



Examining Financial Development and its Impact on Economic Growth in the United Arab Emirates: An ARDL Analysis

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Abstract ;

The primary aim of this study is to examine the nexus between stock market development and economic growth in the United Arab Emirates and to determine whether stock market evolution positively impacts economic growth. An econometric analysis using an autoregressive distributed lag (ARDL) model was conducted over the period 1993–2020. Economic growth is proxied by GDP per capita, while stock market development is measured by market capitalization of domestic listed companies as a percentage of GDP. The long-term results indicate that market capitalization has a positive and statistically significant impact on GDP per capita, whereas the short-term impact is positive but not statistically significant. These findings suggest that stock market development may play a meaningful role in enhancing economic performance over time, with implications for financial policy and growth strategies.

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1. Introduction

Theory offers conflicting predictions regarding the impact of overall financial development on growth, as well as the distinct effects of stock markets and banks on economic growth (Beck & Levine, 2004). In a study covering three dozen developed and developing countries from 1860 to 1963, Goldsmith (1969) provides evidence of a positive relationship between the ratio of financial institutions' assets to GNP and output per person (Levine, 1991). Since then, economists have examined this hypothesis more formally through theoretical models, which suggest that countries can achieve rapid growth through well-developed financial systems. (Rousseau, 2002). In this research, we work to verify whether this relationship is positive and important between these two variables.

The study of financial market development is indispensable due to its profound impact on economic growth, stability, and overall economic health (Bekhti, Bakbak, & Bouchetara, 2022). Likewise, an efficient financial system is essential for improving the efficiency of financial intermediation by decreasing trading, required information and supervising costs (Al-Malkawi, Marashdeh, & Abdullah, 2012).

At the core of financial markets, and heavily shaped by financial innovation, lies the payment system (Kahsay, 2022). Stock markets may emerge to help agents manage liquidity risk by enabling entrepreneurs experiencing liquidity shocks to sell their “shares” to other investors (Levine, 1991), and in particular, stock or bond markets play a minor role (Valerie R. & Bruce D, 1991). While in relatively underdeveloped economies, banks constitute the bulk of organized financial markets. The growth of the stock market depends largely on the ease of accessibility for investors and firms and a well-developed market tends to have a lower concentration of large firms, allowing for a more diverse and equitable distribution of market participation (Sukcharoensin & Sukcharoensin, 2013). From an economic perspective, this effect of financial development on economic growth will not only lead to a more effective use of resources but will also promote rapid growth in structural and intellectual capital and advancements in technology, all of which will contribute to accelerated and positive economic growth. (Al-Malkawi, Marashdeh, & Abdullah, 2012).

The UAE is a member of the Organization of the Petroleum Exporting Countries (OPEC) and holds approximately 10% of the world's total oil reserves. The country's leaders established the capital market after realizing its crucial role in free economies. In the early 1980s, they began efforts to explore the creation of financial markets that would meet the needs of the people (Al Mohana, 2015). The UAE has three major stock markets: the Abu Dhabi Securities Exchange, the Dubai Financial Market, and the Nasdaq Dubai. On July 11, 2010, Nasdaq Dubai outsourced its trading, settlement, clearing and custody functions to the Dubai Financial Market (Tomlinson & Chalhoub, 2010). During the last quarter of 2008 and throughout 2009, IPO activity in the GCC and Middle East declined significantly due to the financial crisis. This decline was due to falling stock markets, falling oil prices, tightening external financing and the migration of institutional investors (Tomlinson & Chalhoub, 2010).

This research examines the long-run correlation and short-run dynamic interactions between stock market development and growth in the United Arab Emirates from 1993 to 2020. Using the Auto Distributed Lag (ARDL) approach to cointegration, the study measures financial development using two main indicators, the market capitalization of listed domestic companies (% of GDP)

which is often seen as a positive indicator of economic growth and investor confidence (Mouziane & Zerigui, 2023) ; and the inflation rate (INF) as a control variable. However economic growth is measured by Gross Domestic Product as a percentage.

