

## Financial derivatives and the commercial banks performance in UAE

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### ABSTRACT

The introduction of derivatives at the financial market of the United Arab Emirate (UAE) is to enhance liquidity and broadens the range of securities. This is because it brings exciting opportunities for investors to diversify their investment in an efficient and cost-effective way. Evidence from previous studies has shown that financial market derivatives help to reduce risk. Even though trading losses produced by unsuitable derivative activity are frequently big enough to create financial problems and even bankruptcy, there is minimal research on how bank profitability and performance are affected. The study examines the determinants of financial derivatives on the performance of commercial banks in UAE and the financial risk exposure between derivatives financial assets and derivatives financial liabilities. The research employs Pecking order theory, panel ARDL and data from 30 commercial banks' financial statements in 2020 in UAE. The study found that an increase in the level of return on assets will create an increase in traded financial derivatives that will enhance bank performance by a high level of percentage. Stability of the banking sector in UAE is recommended to enhance better performances of commercial banks on financial derivatives in UAE.

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## 1. Introduction

Among the three stock exchanges (BHM Capital, Al Ramz Capital) in the United Arab Emirates, stocks and bonds issued by the government are traded at Dubai Financial Market which has been integrated by NASDAQ (Mazin & Janabi, 2019). According to Al-Gamrh et al. (2019), financial derivatives are financial contracts traded between two or more companies which derive value from underlying assets. Central Counterparty Clearing (CCP) was established to promote clearing, efficiency, stability, and confidence in the financial market. The introduction of derivatives at the financial market of the United Arab Emirate (UAE) is to enhance liquidity and broadens the range of securities (Mazin et al. 2019; Bahoo et al., 2014). This is because it brings exciting opportunities for investors to diversify their investment in an efficient and cost-effective way.

Evidence from previous studies has shown that financial market derivatives help to reduce risk. Mohamed et al. (2018) indicated that most companies use future exchange to reduce their financial distress risk. In other words, studies such as Merton and Bodie (1995) have expressed the damage done to the financial system by financial derivatives. These studies reported that most of the financial crises in the past were caused by financial derivatives as banks, firms and businesses operated in a constantly changing and risky environment, which causes unpredictability, volatility, and complexity.

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Therefore, most of the commercial banks operating in the financial markets are more vulnerable to trading risks at FX or over-the-counter (OTC) markets (Mohamed et al., 2018). It is therefore vital to hedge against risks to pave the way for desired profitability, to avoid financial losses and bankruptcy.

For instance, the report from Abu Dhabi Branch Financial Statements, 2020, shows that the branch exposure at the year ends significantly to Interbank Offered Rate (IBOR). Non-derivatives financial assets carrying value was estimated at London Interbank offered Rate (LIBOR) to be AED 339,652, non-derivatives financial liabilities carrying value was AED 29,994 and derivatives nominal amount was accounted to be AED 70,759. At the hedging account, the derivatives nominal amount was AED 70,759 with average maturity of 3.9 years. In terms of liquidity risk, estimates of over three years and others was AED 335,410 was reported for total assets while AED 586,245 was reported for total liabilities and equity.

Nevertheless, over the years, the commercial banks in UAE such as Abu Dhabi Commercial Bank, Ajman Bank., Al Ahli Bank of Kuwait, Al Hilal Bank, Al Khaliji S. A, Al Masraf, Arab African International Bank, Arab Bank PLC and others have continued to increase and expand whereas issue about their performance become a challenge (Al-Gamrh et al. 2019). This makes the activities of operation of commercial banks in UAE become very complex. The performance of commercial banks has been described by (Muthine et al, 2021) as any income generated by the organisation after it has utilized the available resources. In recent times, problems confronted by commercial banks in UAE are poor management which emanated from financial organisations and government while the management issue has greatly affected the performances of the banks (Al-Gamrh et al. 2019). For Instance, the banks' tariff wars, block-chain, quantum computing, presence of shadow banks, market risks, liquidity risks, credit risks such as corporate debt risk and unregulated non-bank lenders risk have greatly threatened the future financial performance of the banks in UAE. High capital costs requirements, declining loan growth from small banks, deteriorating asset quality, non-performing loans, low retail deposit growth, credit risks, poor management of monitoring and screening of borrowers have been affected (MacCarthy, 2017).

