

Does the use of derivatives increase stock returns? Evidence from banks in GCC countries

هل استعمال المشتقات يزيد من عوائد الأسهم؟ دراسة على بنوك من دول مجلس التعاون الخليجي

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Abstract

After the globalization and markets integration, many changes have influenced both financial and banking sectors. Consequently, in order to adapt with these changes the derivative instruments were created and they knew a rapid growth since. The main purpose of the current paper is to investigate empirically how financial derivatives affect financial performance of banks. By using the annual data of 25 commercial banks from GCC countries and daily market data during the period 2006 to 2019, main results reject the usual hypothesis by showing a negative effect of derivatives on performance of banks. The main conclusion rejects the thesis stipulating that derivatives are beneficial for banks.

Keywords : Derivative instruments, banks, stock returns, GCC countries, panel data.

ملخص

لقد تأثر كلا من القطاع المالي و البنكي بعد التغيرات التي سببتها العولمة و تكامل الأسواق المالية، و للتأقلم مع هذه التغيرات ظهرت المشتقات المالية و زاد استعمالها عبر السنوات. الهدف من هذه الورقة البحثية هو دراسة أثر استعمال المشتقات المالية على الاداء المالي للبنوك قياسيا باستعمال بيانات سنوية الخليج بالإضافة إلى بيانات أسعار السوق اليومية خلال الفترة 2006 إلى 2019 ل 25 بنك تجاري من دول الخليج، تظهر نتائج الدراسة أن استعمال المشتقات المالية من طرف البنوك التجارية له أثر سلبي على أداء البنوك و بالتالي نرفض الفرضية التي تنص على أن المشتقات مفيدة للبنوك. **الكلمات المفتاحية:** المشتقات، البنوك، عوائد الأسهم، دول مجلس التعاون الخليجي، بيانات بانل.

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1. INTRODUCTION

Since the 1990s, there has been an accelerated globalization of capital markets, a global integration of the financial system and the expansion of capital markets. Hence, the financial markets have become more volatile due to changes in both the domestic and international financial markets. Therefore, firms face risks and it was necessary to measure the exposure to the risk in order to manage it. Consequently, risk managements become an important element to firms. One of the risk management tools that were invented to hedge risks is financial derivatives which are basically in the form of forward, futures, swaps and options whose payoffs is derived from primitive financial assets.

As a part of the financial and economic system, the banking system is under the influence of changes such as interest rates fluctuations, the increase of competition, the concentration of capital etc. In order to adapt with these changes, the banking sector tried to diversify its activities and one of its new activities is the use of financial derivatives.

At that time, many financial crises have happened such as the Mexican crisis 1994, Southeast-Asian crisis 1997, Russian crisis 1998 and American subprime crisis 2007-2008 etc. As a result of these crises, many banks have failed and witnessed big losses around the world (Lehman Brothers; Merrill Lynch, Northern Rock, Goldman Sachs, HSBC, Fortis etc.)

As a result to the advantages and benefits of financial derivatives, the derivative markets have grown rapidly in both advanced and emerging economies. The notional amounts of OTC derivatives rose to 640 \$ trillion at the end of June 2019. This rise is the highest since 2014. As for the gross market value of OTC derivatives, it has augmented from 9.7 \$ trillion to 12.1 \$ trillion in 2019.

As financial markets integration, financial risk management becomes an indispensable function in many institutions over the past decades. It is a key concept in finance. Firms around the world find the need to hedge against the fluctuations in asset prices and other risks and one of the recent risk management tools are financial derivatives contracts. When these contracts are used properly, they create value for the shareholder; reduce the volatility of the cash flows and accounting profit. Thus, their use allows companies to pay a regular dividend (**Butler, 2009**). As a result, risk management with

financial derivatives has attracted much attention recently and becoming an important topic in the financial literature.

As it is known, GCC countries are large oil exporters with fixed exchange rate regimes, which expose them to many risks with the volatility of oil prices, and their financial sector is generally dominated by the banking sector, they also have more developed financial markets than other Arabic countries and started to use financial derivatives for hedging purposes specially in banking sector to hedge from interest rates and exchange rate risks.