The ARDL approach's utility lies in investigating the nexus between stock market development and economic growth in the United Arab Emirates. Recent studies suggest that the ARDL approach is more useful than other traditional approaches. Our results show that the UAE stock market's development has significantly boosted growth over the long run from 1993 to 2020 while the relationship is not significant in the short run. This relationship is confirmed by the capitalization of local listed companies which has a positive effect on GDP per capita in the long run but was positive and insignificant in the short run. Both GDP per capita and inflation were significantly positive in the short and long run.

The content of this research will be divided as follows: the first section presents a literature review, while in the second section we examine the development of the financial sector and the growth status of the UAE economy, the third section presents the data and methodology, and the last section analyzes the results obtained.

2. Literature Review

Economic growth is a top-level priority for both developed and developing countries due to its significant and far-reaching impacts on society (Dekkiche, Chrayett, & Oulad Brahim, 2023), that's why there are many theoretical and empirical studies that examine the relationship between stock market development and economic growth. They explore different mechanisms through which stock markets can influence economic performance and provide empirical evidence from different countries and time periods.. Building on classical arguments by Bagehot (1873), Schumpeter (1912), numerous theoretical and empirical papers have showed that financial development promotes growth (Omet, 2011). The most influential study is by Robinson (1952) which argues that "where enterprise leads, finance follows" (Al-Malkawi, Marashdeh, & Abdullah, 2012). Goldsmith (1969) analyzed data from 35 countries spanning 1860 to 1963 by examining the ratio of financial intermediary assets to GDP. He concluded that there is a strong correlation between financial development and economic growth (Goaied & Sassi, 2010). This issue had been extensively studied nearly four decades earlier by McKinnon (1973) and Shaw (1973), and others, who amassed considerable evidence linking financial development to economic growth. Yet, their research also brought forth additional noteworthy insights (Marco, 1993). Romer's (1986) endogenous growth theory also highlights the significant function that stock market development plays in driving growth. (Matei, 2020). However Lucas (1988) suggests that the emphasis placed on the role of the financial system in driving economic growth is exaggerated. Stiglitz (1985, 1994), Shleifer and Vishny (1986), Bencivenga and Smith (1991), and Bhide (1993) suggest that stock markets can potentially hinder economic growth. They argue that because of their liquidity, stock markets might harm growth by reducing savings rates due to externalities in capital accumulation (Adjasi & Biekpe, 2006). Additionally, Demetriades and Hussein (1996) notably examined the causal correlation between financial development and Gross Domestic Product. Their research provided that financial development both influences and is influenced by economic growth (Bekhti, Bakbak, & Bouchetara, 2022). Singh (1997) argued that stock markets are not essential institutions for achieving high levels of economic development, but rather can act as agents that impede economic

growth. He posited that the volatile nature of stock markets in many developing countries can lead to market failures (Touny, 2012). However, Levine and Zervos (1998) find that initial measures of stock market liquidity and banking sector development are both robust predictors of economic growth over the subsequent 40 years (Beck & Levine, 2004). Utilizing the VAR procedures developed by Toda and Yamamoto (1995), Caporale et al. (2004) examined the relationship between stock market development, bank development, and economic growth in a sample of seven countries. The findings indicated that a well-functioning stock market fosters economic growth over the long term (Touny, 2012). Arestis et al. (2001) used time series methods to analyze five developed economies and found that while both banking sector development and stock market development contribute to subsequent economic growth, the impact of banking sector development is significantly greater than that of stock market development (Beck & Levine, 2004). However Choong and Chan (2011) concluded that "all countries would benefit from understanding the relationship between finance and growth" (Al-Malkawi, Marashdeh, & Abdullah, 2012)

Empirically, Greenwood and Jovanovic (1990) and Greenwood and Smith (1997) have formally studied the hypothesis with theoretical models where countries achieve rapid growth through well-developed financial systems that mitigate credit market frictions (Rousseau, 2002). Robert G. King and Levine (1993a) demonstrate that the level of financial intermediation serves as a strong predictor of long-run rates of economic growth, capital accumulation, and improvements in productivity (Levine & Zervos, 1998). Both the panel study by Colombage and Halabi (2012) on emerging ASEAN economies and the study by Sethi and Acharya (2018) on 31 developing and developed countries confirmed that financial development causes growth and vice versa (Rehman & Hysa, 2021).