Derivatives have also been accused of having a key role in the 2008 financial crisis and, as a result, its impact on financial stability. For example, in the United States, the banking industry has caught the attention of regulators, and institutions have been forbidden from engaging in proprietary derivatives trading to protect participants. Permitted derivative operations such as market making, underwriting, and risk management, on the other hand, are often confused with proprietary trading, making it difficult to distinguish between the two. As a result, putting the Volcker Rule into effect is highly complex, and banks must defend their allowed derivative activity. Due to the increasing regulatory expenses, banks, particularly small banks, may be forced to restrict or possibly discontinue utilizing derivatives for risk management if it is implemented.

This study is quite important as few or no studies have investigated the effect of financial derivatives on the performance of commercial banks in the United Arab Emirates (UAE). It is therefore imperative that evidence from this study will open understanding into the relationship between financial derivatives and performance of commercial banks in UAE. Even though trading losses produced by unsuitable derivative activity are frequently big enough to create financial hardship and even bankruptcy, there is minimal research on how bank profitability and performance are affected. Therefore, this paper tries to fill the gap by examining the determinant of financial derivatives on the performance of commercial banks in UAE as well as obtain financial risk exposure between derivatives financial assets and derivatives financial liabilities.

## *1.2. The Traditional Capital Structure Theory*

The traditional capital structure theory according to Modigliani and Miller (1958) is that corporate financial actions such as hedging are irrelevant if investors (Shareholders) can reproduce all of them on their own. The systematic approach to financial activity is stepped up in this theory by combining equity and liabilities. Two ideas will be given to describe how firms choose the appropriate structure (debt versus equity). These are the pecking order and trade-off theories. It is stated that firms posit a trade-off between tax savings and financial risk in the trade-off hypothesis. Borrowing is initially less expensive than equity financing since interest payments are tax deductible. By increasing debt relative to equity, the company can lower its weighted average cost of capital (WACC). However, as debt grows in proportion to equity, so does the chance of default, raising the WACC.

### *1.2.1. Pecking-order/Trade-off Theory*

Over the past thirty years, a variety of economies have tested various capital structure theories, including the pecking order theory. According to this theory, enterprises will favour internal funding sources over external ones if they require funding and will predict a hierarchy in funding. The pecking order theory begins with this. When internal sources of finance are insufficient to cover a company's financial needs, external sources of funding must be considered by the company. The theory predicts that enterprises will favour low-risk external loan financing over stock issuance in this second stage. According to a review of the literature, the financial deficit regression and the factors influencing the goal leverage level are the two main methods used to assess the pecking order effect (Yildirim & Çelik, 2021).

In another word, pecking-order theory, a company chooses to support itself with domestically generated cash at first. As cash reserves fall below a certain minimum, the company chooses to borrow to fund its expenditures. Because equity is the

most expensive source of funding, the company only issues additional equity as a last resort. From the standpoint of corporate managers, the trade-off and pecking order theories address how capital structures are decided. Investors have an impact on such decisions in practice. According to a recent survey, DePamphilis (2022) stated that nearly 80% of institutional investors feel they have a direct influence on capital structure decisions through discussions with management and indirectly through discussions with investment banks that assist with securities issuance. 75 percent, 83 percent, and 84 percent of equity, convertible bond, and conventional bond investors, respectively, said capital structure is crucial when deciding whether or not to invest in a firm.

Models built on the financial deficit regression are created as alternatives to the trade-off model and attempt to explain the pecking order effect by including all elements of a financial deficit (i.e., capital expenditures and dividend payments) as external variables to the model, provided that debt can be attained securely (Frank & Goyal, 2003; Leary & Roberts 2010; Shyam-Sunder & Myers, 1999). Regardless of how much information these models provide about a firm's financial behaviour, they do not provide information about a firm's capital expenditures or its changing financial preferences.

### 1.2.2. *Financial Derivatives and Bank Risk*

Derivative instruments are contracts to buy or sell the underlying asset at a future date at the price and quantity described herein (MacCarthy, 2017). Derivatives are financial instruments that derive their values from the performance of the underlying entity. This underlying entity can be an asset index, or interest rate. Derivatives are used for a number of purposes, such as hedging against future price movements of securities or against speculation or getting to trade assets or markets. Some of the common derivatives include forwards, futures, options, swaps and variations. Derivative exchanges perform more complex functions than real market exchanges. They are also being transformed and modernized. They are compatible with qualitative changes in the shareholder's economy, offering along with these changes, strategies and paths of socioeconomic change.