Regarding literature on financial derivatives, most of the previous studies on financial derivatives focused on the pricing of derivatives and other studies examined the effect of financial derivatives usage focusing on non-financial firms, while only few studies aimed to analyze the impact of the use of financial derivatives in the banking sector and the majority of these studies where on advanced economies although the rapid growth in derivatives markets in both advanced and emerging economies and the importance of the banking sector and its development. Consequently, it is necessary to examine the effect of derivatives usage in the banking sector by focusing on emerging countries.

The current work aims to fill this gap by analyzing the effect of financial derivatives usage on the performance of banks from Gulf Cooperation Council countries. Therefore, the main question is as follow:

Does the use of financial derivatives increase stock returns of commercial banks from GCC countries from 2006 to 2019?

The rest of the paper is organised as follows. First, the financial and banking sector of GCC countries as well as their derivative markets is described. After that, we collect empirical literature as regard the impact of derivatives use on bank performance. Moreover, we represent the methodology used in this paper. Lastly, the empirical results are analysed and discussed followed by a conclusion.

2. An overview on GCC financial and banking sector

The Gulf Cooperation Council was established in an agreement concluded on 25 May 1981 in Riyadh, Saudi Arabia between six countries namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE. The economies of these countries are large oil exporters with fixed exchange rate regimes. Hence, they are exposed to international oil prices fluctuations.

According to (Khamis, Al-Hassan, & Oulidi, 2010, p 5-8) the financial sector in GCC is dominated by the banking sector where the banking sector is largely domestically owned. Oman and Saudi Arabia have a relatively high public sector ownership, while almost half of the domestic sector's assets of the banking sector in UAE are owned by the public sector. Hence, the UAE and Bahrain have important foreign bank presence in the banking sector, and Bahrain and Oman have sizeable joint ventures in the domestic banking system with foreign investors, mostly from the GCC. As for Saudi Arabia, the joint ventures in the domestic banking sector are small and by non-GCC investors, while in UAE and Kuwait they are negligible. Moreover, except for Bahrain all GCC countries have limits on foreign ownership due to the entry barriers and licensing restrictions for foreign banks. Thereby, the cross-border presence of GCC banks and other foreign banks is limited and it is usually in the form of branches.

In addition, public and quasi public-sector ownership varies but ranges from 13 percent in Kuwait to 30 percent and 35 percent in Oman and Saudi Arabia respectively, while in UAE it reaches to 52 percent. Thus, in UAE public ownership of domestic banks is owned by the government while in Oman and Saudi Arabia's relatively high public-sector ownership is mostly attributed to quasi government ownership. In addition, (Molyneux & Iqbal, 2005,p145) deduced that the commercial banks are dominated in Gulf systems and these are highly concentrated.

Furthermore, the GCC banking sector is heavily concentrated with few banks dominating the market where Bahrain, Kuwait and Qatar are the most concentrated banking systems.

As for Nonbank financial institutions (NBFIs) in the GCC, they are limited, while Investment funds have been growing rapidly in several countries they are almost 95 investment companies in Kuwait while in Bahrain, Saudi Arabia and the UAE they are limited (Calice & Mohamed, 2015, p6). However, the banking sectors in the GCC countries are well capitalized across the board with capital adequacy ratio and well leverage ratios by international comparisons although they faced a rapid credit growth and increasing leverage recently. (Khamis et al., 2010, p 19)

Banks in the GCC region generally hold high levels of capital, and their economies dependent on oil as a key driver of growth, consequently GCC banks' net income is highly correlated with oil-driven fiscal

developments and this implies that the oil price is a significant risk factor driving credit default. (**GCC annual meeting of finance and central bank governors, 2014, p.4**)

3. Derivatives markets in GCC

Although the desire in change of GCC in order to develop their financial markets, the past few years of financial turmoil lead to some obstacles such as low market liquidity, large price swings, funding issues in prominent state-owned enterprises have made the financial development more difficult. However, the GCC financial markets remain small and behind their potential.

