panel data that have been analyzed in this paper in which includes the all GCC countries except one country respectively. The analysis showed almost the same results for the sets of panel data except the one that excludes Saudi Arabia. It showed that the TGDP is significantly and negatively influencing ROE.

Furthermore, results in the all sets of panel data indicated as per 5% significance level that the inflation has insignificant impact on all the variables included in our study. Inflation is considered as a key element in determining the commercial bank's lending rate, that the unpredictable inflation raises the interest rates, decreases the loan supply affects the loans

demand. Thus, it suggests that the inflation in the GCC countries is highly controlled and predictable because of its insignificant impact.

While doing this research, we have considered few macroeconomic variables to identify the impact of these variables on the performance of banks in the GCC countries. The data collection was the primary limitation for the study because in general, the Middle East data is not enough accessible. Therefore, some macroeconomic variables were not included in this study as the interest rates and the exchange rates. Moreover, one bank of each country was analyzed during the selected period for the reason of the data limitation.

Future researches can be done by adding some more macroeconomic, moreover analyzing the internal factors of the banks.

In addition to the above, some researchers of other studies worked on causality. Accordingly, we suggest to be applied in the upcoming studies as the Granger causality that would analyze the long run relation between the variables after testing the panel co-integration model.

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8. Annexes:

Annex I.

The average GDP per capita (current US$) for the GCC countries, between 1998 and 2014:

Country	Average GDP Per capita (Current US$)
Bahrain	18,030.04
Kuwait	34,090.70
Oman	14,367.62
Qatar	57,412.13
Saudi Arabia	15,022.32
UAE	37,357.15

Source: WDI

Annex II.

Correlation Matrix of Variables of equation 1, for panel which includes all GCC countries, time periods between 1998 and 2014:

Variables	NIM	Inflation	GDP Growth	ROA	ROE	TGDP
NIM	1					
Inflation	0.0607	1				
GDP Growth	-0.1597	0.2982	1			
ROA	0.3770	0.0801	0.2159	1		
ROE	0.1318	-0.0053	0.1604	0.8531	1	
TGDP	-0.5429	0.0545	-0.0164	-0.2020	0.0194	1

Source: Eviews 9