Financial derivatives that are connected to a particular financial instrument or commodity, through which specific financial risks can be traded in the financial market, are referred to as financial derivatives. Financial derivatives should not be viewed as a component of the value of the underlying transaction to which they are related, but rather as independent transactions. Financial derivatives are employed for a variety of activities, such as risk management, hedging, market arbitrage, and speculating. By lowering risk, financial market derivatives promote more fiscal and political sovereignty. Some asserts that businesses utilize derivatives to lessen their exposure to financial distress risk, and that this risk has a systematic component that is priced in the market. These contracts have an underlying asset or assets that define their value.

Quite a few empirical studies have shown that financial derivatives are essential to business risk control. According to MacCarthy, (2017), Krause (2007) confirmed that the effect of derivatives reduced risk. In lieu of these banks use financial derivatives to maximize profitability and to reduce the uncertainties associated with their investment. Furthermore, some others supported the motion that derivatives influence risk reduction among financial firms. Other studies with related findings were (Whiteman, 2003). However, evidence from these studies has indicated that derivatives influence commercial bank performance (MacCarthy, 2019).

### 1.2.3. *Commercial Bank Performance*

Commercial banks are crucial to a nation's economy because they act as a bridge between the consumer and business sectors (finance). The most effective financial system is one in which the mediator functions effectively. Such a system restricts, quantifies, collects, and negotiates all operational risks and encourages investors by providing savers with a payout that is commensurate to the level of risk assumed. As a result, various economies and banks cannot have the same risk and reward. Banda (2019) explained that bank performance is the quality measurement performed to determine how a bank is properly using the assets from its operations to generate revenue.

In other words, bank performance is the overall financial health of the bank over a period. A crucial role of commercial banks is to allocate the nation's economic resources in terms of transferring funds from the surplus savings unit to the deficit units for investment. Instead, banks must generate revenue in the form of profits to maintain their financial intermediary role. Some stated that efficient financial performance ensures that shareholders are rewarded for their investment. Therefore, investors are motivated to buy more portfolios, which leads to economic growth. In other words, poor commercial bank performance leads to banking crises and bank failures, which have had a negative impact on economic growth.

Oketch et al. (2018) believed that performance of banks can be improved through financial innovations and deepening. Crowley et al. (2022) supported the same submission. In this study, the performance of banks was reflected in the increase in the growth of local industries and effective coordination of non-performing loans. Kola et al. (2018) stated that the increased growth rate of GDP has a positive impact on the performance of banks. This means that if the production of goods and services in a country grows over time, the ripple effect would affect bank performance. In addition, it is believed that Loan to deposit (LTD), Assets Size (AS) and Debt to Assets (DTA) may have positive significant influences on Return on Assets (ROA), while DTA and Capital Adequate Ratio (CAR) have positive significant relationship on performance of commercial banks in China.

#### 1.2.4. *Effects of Financial Derivatives on Bank Performance*

The literature on the issue on the effect of financial derivatives on the performance of commercial banks in UAE has not ended while arguments of whether financial derivatives have any effect on the performance of the banks in UAE remain unsolved. Evidence from various studies from other countries showed different results. For instance, studies such as Anyango (2014) examined the effect of financial derivatives on the financial performance of commercial banks in Kenya. The findings from the study indicated that there is an insignificant relationship between the financial performance (ROA) of commercial banks in Kenya and financial derivatives. Additionally, the negative nature of the relationship means that a unit change (increase) in financial derivatives will result in a decrease in financial performance of commercial banks in Kenya.

In the same vein, Muthine et al. (2021) examined the relationship between financial derivatives and financial performance of selected listed commercial banks in Kenya. Also, the study assesses the influence of swaps, options, forwards, and futures on financial performance of listed commercial banks in Kenya. The study indicated that there was a linear relationship between financial derivatives and financial performance of selected listed commercial banks in Kenya. Findings from the study showed that sales of swaps contracts were low and there were increasing costs associated with this kind of derivatives, hence reducing profits. In addition, since most forwards take a long time to mature, when banks were restructuring their computerized systems, they lost client's contact information through misplacement or not correctly capturing in the new system. These results proved that the banks lacked enough qualified staff to amicably handle all issues and report on time.

MacCarthy (2017) provides evidence on the impact of financial derivatives on the performance of firms in the financial sector in Ghana. Empirical findings from this study showed that the financial performance of businesses improves largely when they trade in financial derivatives. Financial derivatives significantly predict business performance at 5% significance level where they account for 92.3% of the variation in business performance.