Before the financial crisis, the financial markets of GCC have emerged stable from the financial crisis although they were touched by the event in Europe and America. After the crisis, the financial market of Oman has fallen by one-fifth, Bahrain, Kuwait and Abu Dhabi around one-third and Dubai around two-third, while Saudi Arabia has fallen almost 50 percent and a price collapse of the key financial assets especially in Emirates. Consequently, GCC financial markets have not regained the dynamism they have before the crisis although political actions and business recovery. (**Kern, 2012, p4**)

Driven by solid demand, technological progress and regulatory liberalization, the financial in GCC is small comparing to the international financial markets. The GCC financial markets have 0.8% share in global financial markets with 1.7% share in worldwide GDP. (**Kern, 2012, p9**)

However, the GCC have been exposed to the risks of the EU and US debt crises like the global economy as whole especially as the global demand greatly influences their hydrocarbon sales. In addition, the struggle for democracy and liberty in some MENA region such as Egypt, Tunisia, Libya, Syria and public discontent in parts of the Gulf region, the financial markets have been affected due to the political uncertainty. (**Kern, 2012, p4-8**)

According to (**Kern, 2012, p19**) derivatives markets in GCC are not developed due to regulatory limitations on these products. Hence, the majority of GCC countries have not handed out licenses for the necessary product registration, trading and clearing infrastructure. Additionally, the Islamic banks are not in a position to trade in derivative instruments. Although, the complexity of these financial instruments and the great

caution in their use by policymakers, regulators and even market participants, the prudent development of derivative instruments in GCC markets may bring benefits in terms of greater liquidity and underlying markets, better risk management for investors and wider scope for diversification.

In Kuwait, the government and markets have established a market for options and futures on equities by providing derivative contracts on a number of individual stocks. In UAE, the Dubai Multi Commodities Center offers commodity derivatives, while in Abu Dhabi a range of exchange traded funds has been listed. In Bahrain, financial exchanged trade of derivatives and structured products. In Qatar, a market for energy derivatives has been established. Thus, the progress on the derivatives front remains isolated.

4. LITERATURE BACKGROUND

4.1. Empirical literature review

There are a considerable number of literatures focusing on the effect of financial derivatives usage on firm performance, value and profitability. Regarding literature investigating the effect of using financial derivatives on banks' performance is limited to few studies.

In the study of (Minton, Stulz, & Williamson, 2009), they aim to investigate why banks are motivated to use financial derivatives; using a sample of 395 US banks from 2001 to 2005 they conclude that the use of credit derivatives by banks to hedge loans is limited.

In their analysis (Rivas, Ozuna, & Policastro, 2011) aim to analyze the impact of using financial derivatives on banks 'efficiency. In order to achieve this goal, he uses a sample of 182 banks from Brazil, Chili and Mexico during the period 2001 to 2002. The main conclusion of this study is that the use of financial derivatives increases the efficiency of banks.

In the paper of (Said, 2011) the objective is to analyze the effect of using financial derivatives on the performance of banks. Using 5 US banks from 2002 to 2009 the main conclusion of this study is that there is a positive effect of financial derivatives usage on performance of banks.

In investigating the determinants of the extent of Asia-Pacific banks derivatives activities (Au Yong, Faff, & Chalmers, 2014) use 110 banks from Asia pacific countries during the period 2002 to 2003, they find that except for the non-dealer banks, the probability of financial distress and

economies of scale arguments in explaining Asia-Pacific banks' extent of derivatives activities. Hence, the use of financial derivatives in banks reduces the probability of financial distress.

In their paper, (**Egly & Sun, 2014**) examine the effect of derivatives dealer on bank charter value during 2001-2011 using a sample of top 27 holding companies, the result conclude that the impact on BHC charter value become positive when trading income interacted with derivative dealer designation, in addition BHC increase risk through their off-balance sheet activities that generate volatile trading revenues, finally the impact of derivatives trading income on bank charter value using Tobin's Q is very small and seems to be tied to BHCs derivatives dealer trading designation.