Several studies have been conducted on the nexus between financial development and economic growth in the MENA region, with a particular focus on the United Arab Emirates. Goaid & Sassi (2005) demonstrated empirically in a study using an unbalanced panel data from 16 MENA region that in Petroleum Exporting MENA countries, the relationship between stock market development and economic growth is not positive (Goaid & Sassi, 2010). While Nasri. H & Mouawiya. A (2005) investigated this nexus for ten Middle East countries. The results indicated that stock market development and growth maybe be related at both short-term and long-term levels (Nasri & Mouawiya, 2005). Mosesov, A., and Sahawneh, N. M. F (2005), tested the size and effect of the financial sector in the UAE. They revealed that the UAE's financial sector has an insignificant effect on growth (Shadab, 2021). However, Zarrouk, H., El Ghak, T., and Abu Al Haija, E (2017) investigated the directional relationship between growth and the financial sector in the UAE from 1990-2012. Their study found a unidirectional causality running from GDP to Islamic finance (Zarrouk, El Ghak, & Abu Al Haija, 2017). In the same context, the results of Touny. M (2012) indicated that stock market development, as measured by the Market Capitalization Ratio and Turnover Ratio, has a positive effect on economic growth and also showed that economic growth positively and significantly influences stock market development indicators in some arab countries including the UAE (Touny, 2012).

Quantitative indicators frequently utilized to gauge the level of a country's financial development encompass (Sahawneh & Mosesov, 2005):

- Broad money (M2): to evaluate the overall scale of the formal financial sector.

- Domestic assets held by resident banks: to measure financial depth.
- Private sector credit as a percentage of total domestic credit
- The turnover of stock market and the market capitalization: to incorporate the impact of stock market size and liquidity

Concerning stock market development, most commonly used quantity-based indicators are: (Adenuga, 2010)

- Total value of shares traded on a country's stock exchange as a share of GDP: This indicator complements the market capitalization ratio and indicates whether the market size is aligned with trading activity.
- Traded shares as a percentage of total market capitalization (the value of stocks listed on the exchange): The turnover ratio gauges trading volume in relation to the overall size of the stock market (market capitalization).
- The value-traded-ratio divided by stock price volatility: Liquid markets should be capable of managing high trading volumes without significant price fluctuations.

Classical economics primarily emphasized capital accumulation as the key driver of economic growth. Economists in this tradition believed that increasing the stock of physical capital—such as machinery, buildings, and infrastructure—would lead to higher productivity and, consequently, economic growth. However, this perspective largely overlooked the role of technological progress in sustaining long-term growth (Popoola, Ajay, & Abiodun, 2022)

2.1. Financial Development and Economic Growth in the UAE

The United Arab Emirates (UAE) is a young country established in the 1970s. It is situated in the middle of the Arabian Gulf and is a federation of seven Emirates. Abu Dhabi and Dubai, the largest and wealthiest two Emirates, dominate the UAE economy (Joseph & Fernandez, 2016). Abu Dhabi is the primary oil exporter in the UAE, with oil and gas accounting for 35% of its GDP. Conversely, Dubai's oil contribution to GDP has steadily decreased to almost less than 1% of GDP by the end of 2018 (Kapar, Olmo, & Ghalayini, 2019). The UAE is a dynamic and growing market for business, particularly in financial services. Both global and local banks have thrived in recent years in this relatively progressive and vibrant economy (Tabash & Dhankar, 2014). In 2005, the UAE's financial market was open to foreign investment, allowing non-UAE residents to own an equity stake. At the end of 2013, the UAE companies listed on the market had a total market value of 646 billion AED. This amount represents an increase of 70.45% compared to the value of these companies at the end of 2012 (Al Mohana, 2015). The UAE has one of the highest per capita GDPs in the world (Al Mohana, 2015). In 2013, the GDP of the United Arab Emirates was US\$396.24 billion making it the 27th largest economy in the world. The oil sector no longer contributes as much to the UAE's GDP as it did before, even though the government is trying to expand its economic sectors. (Zarrouk, El Ghak, & Abu Al Haija, 2017). The primary sources of revenue for stock exchanges are: listing revenues generated from stock market listing services; trading revenues derived from trading in financial instruments; and services revenues obtained from post-trading activities, data dissemination, and IT services (Joseph & Fernandez, 2016). The country achieved remarkable growth rates, increasing its Real Gross Domestic Product (GDP) from USD 27,545 billion in 1972 to USD 249,578 billion in 2014. The United Arab Emirates has occupied an advanced position among the most financially developed countries in the Middle East and North