#### 1.2.5. *The Review of Empirical Literature*

The influence of hedging on the cost of equity capital was investigated by Ahmed et al. (2018). User firms have a 109-basis point lower industry-adjusted cost of equity than non-users, according to the report. Users' cost of equity has decreased because of their market, size, and value risk factor exposures. The observed negative relationship between derivatives uses and the cost of equity is robust to specification that considers potential endogeneity stemming from a firm's derivatives hedging and capital structure decisions. The survey also discovered that smaller businesses and businesses that use foreign currency and interest rate swaps benefit the most from lower equity costs. Furthermore, new derivative consumers benefit from large cost savings in the first year of adoption.

The goal of Maniagi (2018) was to investigate the impact of financial risk on commercial bank performance in Kenya. The specific objectives were to determine the impact of market risk on commercial bank performance, the impact of credit risk on commercial bank performance, the impact of interest rate risk on commercial bank performance, the impact of foreign exchange risk on commercial bank performance, the impact of liquidity risk on commercial bank performance, and the impact of bans on commercial bank performance. The findings were under a longer period that capture various trade cycles credit risk had a significant negative relationship with performance hence managers should aim at reducing this risk to increase performance while market risk and interest rate risk had a significant positive relationship with performance this means that managers should expect increase in performance when interest rate and foreign exchange increase.

From 2006 to 2015, Huan and Parbonetti (2018) studied the relationship between equity risk and the use of financial derivatives with 555 banks from eighteen developed markets. The study's major findings revealed that the adoption of financial derivatives by banks increased their risk. This increase in risk can be caused by banks' speculative use of derivatives, poor hedging to achieve hedge accounting status, or accounting mismatches that cause earnings volatility. This association is also nonlinear, according to the research. Idiosyncratic risk is lower for Too-Big-To-Fail banks and those that follow a regular retail banking business model.

#### 1.2.6. *Conceptual Frameworks*

This conceptual framework follows the work of Uchechukwu and Okafo (2022). Commercial banks use derivatives to access financial markets and trade different assets. Most assets traded are stocks, bonds, commodities, and currencies while counting the value of their loss from revaluation of derivatives held for trading and hedging. These are called derivatives, financial assets and liabilities. Derivative is operated through hedging or exchange of cash flow (swaps) and futures. However, if the market is efficiently allocated, then, commercial banks receive increased earning quality and reduced market risk. This is the measure of bank performance which translates to an increase in the development of derivatives financial assets and liabilities.

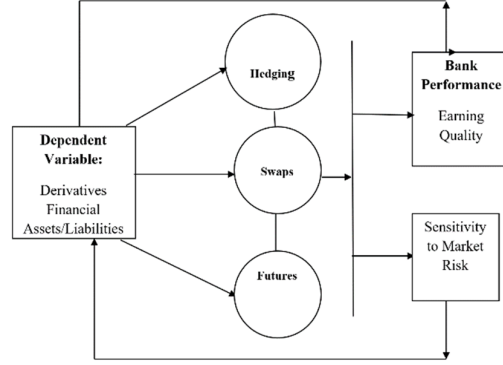


Fig. 1. Conceptual Framework

## 2. Methods

### 2.1 Theoretical Framework

The Pecking Order idea served as the theoretical foundation for this study. Companies would immediately adjust their resources to any change in their debt target in an ideal environment without transaction costs (or any other adjustment costs). Therefore, at a particular time  $t$ , the observable debt of a particular corporation  $i$ ,  $Y_{it}$ , should not differ from its debt target,  $Y_{it}^*$  that is,  $Y_{it} = Y_{it}^*$ . Nevertheless, there are considerable transaction costs that impede companies from completely reaching  $Y_{it}^*$ , so the adjustment is, in this case.

$$Y_t - Y_{t-1}^* = \phi(Y_{it}^* - Y_{t-1}) \tag{1}$$

where  $Y_{it}$  and  $Y_{it-1}$  are the ratio of total observed leverage in the current and previous period, respectively (they are defined as the natural logarithm of the quotient between total debt and equity).  $Y_{it}^*$  is the ratio of target debt, and  $\phi$  is the speed of adjustment or target-adjustment coefficient which is assumed to be constant across the sample. This model assumes that changes in the debt ratio are explained by deviations in the current ratio from the target. Eq. (1) establishes how much the desired adjustment (from the debt ratio in  $t - 1$  to the target ratio in  $t$ ) depends on its adjustment parameter  $\phi$  which in turn depends on the presence of transaction costs. Eq. (1) represents dynamic behaviour where a given firm adjusts its target  $Y_{it}^*$  in transaction cost. Therefore, we specified equation 2.2 as derived from Eq. (1) as the number of internal resources acquired and the presence of profitable investments are crucial to a firm's financing. Therefore, one way to test this idea is to look at financing choices made after short and long-term changes in investments and earnings, i.e., using the relationship between changes in debt levels and changes in a firm's requirement for capital.