Using the data of publicly and non-publicly 4404 traded bank holding companies during 1986- 2007 for testing the relationship between derivatives usage and loan growth by regression model, (**Brewer, Deshmukh, & Opiela, 2014**) conclude that loan growth is less sensitive to core deposit growth for interest-rate derivatives users than non-users, other finding shows interest- rate derivatives usage allows a more freely among various sources of funds thereby reducing their reliance on less interest-rate sensitive sources, finally the usage of derivatives and it cost have a negative effect on both financial stability and boarder resource allocation in the economy.

The aim of (**M. Keffala, De Peretti, & Chan, 2015**) study is to explore the effect of financial derivatives usage on banks performance. Using 74 banks from both emerging and recently developed countries from 2003 to 2009 the study reveals that the use of derivatives contracts reduce the performance of banks.

To test the impact of derivative usage on bank stability in emerging countries from a sample of 66 banks using GMM Panel during 2003-2011, (**M. R. Keffala, 2015**) findings reveal that options and futures affect negatively the stability of banks from emerging countries. Forwards and swaps are not destabilizing derivatives. Options and futures can be considered as risky derivatives and partly responsible in the intensification of the last financial crisis.

The objective of (**Shen & Hartarska, 2018**) study is to evaluate the effect of using financial derivatives on profitability of banks before and during the 2008 financial crisis. Using a sample of 6921 community banks

from 2003 to 2012 the study shows that the use of financial derivatives reduces the sensitivity of banks profitability to on-balance sheet credit risk and interest rate risk. Hence, the bank's profitability improves using financial derivatives.

(M. Keffala, 2019) aims to determine whether the use of financial derivatives increase or decrease the profitability of banks. Using GMM panel data of 22 Italian banks from 2005 to 2015, the results show that the use of financial derivatives increases bank's profitability in Italy.

4.2. Study contribution in comparison with the previous studies

The findings of the previous studies are different. According to the results of (Rivas et al., 2011); (Said, 2011); (Au Yong et al., 2014); (Egley & Sun, 2014); (Shen & Hartarska, 2018) and (M. Keffala, 2019), the effect of financial derivatives usage on banks' performance is positive. While, other studies find that the usage of financial derivatives affect negatively the performance of banks (Minton et al., 2009); (Brewer et al., 2014) and (M. Keffala et al., 2015). Moreover, the study of (M. R. Keffala, 2015) separates the derivative instruments and concludes that forwards and swaps contracts affect positively banks stability while options and futures contracts affect the stability of banks negatively.

Most of literature focuses on the developing countries, especially the USA. Hence, there is a need to compare the use of derivatives and its effects on performance across emerging countries. In addition, there has been limited investigation into the effect of derivatives' usage on the performance of commercial banks, with the majority of studies focusing only on their effect on non-financial firms.

These limitations of the existing literature on the use of financial derivatives and its effects justify the present study. Hence, our research may prove useful in filling the research gap that exists in the literature and increase our understanding of the use of financial derivatives taken by banks from emerging markets.

5. METHODOLOGY

5.1. Data

The financial performance of banks is measured by stock returns. In order to determine daily stock returns of banks of each country, daily stock prices were drawn from Thomson Reuter's database. The used formula is as follows:

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \dots \text{equation (1)}$$

In addition, accounting data of banks drawn from bank focus data base are used as independent variables covering the period 2006-2019.