Africa region, according to the index developed by Creane et al (2003), which allowed for the ranking of countries in the Middle East and North Africa region based on their level of financial development (Sahawneh & Mosesov, 2005)

The UAE has strategically diversified its economy to reduce dependence on oil revenues. Vision 2021 and 2030 were its two main initiatives. To success the UAE vision 2021, the national Agenda of the UAE focused on: enhancing air quality, conserving water resources, boosting the contribution of clean energy and implementing green growth plans (AL-Dabbagh, 2021). The Government has identified nine pillars that will shape the Emirate's social, political, and economic future to achieve vision 2030 including: a large empowered private sector, a sustainable knowledge-based economy and optimization of the Emirate's resources (The government of Abu Dhabi, 2008)

In the second quarter of 2023, the UAE economy expanded by 3.8% compared to the previous year. While the overall growth rate saw a modest increase from the first quarter of 2023, there was a notable shift in composition, with the non-oil sector—representing about 75% of GDP—experiencing stronger activity, while oil production declined (Central Bank of the UAE, 2023).

Financial development in the UAE has undergone significant transformation, establishing the country as a regional financial hub. Key aspects of this development include:

2.1.1. Stock market growth: The Emirates Securities and Commodity Authority (ESCA) established three major stock exchanges

- **Dubai financial market (DFM):** The Dubai Financial Market (DFM) commenced its operations in March 2000, initially functioning solely as a securities trading market before evolving into a full-fledged stock exchange (Squalli, 2005). The DFM's strategy is to aim to replicate leading global financial markets (Joseph & Fernandez, 2016). Dubai's quarterly average Financial Market Index also contracted by 3.1% (quarter-on-quarter) during the fourth quarter of 2023. The Quarterly Traded Value dropped by 28.9% (quarter-on-quarter) during the same period, leveling at AED 22.0 billion. The Number of listed Companies in March 2021 reached 64 and decreased to 62 companies in December 2023. The total market value of these companies reached 353.9 billion AED in March 2021 and reached 671, 9 billion AED in December 2023 (Central Bank of the UAE, 2024).

- **Abu Dhabi securities exchange (ADX):** formerly known as the Abu Dhabi Securities Market, was established on November 15, 2000, in the Emirate of Abu Dhabi. The federal regulator, ESCA, oversees and regulates trading on the ADX. It's noteworthy that the Dubai Financial Market (DFM) owns a two-thirds stake in the ADX (Smith, 2015). The primary sectors represented on ADX include banks and financial services, construction, consumer goods, energy, healthcare, industrial, insurance, real estate, and telecommunications. ADX has chosen internal growth strategies and has promoted itself abroad to attract international investors (Joseph & Fernandez, 2016). Abu Dhabi's quarterly average financial market Index dropped by 3.1% (q-o-q) during the fourth quarter of 2023. Meanwhile, the Quarterly Traded Value fell by 7.1% (q-o-q) during the fourth quarter of 2023, amounting to AED 65.8 billion. The Number of listed Companies in March 2021 reached 74 and increased to 96 companies in December 2023. The total market value of these companies reached 826.7 billion AED in March 2021 and reached 2, 883, 1 billion AED in December 2023 (Central Bank of the UAE, 2024).