The theoretical framework of this study follows traditional capital structure theory of Modigliani and Miller (1958) while the study employs the model of Uchechukwu and Okafo (2022) that examine the effect of financial derivatives on the performance of commercial banks. This study specifically adopted the Autoregressive Distributed Lag (ARDL) Model. This method was to help examine the relationship among SE (Shareholders Equity), ROA (Return on Assets), ROE (Return in Equity), and TA (Total Assets). The study employs unit root testing using the Augmented Dickey-Fuller test, Multicollinearity test using variance inflation factor (VIF) and bound test on the test for co-integration.

The functional model is specified below in Eq. (2) and it is adopted and modified from Di Maggio et al. (2020).

$$y_t = a_0 + a_1 t + \sum_{i=1}^p \phi_i y_{t-1} + \sum_{j=1}^k \phi \sum_{i_j=0}^a \beta_j i_j x_{jt} - i_j + \varepsilon_t, \tag{2}$$

where  $y_t$  are the derivatives usage or bank risk control by shareholder equity  $a_0$  is constant term and  $a_1, \phi_i$  and  $\beta_j i_j$  are respectively the coefficients associated with a linear trend, lags of  $y_t$  and lags of the  $k$  regressors  $x_{j,i}$  (Total Assets, Liquidity, Return on Assets and Return on Equity) for  $j = i, \dots, k$ . Intuitively, Eq. (3) further express the breakdown of the model.

$$DER_{it} = a_0 + a_1 TOTAL\ ASSETS_{it} + a_2 LIQUID_{it} + a_3 ROA_{it} + a_4 ROE_{it} + v_{it} + \varepsilon_{it}. \tag{3}$$

## 2.2 Model Specification

From Eq. (3), the model of the research is derived such that (Derivative Usage) is the bank risk while it is captured by Shareholder Equity (SE). SE is the amount of equity the shareholder owns on investments. Therefore, this is model estimation is expressed in Eq. (4),

$$SR_{it} = a_0 + a_1 TOTAL ASSETS + a_2 LIQUID_{it} + a_3 ROA_{it} + a_4 ROE_{it} + v_{it} + \varepsilon_{it}. \quad (4)$$

While total assets equal total liabilities plus equity, Liquidity is the ratio of current assets and current liabilities. ROA is the ratio of net income and average total assets while ROE is the ratio of net income by average shareholder equity. More specifically, we estimated Eq. (5) as:

$$SR_{it} = a_0 + a_1 \frac{CURRENT ASSETS}{CURRENT LIABILITIES}_{it} + a_2 \frac{NET INCOME}{AVERAGE TOTAL ASSETS}_{it} + a_3 \frac{NET INCOME}{SHAREHOLDER EQUITY}_{it} + v_{it} + \varepsilon_{it}. \quad (5)$$

Data is sourced from the annual report, financial statements of the selected banks and index reports from Federal Deposit Insurance Corporation, Abu Dhabi Securities Exchange and Dubai Financial Markets.

## 3. Results and Findings

### 3.1. Unit Root Test

This study tests the order of integration of the variables by using the Augmented Dickey-Fuller (ADF) unit root test to examine the stationary of the time series and the test the null hypothesis of the unit root test. From the results of the unit root test, the study found that the variables SE (Shareholders Equity), ROA (Return on Assets), ROE (Return in Equity), and TA (Total Assets). are stationary at levels. However, SE (Shareholders Equity), ROA (Return on Assets), ROE (Return on Equities), and TA (Total Assets) were found to be stationary at first difference. These results provide the justification for the choice of ARDL model as the study's estimation technique. Thereafter, the study examined the long-run relationship between the dependent and independent variables using ARDL bound tests. This is necessitated by the desire to ensure convergence in the model, to prove there is a long-run relationship among the series. Thus, the result of the bound test is presented in the table below. ARDL is applied when the dependent variable is either stationary at level 1(0) or stationary at first difference 1(1) Thus, stationary is a condition for all time series analysis to avoid spurious regression.