5.2. Sample

The following table represents the list of banks and their countries:

Table 1. Bank names and their countries

Countries	Bank names
United Arab Emirates	1. Emirates NBD PSG
	2. Abu Dhabi Commercial Bank
	3. Mashreq Bank PSG
	4. Union National Bank
	5. Commercial Bank of Dubai PSC
Bahrain	1. Ahli United Bank BSC
	2. Arab Banking Corporation
	3. BBK BSC
Kuwait	1. National Bank of Kuwait
	2. Ahli United Bank KSC
Qatar	1. Qatar National Bank
	2. The Commercial Bank
	3. Doha Bank
	4. Alkhalij Commercial Bank
	5. Ahli Bank
Saudi Arabia	1. Riyad Bank
	2. Samba Financial Group
	3. Saudi British Bank
	4. Banque Saudi Fransi
	5. Arab National Bank
	6. Saudi Investment Bank
Oman	1. Bank Muscat SAOG
	2. National Bank of Oman
	3. HSBC Bank Oman
	4. Oman Arab Bank

Source: By the author based on the collected data

In total, there are 25 banks from 6 GCC countries. The choice of sample banks is according to the following reasons:

- ✓ Lack of previous studies focusing on banks from emerging countries;
- ✓ The problems in the GCC countries such as oil fluctuations;
- ✓ The fragility of their financial system.

5.3. Variables description

The used variables in this analysis are described in the table (2).

Table 2. Variables definition

Variables	Proxy	Definition	References
Dependent variable			
Stock Return	Financial performance	As defined in equation 1	Keffala (2012)
Independent variables			
Derivatives	Derivatives	The notional value of derivatives divided by total assets.	Chaudhry et al (2000); Reichert and Shyu (2003).
Size	Bank size	Natural log of total assets.	Chaudhry et al (2000); Reichert and Shyu (2003).
NIM	Net interest margin	The difference between total interest income and total interest expense expressed as a percentage of total assets.	Chaudhry et al (2000); Reichert and Shyu (2003).
Liquidity	Liquidity	The ratio of liquid assets equity to total assets.	Chaudhry et al (2000); Reichert and Shyu (2003).
Credit risk	Credit risk	The ratio of loan loss-reserves to gross loans.	Chaudhry et al (2000); Reichert and Shyu (2003).

Source: by the author depending on literature review

From the table (2), the dependent variable is defined as stock return of each bank and it is used as proxy for their financial performance. However, the independent variables were as follow: derivative instruments, bank size, net interest margin, liquidity and credit risk. The choice of these variables is according to previous studies and literature.

5.4. Testing hypotheses and expected results

According to literature (Rivas et al., 2011); (Said, 2011); (Shen & Hartarska, 2018) and (M. Keffala, 2019) the derivative instruments use tend to increase the bank performance. Hence, our main hypothesis stipulates that the effect of derivative instruments use is positive on performance of banks.

For the variable bank size according to literature and the theory it is known that large banks are well-diversified. Hence, the chance of their fail

is less comparing to small banks. Consequently, a positive relation between bank performance and bank size is predicted (Rivas et al 2006; Reichert and Shyu 2002; Keffala 2012). Moreover, in the study of (Said 2011) net interest margin have a positive effect on bank performance. Furthermore, according to literature (Keffala 2012) liquid assets in portfolios refer to the fact that banks are healthy, so we conduct a positive relationship between the variable liquidity and bank performance. Lastly, the variable credit risk is expected to have a negative effect on performance of banks (Keffala 2012).

The table (3) summarizes the predicted effect of the independent variables and their references.

Table 3. The predicted relationship between dependent variable and independent variables

Variables	Expected sign	References
Derivatives	+	Rivas et al (2006), said (2011), Keffala (2012)
Size	+	Rivas et al (2006); Reichert and Shyu (2002)
Net interest margin	+	Said (2011)
Liquidity	+	Keffala (2012)
Credit risk	-	Keffala (2012)

Source: by the author depending on literature review results

5.5. Empirical model

The equation below represents the conceptual model which describes the effect of derivatives on financial performance of banks measured by stock returns of each bank individually.

$$Stock\ return_{i,t} = \alpha_0 + \alpha_1 Derivatives_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 NIM_{i,t} + \alpha_4 Liquidity_{i,t} + \alpha_5 Credit\ risk_{i,t} + \varepsilon_{it}$$

Where:

ε_{it} : is the random error.

The other variables are defined previously.