- **NASDAQ Dubai stock exchange:** Nasdaq Dubai (previously called the Dubai International Financial Exchange or DIFX) was founded in 2004 and is overseen by the Dubai Financial Services

Authority (DFSA) in December 2009 (Tomlinson & Chalhoub, 2010). It has issuers based in various countries worldwide, including the UK, South Africa, Australia, India, Kuwait, Bahrain, and Saudi Arabia (Joseph & Fernandez, 2016). In 2023, the value of sukuk listed on Nasdaq Dubai has increased to \$75 billion, cementing Dubai's status as a premier global hub for sukuk listings while the capital admitted at the end of the same year was 164 USD Billions while it was 127 USD Billions in 2019 (Nasdaq Dubai, 2023)

2.1.2. Banking sector expansion: In 2003, laws were changed, allowing banks to open more than eight branches. Foreign banks faced no obstacles when they wanted to open a representative office. By the end of 2004, there were thirty-six representative offices across the emirates (Central bank of the UAE, 2006). Since 2005, the relatively small banking sector of the United Arab Emirates was comprised of 21 local banks and 25 foreign banks. Banks incorporated in Abu Dhabi and Dubai held more than 90% of the total domestic assets (Hashmi, 2007). In 2007, there were 22 national banks in the UAE, with a total of 499 branches, 54 pay offices, and 11 service branches. Additionally, there were 25 foreign banks operating with a total of 133 branches (Fernandez & Sahawneh, 2007). The number of bank branches declined from 656 at the end of 2019 to 541 by the end of 2020 (Central Bank of the UAE, 2020). In 2022, the UAE banking system included 61 licensed banks, among which were two digital banks. Over the past three years, there was a 22.3% reduction in the number of physical bank branches and the UAE banking sector saw a 10.5% increase in total assets, bringing the total to AED 3,670 billion (GulfNews, 2022). At the end of the fourth quarter of 2023, the total assets of banks operating in the UAE saw a 3.1% quarter-on-quarter increase, reaching AED 4,075.2 billion (Central Bank of the UAE, 2024).

2.1.3 International financial centers: The Dubai International Financial Centre (DIFC) and the Abu Dhabi Global Market (ADGM) are major financial free zones that attract global financial institutions due to their tax benefits and advanced infrastructure

- **Dubai International Financial Centre (DIFC):** The DIFC is a distinct geographic and legal jurisdiction within the emirate of Dubai. In 2004, the UAE constitution was amended to permit an emirate to create a "financial free zone," which operates as an independent legal, geographic, and judicial entity. The DIFC has enacted a comprehensive set of laws covering areas such as insolvency, trust, personal property, and employment (International Monetary Fund, 2007). In 2023, the DIFC got a record-breaking result with a total of 5523 companies registered including 902 Fintech and innovation companies and achieved a combined revenues close to AED 1.3 Billion (DIFC, 2023)

- **Abu Dhabi Global Market (ADGM):** Abu Dhabi Global Market ("ADGM") was created under Abu Dhabi Law No. 4 of 2013 as a financial free zone within the Emirate of Abu Dhabi, operating with its independent civil and commercial laws. ADGM provides market participants with a sophisticated legal framework and regulatory environment (Abu Dhabi Global Market, 2017). As of December 31, 2023, the Abu Dhabi Global Market (ADGM) reported a 35% year-on-year increase in assets under management. The number of operating entities rose to 1,825, marking a 32% increase. Additionally, more than 125 companies are in the process of registering with ADGM, and 88 financial institutions along with two exchanges have received in-principle approvals (Abu Dhabi Media Office, 2024).