The t-statistics of the estimated normalized equations ( $T = 5.4358$ ) is greater than the lower and upper critical bound at a 1% significance level. It implies that the null hypothesis of no long-run relationship is rejected at a 1% significance level and that there exists a long-run relationship between financial derivatives and commercial bank performance in UAE.

**Table 1**  
Summary of Stationary Test (Augmented Dickey-Fuller (ADF) unit root test)

Variables	ADF Stat at level	Critical Value	ADF Stat at first diff.	Critical Value	Remarks
SE (-1)	-5.396472	1%:-3.679322 5%:-2.967767 10%:2.622989		1%: 5%: 10%:	1(0)
SE (-2)		1%: 5%: 10%:		1%: 5%: 10%:	
TA	-5.435859	1%:-3.679322 5%:-2.967767 10%:2.622989		1%: 5%: 10%:	1(0)
TA (-1)		1%: 5%: 10%:		1%: 5%: 10%:	
TA (-2)		1%: 5%: 10%:		1%: 5%: 10%:	
ROA	-5.532456	1%:-3.679322 5%:-2.967767 10%:2.622989		1%: 5%: 10%:	1(1)
ROA (-1)		1%: 5%: 10%:		1%: 5%: 10%:	
ROA (-2)		1%: 5%: 10%:		1%: 5%: 10%:	
ROA (-3)		1%: 5%: 10%:		1%: 5%: 10%:	
ROE	-4.633176	1%:-3.679322 5%:-2.967767 10%:2.622989		1%: 5%: 10%:	1(0)

Source: Author computation

To assess if trending data should be initially differentiated or regressed on deterministic functions of time to make the data stable, unit root tests can be utilised. Furthermore, non-stationary time series variables may have long-run equilibrium relationships, according to economic and financial theory.

### 3.2 The Test for Multicollinearity

The table below (Table 2) described the test for Multicollinearity for this study. Multicollinearity has been described as perfect and imperfect. It is perfect Multicollinearity if two or more independent variables have exact linear relationship between them while imperfect Multicollinearity is when two or more independent variables are approximately linearly related. This study employed a high variance inflation factor (VIF) to detect Multicollinearity. Independent variables such as total assets, return on assets (ROA) and return on equity (ROE) were investigated. The coefficient variance for total assets (TOTAL\_ASSETS) was 2.5 while the VIF was 1.0. Other variables such as return on assets (ROA) and return on equity (ROE) were 8.9 and 8.6 for the coefficient of variance and 3.4 and 3.5 for the VIF. However, since the VIF is not equal to 10 or more than 10, the study concluded that there was no evidence of Multicollinearity which means that the total assets, return on assets (ROA) and return on equity (ROE) were not linearly related.

**Table 2**  
The Result for Variance Inflation Factors

Variable	Coefficient	Uncentered VIF	Centered VIF
C	1.58E+15	2.401465	NA
TOTAL_ASSETS	2.57E-05	1.096505	1.050294
ROA	8.98E+17	5.205460	3.445108
ROE	8.65E+16	7.429970	3.537929

### 3.3 Long run ARDL Model Estimates and Discussion

Having established the existence of a long-run relationship between the dependent and independent variables, the study proceeded to estimate the nature of this relationship using the ARDL technique. The ARDL approach automatically chooses the lag length on all variables as the model was set at four to ensure a sufficient degree of freedom based on the automatic selection of the Akaike Information Criterion. The results of the long-run estimates are presented in the table below while the short run estimates are captured by the Johansen Cointegration Model.

**Table 3**  
Results of Estimated ARDL Model

Variables	Coefficients	Std. Error	t-statistics	Prob
Long run coefficients				
C	1614063	27980712	0.057685	0.9548
SHAREHOLDER EQUITY (-1)	-0.588319	0.232907	-2.525988	0.0233
SHAREHOLDER EQUITY (-2)	0.436222	0.230082	-1.895945	0.0074
TOTAL_ASSETS	0.678816	0.002309	293.9925	0.0000
TOTAL_ASSETS (-1)	0.401154	0.158184	2.535956	0.0228
TOTAL_ASSETS (-2)	0.295949	0.156522	1.890786	0.0781
ROA	5.93E+08	2.64E+08	2.046053	0.0567
ROA (-1)	56778629	2.64E+08	0.197551	0.8460
ROA (-2)	-1.45E+09	2.87E+08	-5.132662	0.0001
ROA (-3)	-9.50E+08	4.78E+08	-1.987141	0.0655
ROA (-4)	-8.93E+08	4.47E+08	-1.996086	0.0644