5.6. Unit root test

As seen below, the stationarity of the variables is checked using several tests. Trying with individual intercept, then individual intercept and trend and finally without individual intercept and trend. The results are as follow:

Table 4. Stationarity test results

Variables	LLC	IPS	ADF	PP	Decision
Stock return	-11.1834 (0.0000)	-5.1670 (0.0000)	119.560 (0.0000)	123.989 (0.0000)	Stationary at level
Derivatives	-63.0980 (0.0000)	-12.1034 (0.0000)	82.7248 (0.0025)	78.7588 (0.0058)	Stationary at level
Size	-37.6437 (0.0000)	-15.4769 (0.0000)	99.9018 (0.0000)	115.241 (0.0000)	Stationary at level
NIM	-7.72826 (0.0000)	-6.03045 (0.0000)	66.0119 (0.0641)	53.0076 (0.0358)	Stationary at level
Liquidity	-3.03821 (0.0012)	-3.33152 (0.0004)	89.4603 (0.003)	109.291 (0.0000)	Stationary at level
Credit risk	-8.49817 (0.0000)	-3.90960 (0.0000)	94.4634 (0.0001)	71.5909 (0.0242)	Stationary at level

Source: by the author depending on Eviews 9 results

According to the table (4) results, the stationarity of all variables is checked since the P value of the majority of tests is closed to 0, which means we reject the null hypothesis of Unit Root at 5 % significance level.

5.7.Descriptive statistics

After analyzing each country descriptive statistics results separately the results show that the UAE banks are the most users of derivative instruments in GCC countries with a standard deviation of 0.0085. Moreover, the Saudi Arabian banks are the larger banks while the smallest banks are Kuwait banks. For net interest margin the highest scores are in UAE banks followed by Oman, Qatar, Kuwait, Bahrain and lastly Saudi Arabia where the standard deviation in UAE is the highest with a score of 0.5527 and the lowest standard deviation is in Kuwait. Furthermore, the high liquidity levels is in Kuwait banks followed by Oman, Bahrain, UAE, Qatar and lastly Saudi Arabia, for the standard deviation which is a measure of risk the highest level is in Bahrain and the lowest in Saudi Arabia. In addition, UAE banks have the highest level of credit risk followed by Saudi Arabia, Bahrain, Oman, Kuwait and lastly Qatar, while the standard deviation high level is in UAE and the lowest is in Kuwait. Finally, the highest level of stock return is in Bahrain followed by UAE, Qatar, Saudi Arabia, Kuwait and lastly Oman with Bahrain as it has the highest level of standard deviation and Kuwait as it has the lowest level of Standard deviation.

5.8. Specification tests results

5.8.1. Matrix of correlation

The correlations between variables of the first model are presented in the following matrix:

Table 5. Matrix of correlations

	Derivatives	Size	NIM	Liquidity	Credit risk	Constant
Derivatives	1.0000					
Size	-0.4245	1.0000				
NIM	0.2182	-0.0594	1.0000			
Liquidity	-0.1169	0.4120	-0.0795	1.0000		
Credit risk	-0.0679	0.0131	-0.3534	-0.2710	1.0000	
Constant	0.1679	-0.8198	-0.4395	-0.4838	0.0528	1.0000

Source: by the author according to Stata 16 results

Furthermore, a test for multicollinearity is made using the variance inflation factor (VIF). The results are presented in the following table:

Table 6. Multicollinearity test results

	VIF	1/VIF
Size	1.49	0.669232
Liquidity	1.39	0.720799
CreditR	1.30	0.768054
Derivatives	1.29	0.775508
NIM	1.25	0.801815
Mean VIF	1.34	

Source: by the author according to Stata 16 results

The results show an absence of correlation between the independents variables since the coefficients are less than 5.

5.8.2. Heteroskedasticity test

From the table (7), the results show the existence of heteroskedasticity problem according to the p-value of Breusch-Pagan test where it was less than 5% which means we reject the null hypothesis and accept the alternative hypothesis confirming the problem of heteroskedasticity in our model.