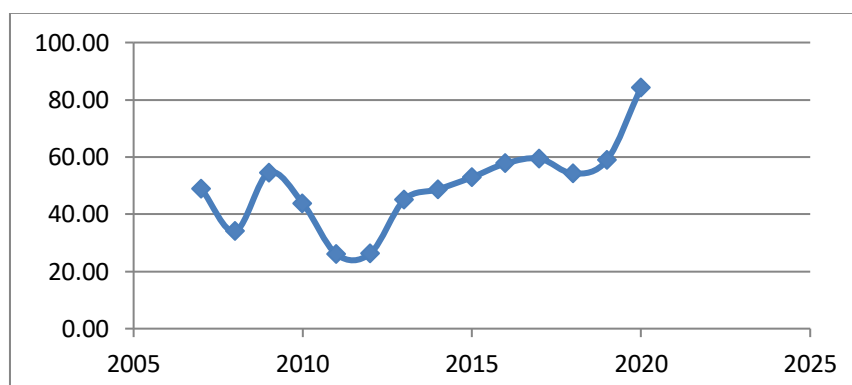
- **Dubai gold & commodities exchange (DGCX):** The Dubai Gold & Commodities Exchange (DGCX), recognized as the world's newest commodities derivatives exchange, began trading on November 22, 2005. It stands as the first international commodities derivatives market in the Middle East, bridging the critical time zone between the markets of Europe and the Far East (Padma, 2022). DGCX sustained its leading position as a premier derivatives exchange in the Middle East, with the total value of contracts traded on the exchange reaching USD 115.3 billion. In addition, DGCX launched the GCC's first Shari'ah Compliant Silver Spot Contract, enhancing its range of products and catering to the needs of a diverse market (DGCX, 2023).

2.1.4. Islamic Finance: Islamic finance in the UAE began nearly 50 years ago with the establishment of the world's first Islamic commercial bank in 1975. This was soon followed by the introduction of the country's first takaful insurance company four years later. In 2022, the Islamic finance industry continued its growth trajectory, expanding by 11% to reach AED 16.5 trillion. Over the past five years, the industry has grown by 69%, and over the past decade, it has surged by 163% (Central bank of the UAE, 2023).

2.1.5. Finetch: In December 2020, the Central Bank of UAE established its fintech office to support fintech activities within the banking sector and collaborate with other fintech authorities, including those in DIFC and ADGM. In the same year, digital payment transactions in the UAE totaled US\$18.5 billion. The UAE has also taken some national initiatives in the field of financial technology, including: National Artificial Intelligence Strategy 2031, Emirates Blockchain strategy 2021 which aimed to transition 50% of government transactions to blockchain technology within three years (Fintech Middle East, 2021).

Financial development is often assessed using various indicators that go beyond just price or quantity measures like interest rate spreads or stock-flow ratios relative to GDP (Bekhti, Bakbak, & Bouchetara, 2022). Using the following curves, we will analyze key indicators of financial development and growth for the United Arab Emirates over the period from 1993 to 2020:

Fig.1. Market capitalization of listed domestic companies as a percentage

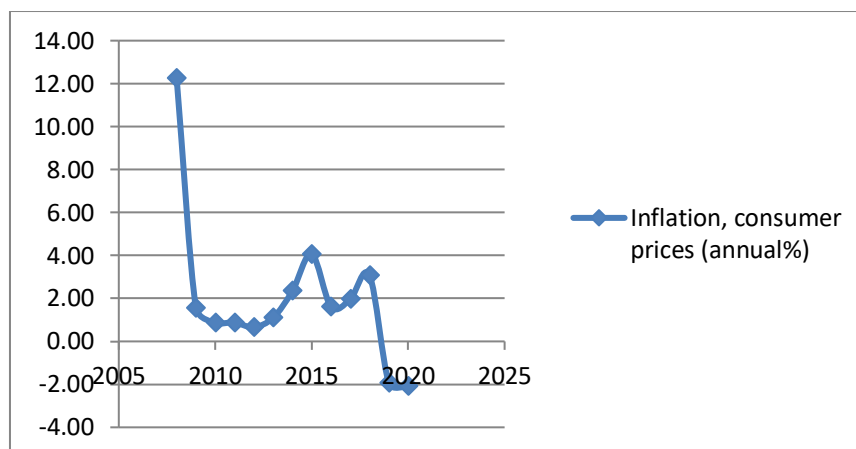


Source: worldbank.org

We observe from figure 1 that during the period from 2012 to 2020 there was a continuous rise in the Market capitalization of listed domestic companies (% of GDP), as it was 26.35% in 2012, reaching 84.36% in 2020. This is considered its highest level. This is due to the increasing number of listed domestic companies on financial market, as there were 120 companies in 2014, jumping in 2020 to 130 companies on the two main stock exchanges in the United Arab Emirates: the Abu