Source: Author Computation

From the table above, it is discovered that ROA (-1) i.e. Return on Assets significantly impacts on Shareholders Equity and it also implies for every 1% increase in ROA, Shareholders equity by 2% and above respectively. The long run estimates from table 2 above indicates that there is a negative or inverse relationship between financial derivatives, measured by shareholder equity, and the performance of commercial banks in UAE. The coefficient of total assets is found to be 0.68, which implies that a unit growth in the growth of commercial banks assets has the potential of increasing the financial derivatives traded by commercial banks with about 68%. Also, for Return on assets, the result shows a positive relationship with financial derivatives. This also implies that growth in return on assets will always be capital enhancing in the UAE. From the estimated coefficient of 5.9, it was revealed that a 1% increase in the level of return on assets will create an increase in traded financial derivatives that will enhance bank performance by about 590%. The return on assets is the financial ratio that indicates how profitability of the commercial banks is in relation to its total assets. This means how the commercial banks are generating profits from its total assets.

Measuring bank performance is complicated, but one of the most reliable yardsticks is an institution's return on assets, or ROA has been widely used as measures of banks' performance. Banking sector in Saudi Arabia was examined by Ahmed and Khababa (1999). They used three measures of profitability as dependent variables: ROE, ROA and percentage change in earnings per share. On the other hand, they used four independent variables. These were: business risk measured by dividing the total loans of the bank by its total deposits, market concentration, the market size measured by dividing the

deposits of the bank by the total deposits of the commercial banks under study and the size of the bank. The results of their findings indicated that the business risk and the bank size were the major determinants of the banks' performance.

In another study Abdulsalam and Abdullahi (2008) indicated that the average profit elasticity (PE) for all the sampled banks put together is 184.1% implying that for the period under study, a bank in the industry can only increase profit if it can increase operating expenses by 184.1%. This percentage shows fierce competition in the industry. As such, some banks operate inefficiently because they have to increase their operating expenses in order to cope with the fierce competition. The average ROA for all sampled banks put together was 2.50%, implying that only a fraction of banks' management could use their assets efficiently to generate income. This supports the claim of the competition-inefficiency hypothesis that an increase in competition could cause a decline in bank efficiency (Weill, 2003; Boot & Schmeits, 2005). Return on assets (ROA) is a comprehensive measure of overall bank performance from an accounting perspective (Sinkey, Jr., 1992). It is a primary indicator of managerial efficiency. It indicates how capable the management of the bank has been converting the bank's assets into net earnings. ROE measures accounting profitability from the shareholder's perspective. It approximates the net benefit that the stockholders have received from investing their capital (Rose and Hudgins, 2006).

These results are in tandem with the *a priori* expectations of the study. However, while the p-value shows that the result for shareholder equity is significant at 5%, the level of significant return on assets is very significant at 1 percent. Another important aspect of the findings is the fact that financial derivatives reduction does not respond to changes in commercial bank performance and return on assets in UAE, but it also responds to changes in the lagged values of return to assets. This implies that the level of financial derivatives will not influence the previous one year of return on assets this year. The coefficient of determination ( $R^2= 0.9905$ ) indicates that about 99.1% of the total variations in financial derivatives in UAE were explained by the variables in the model. The overall test using the F-statistic (9123.3) is statistically significant at 1% level of significance showing that the model is well specified and statistically significant. The Durbin Watson statistic (2.3625) shows that there is absence of serial autocorrelation in the model. Also, the result shows the short-run estimated error correction model which measures the speed or degree of adjustment. This is the rate of adjustment at which the dependent variable responds to any shock arising from the independent variables. The coefficient of the Johansen Cointegration (-9.23) is found to be negative and statistically significant at the maximum Eigenvalue.

### 3.4 The Short-run ARDL Estimation

The short-run is a period of time in which the quantity of at least one input is fixed and the quantities of the other inputs can be varied. In this analysis, the study uses Error Correction Model and the test for cointegration to determine the short run impact of financial derivatives and commercial bank performance in UAE. In the model, variables such as shareholder equity, total assets, return on assets (ROA) and return on equity (ROE) were presented. The short-run impacts were at first different variables. The ECM reflected the error correction parameters. The analysis from the Cointegration showed that shareholder equity cointegrated with total asset (0.002). This showed that there are short-run period impacts between the amounts of financial derivatives invested into the commercial banks and the total value of resources owned by the banks. The coefficient of Cointegration was (-0.68). The inverse relationship between the shareholder equity and the total assets means, in the short run, there was 68 percent negative relationship between the amounts of capital invested and the total value of resources owned by the banks.