Table 7. Breusch-Pagan Heteroskedasticity test results

Dependent variable	Chi 2(1)	P -value
Stock return	255.27	0.0000

Source: by the author according to Stata 16 results

Additionally, we run also white test to confirm the heteroskedasticity of our model and the results were as follow:

Table 8. White test results for Heteroskedasticity

Dependent variable	Chi 2(20)	P –value
Stock return	36.09	0.0150

Source: by the author according to Stata16 results

Hence, according to the p value of white test we reject the null hypothesis and accept the alternative hypothesis confirming the existence of heteroskedasticity in our model.

5.8.3. Endogeneity test

The following table shows the results of endogeneity test of our model.

Table 9. Endogeneity test results

Instruments		Chi-sq (1)	P-value
Included	Size, liquidity, credit risk.	8.728	0.0031
Excluded	NIM		
Included	Size, NIM, credit risk.	1.056	0.3041
Excluded	Liquidity		
Included	Size, Liquidity, NIM	0.215	0.6430
Excluded	Credit risk		
Included	NIM, liquidity , credit risk	3.253	0.0713
Excluded	Size		

Source: by the author according to Stata 16 results

According to the results of the table (9), the p-value of the majority estimated regressions is higher than 5% which means that there is an endogeneity problem in our first model.

Because of the existence of heteroskedasticity and endogeneity problem in addition the number of banks (groups) is greater than the number of the time period we can apply the dynamic panel system of the Generalized Method of Moments estimator which is considered the most appropriate way of estimation in our case study.

The dynamic panel system of the Generalized Method of Moments (GMM) estimator was proposed by Arellano and Bover (1995) and Blundell

and Bond (1998). As pointed out by (Asal, 2015) this method allows economic models to be specified while avoiding needless assumptions such as specifying a particular distribution for the errors. The lack of structure in the GMM made it commonly used in econometrics especially due to competing economic theories often imply that economic variables satisfy different sets of population moment conditions. In addition, GMM controls for dynamic endogeneity that arises from ignored heterogeneity and simultaneity that might exist in the regression and it is robust to model misspecification. Using GMM method allows us to use the lagged value of the dependent variables as an instrument in order to control for potential simultaneity and reverse causality, while all the explanatory variables are treated as endogenous.

5.9. GMM Panel analysis

The following table shows the estimation results of the first model using GMM estimator.

Table 10. Estimation outputs using GMM

Variables	Stock return
Stock return (-1)	-0.029744 (-2.505285)**
Derivatives	-12.82598 (-4.910127)***
Size	1.548130 (5.018747)***
NIM	0.538759 (5.187282)***
Liquidity	1.448115 (5.187282)***
Credit risk	-0.017794 (-0.942880) ^{ns}
Num of Obs	98
Hansen test (J-statistic)	15.30102
P-value of Hansen test	0.082992
Arellano & Bond test AR (1)	-1.513397
P-value of AR (1)	0.1302
Arellano & Bond test AR (2)	0.920062

P-value of AR (2)	0.3575
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Source: by the author depending on Eviews 9 results

*, **, and *** significance level at 10%, 5% and 1% level respectively.

(): t-statistic of the estimators.

Ns: not significant.

Since the p-value of Hansen J statistic is higher than 5% so we accept the null hypothesis that implies that the model is well fit and it confirms the validity of the instruments of our model. Additionally, the results of autocorrelation test of the error term show that the p value of the second order serial correlation AR (2) is higher than 5%. This finding implies that the original error term is serially uncorrelated therefore the moment conditions are correctly specified.

Moreover, the coefficients indicate that stock return past value is significant which validate the application of GMM model. For Derivative instruments it has a negative effect on financial performance of banks at level of significance equals to 1%. As concerning the variables size, net interest margin and liquidity they affect positively the financial performance of banks at level of significance equals to 1%. Lastly for the variable credit risk, results show that its effect on performance is not evident due to its insignificance.

6. RESULTS AND DISCUSSION

The major objective of this analysis is to determine the impact of derivative instruments on stock return performance of banks from GCC countries.