Dhabi Securities Exchange (ADX) and the Dubai Financial Market (DFM). We also note that this value decreased in 2008 due to the repercussions of the financial crisis, as it was 48.93% in 2007 declining to 34.03% of GDP in 2008.

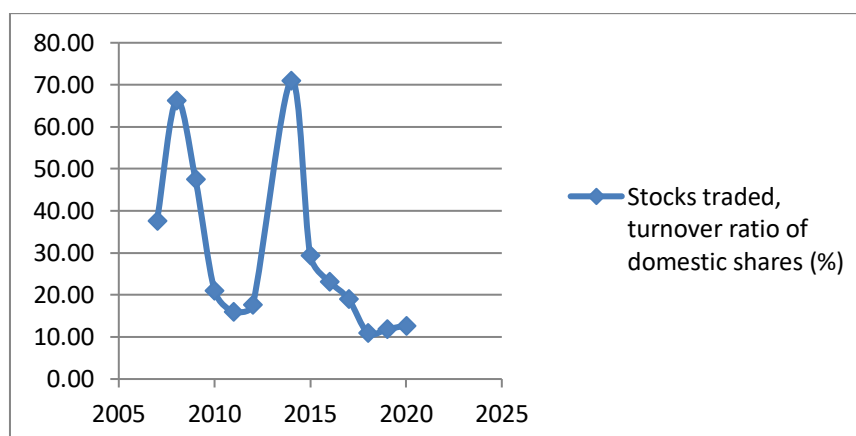
Fig.2. Inflation, consumer prices (annual %)



Source: worldbank.org

We observe from the figure above, that the inflation rate in the UAE economy reached its peak in 2008, estimated a rate of 12, 25 %, and this id due to the impact of the financial crisis, which saw an increase in prices and a decrease in purchasing power. This rate then declined in 2009, reaching 1, 56%. This decline continued until 2012, when it reached 0.66%. The period from 2012 to 2018 was characterized by fluctuations, with increases and decreases, reaching a percentage of 3, 07% in 2018. The years 2019 and 2020 were marked by deflation due to the COVID-19 pandemic, which was characterized by reduced demand, decreased imports, and a slowdown in economic activity. The two rates were respectively -1, 93% and -2, 08%.

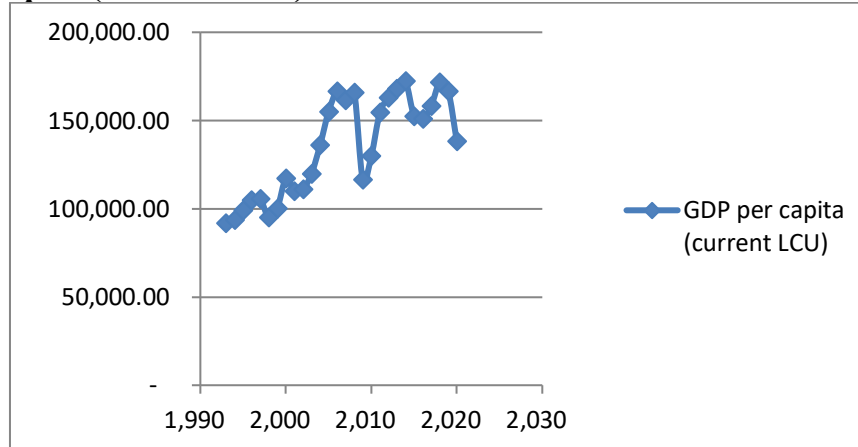
Fig.3. Stocks traded, turnover ratio of domestic shares (%)



Source: worldbank.org

We note from figure 3, that the ratio of domestic shares in the UAE's stock market experienced significant fluctuations from 1993 to 2020. It peaked at 71.04% in 2014, reflecting a heightened grade of financial intermediation within the UAE's stock market. The turnover ratio showed a declining trend from 2008 to 2012 and again from 2014 to 2018. By 2020, the turnover ratio stabilized at 12.72%.