Variables such as return on assets and return on equity were not significant. This means there are no short run relationships between the shareholder equity, return on assets and return on equity. This showed that in the short run, the profitability of the banks cannot efficiently be determined by investment into financial derivatives. However, this result indicated that in the short run, return on assets and return on equity of the commercial banks cannot determine commercial banks performance in UAE. This is because return on equity is the measure of financial performance of the banks. The adjustment coefficients (Standard error) for shareholder equity was (8.62), total assets (12.7), return on assets (1.1) and return on equity was (3.3) respectively.

## 4. Conclusion

This study sought to investigate the financial derivatives and commercial banks performance in UAE. To achieve this, the study employed ARDL econometric technique to analyse time-series data from UAE over a period of 2020. As a pre-estimation test, the study tested for the stationary of the data series using ADF. Consequent to the result from the stationary test, the study proceeded to achieve our earlier stated objective using the Panel ARDL technique. Through the coefficient of total assets, we can conclude that a unit growth in the growth of commercial banks assets has the potential of increasing the financial derivatives traded by commercial banks. Also, for Return on assets, the result shows a positive relationship with financial derivatives. This also implies that growth in return on assets will always be capital enhancing in the UAE. From the estimated coefficient, the study found that an increase in the level of return on assets will create an increase in traded financial derivatives that will enhance bank performance by a high level of percentage. The return on assets is the financial ratio that indicates how profitability of the commercial banks is in relation to its total assets. This means how the commercial banks are generating profits from its total assets.



In the same vein, it has been revealed that there are no short run relationships among the shareholder equity, return on assets and return on equity. This implies that in the short run, commercial banks in UAE do not perform by their investment in financial derivatives except the total value of resources owned by the banks. According to this study, one advantage of using derivatives may be that it enables a business to retain stable operational procedures in the face of external shocks. This opens up a second avenue for derivative products to deliver steady cash flows to the company. Derivative instruments can generate cash in challenging economic conditions, but they can also smooth cash flows by interacting with operational choices. This result is in line with the Froot et al. (1993) model, according to which firms can implement the best investment strategies in the future through hedging. To evaluate the effect of derivatives on cash flows and subsequently on the valuation of the banks, more research is required. My research has policy ramifications for how risk management is used in commercial banking. The fact that the lending volume of derivative user banks is unaffected by changes in the Fed funds rate shows that the existence of derivative contracts can alter how monetary policies affect the total amount of lending in the economy. The function of derivative instruments in determining monetary policies and assessing their impacts on the credit channels should be considered by policymakers. Large banks' lending activities are less responsive to monetary policies than those of small banks, according to Kashyap and Stein (1995, 2000). My research indicates that using derivatives might be a method by which big banks are able to accomplish this. To further enhance understanding of the impact of derivatives on the transmission of monetary policy,

From the findings of this study, we concluded that a sustainable economic growth and increase in the level of investment in financial derivatives in the long run can enhance growth and financial performance of commercial banks in UAE but not in the short run. Therefore, any policy that is aimed at increasing commercial banks participation in financial markets will address the issues of sustainable economic growth that leads to more performance of commercial banks in UAE. Therefore, the following recommendations are imperatives:

- I. Therefore, financial derivatives and their management must be given top importance by commercial banks in the UAE.
- II. Furthermore, there are not many studies that look at how financial derivatives affect financial performance. This suggests that additional research on the topic is required in the future in order to strengthen current findings and create a robust academic debate on it. Therefore, researchers are urged to carry out related studies in order to increase the body of knowledge and literature on the issue. Since this and many other studies have been based on the financial services industry, future scholars can undertake this research on non-financial sectors.
- III. This report suggests that derivative accounting, valuation practices, and teaching programs be implemented to explain the derivative market in the United Arab Emirates. Since most commercial banks currently lack a consistent policy on the use of derivatives and instead rely solely on the ideas and plans of managers to manage financial risks, investors are forced to bear the costs associated with taking action. This would allow the finance offices to understand every single hedging practice's advantages and disadvantages.
- IV. There is no doubt that society should be seriously concerned about the stability of the banking sector. To ensure that the increasingly popular instruments are utilized in a way that contributes to the goal of a sound and safe banking system, the report advises regulators to carefully and regularly monitor the banks' derivative activity.

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