The results of GMM estimation shows a negative effect of derivative instruments on financial performance, this result contradicts the literature and it can be interpreted that banks of our sample use badly derivatives contracts to hedge their risk. Comparing to previous literature results which show a positive relationship between derivatives usage and banks performance although the majority of the previous studies are focusing on banks from developed countries, we can say that our bank sample is from emerging countries which they manage bad the use of derivatives. Therefore, they do not have a long experience in using such instruments comparing to advanced countries. In addition, emerging countries banks have used derivatives recently and that their derivatives markets are small so

banks do not have many opportunities to diversify their portfolio of speculations or for hedging purposes.

As concerning the bank size its positive effect on financial performance support the theory stipulating that the size of banks influences positively bank performance. This finding suggests that large banks have better diversified asset portfolio and economies of scales thus these banks become more efficient.

For net interest margin and liquidity they affect positive the financial performance of banks. These results are as predicted and matching with the results of the previous studies. According to literature liquid assets in portfolios refer to the fact that banks are healthy. Hence, a positive relationship is conducted between the variable liquidity and bank performance.

Finally, the effect of credit risk is not clear at level of significance equals to 5%.

Ultimately, the major conclusion of this paper is that banks seem to decrease their performance by using derivative instruments. Indeed, deducing results reject literature findings and the argument that stipulate that derivatives usage increase financial performance of banks. Hence, our hypothesis is rejected.

7. CONCLUSION

The purpose of this paper is to study the effect of derivative instruments use by commercial banks in GCC countries on their stock returns. For that, we have chosen a sample composed of 25 commercial banks from GCC countries for many reasons such as: the lack of papers focusing on emerging countries, the lack of data on banks from emerging countries and the limited number of papers analyzing empirically the relationship between financial derivatives usage and cost of capital in general. Using annual accounting data and daily market data during the period 2006-2019, this study tries to respond to the main research question which is what is the effect of financial derivatives usage on the performance of banks?

According to the literature results the main hypothesis is that financial derivatives usage affect positively the performance of banks. To

test this hypothesis, we conducted an empirical analysis, where the performance of banks is regressed to derivatives and other variables.

The results show that the use of financial derivatives decreases the financial performance of banks. Our results are not similar to the majority of those of the literature as described previously. Regarding literature (see Rivas, Ozuna, & Policastro, 2011; Au Yong, Faff, & Chalmers, 2014; Said, 2011; Egly & Sun, 2014; Shen & Hartarska, 2018; Keffala, 2019), this result is not in line with most of previous studies results although some studies did find that the usage of derivatives instruments reduce performance such as (Minton, Stulz, & Williamson, 2009; Brewer, Deshmukh, & Opiela, 2014; M. Keffala, 2012; M. Keffala, 2015).

Hence, the hypothesis stipulating that financial derivatives usage affect positively the performance of banks is not supported. Contrary to the previous studies results, this result can be interpreted by the fact that banks from GCC countries are new users of derivative instruments which make their experience limited in using these instruments in addition to their small derivatives markets which do not offer many opportunities to take profits if derivative instruments. These specificities of our sample changed the results comparing to previous studies results which were mostly studies on advanced countries, where it seems clearly that their banks manage better the use of financial derivatives in comparison to banks from emerging countries.

From this work, we can summarize the following implications.

The results exhibit that the use of financial derivatives does not improve the performance of banks. Therefore, bank managers should give more attention to their use of derivative instruments to control its effect on the performance of banks.

Our work contributions can be enumerated: firstly, our study focuses on GCC countries contrary to the majority of previous papers focusing only on banks from advanced countries mainly from US. Indeed, it contributes to the literature by studying this relation in GCC countries in order to fill this gap in the literature.

Nevertheless, the current work was limited by some constraints such as the lack of derivatives and market data. The lack of market data limited our methodology especially in order to study each type of derivative instruments separately.

As proposals, forthcoming studies should focus on:

- ✓ Enlarge the period and the sample of the study;
- ✓ Access to more data in order to separate between types of derivatives;
- ✓ Compare banks from emerging countries;

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