Fig.4. GDP per capita (current LCU)



Source: worldbank.org

From Figure 4, we observe a notable growth in Gross Domestic Product per capita in the UAE from 1993 to 2006, rising from 166,509.63 current LCU to 918,461.12 current LCU. This growth trend was interrupted during periods of economic crises, including the global financial crisis in 2008 and the COVID-19 pandemic. This remarkable growth in Gross Domestic Product per capita can be attributed to the rapid development of the UAE's economy due to the substantial influx of international investments and the significant role played by its financial centers. This value reached its highest level in 2014 with 172,115.25 current LCU.

3. Methodology and Results

3.1 Research Methodology

Based on previous theoretical and empirical studies that have addressed the impact of financial development on economic growth, we will rely on annual data for our analysis. The dependent variable will be GDP which measures economic growth, and the independent variable will be market capitalization which measures investment in the UAE stock market. Additionally, we have chosen inflation as a control variable.

The data spans from 1993 to 2020 and was obtained from the World Bank database and Dubai Financial Market (DFM).

The United Arab Emirates was selected as a case study due to its advanced financial sector and the accelerated economic growth it has experienced in a relatively short period. The UAE's financial sector is one of the most sophisticated and integrated globally, serving as a hub for both regional and international financial activities. This makes it an ideal location to examine the causal relationship between stock market development and economic growth.

The study will estimate the nexus between growth and stock market development in both the short and long run using the ARDL model which is written as follows:

$$\Delta \ln(\text{GDPP}_t) = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta \ln(\text{GDPP}_{t-i}) + \sum_{j=0}^q \beta_j \Delta \ln(\text{INF}_{t-j}) + \sum_{k=0}^r \gamma_k \Delta \ln(\text{KB}_{t-k}) + \phi_1 \ln(\text{GDPP}_{t-1}) + \phi_2 \ln(\text{INF}_{t-1}) + \phi_3 \ln(\text{KB}_{t-1}) + \epsilon$$

Where:

GDPP: symbolizes the Gross Domestic Product as a percentage as proxy for economic growth in the UAE

KB: symbolizes the Market capitalization of listed domestic companies as a percentage of Gross Domestic Product

INF: Control variable representing inflation rate

ln: represents natural logarithm function

€: error term

We added the natural logarithm (ln) because inflation is a percentage. To eliminate this percentage and ensure the integrity of the econometric study, we applied (ln) to the variables.

We have applied this model for many reasons. First, the Autoregressive Distributer Lag approach is suitable for research with a small number of observations (Paresh, 2016). Second, it allows us to test cointegration and estimate short-run and long-run correlation when the series are not integrated of the same order (Benyacoub & Es-salmani, 2021). Finally, it estimates the nexus between variables with different orders of integration by examining the stationarity of the series.

3.2 Research Results

3.2.1. Stationarity of time series

The test of Phillips-Perron was employed to assess the data series' stationarity.

Since inflation is a ratio, we have to use the logarithm natural (ln) function

The results of this unit root test are displayed in Table 1 below:

Table.1. Results of test of Phillips - Perron Unit Root

<u>At Level</u>				
		LNGDPP	LNINF	LNKB
With Constant	t-Statistic	-1.5761	-3.5943	-2.4129
	Prob.	0.4807	0.0128	0.1477
		n0	**	n0
With Constant & Trend	t-Statistic	-0.7860	-3.4853	-2.1693
	Prob.	0.9547	0.0613	0.4865
		n0	*	n0
Without Constant & Trend	t-Statistic	0.5837	-2.4241	0.7248
	Prob.	0.8362	0.0174	0.8655
		n0	**	n0
<u>At First Difference</u>				
		d(LNGDPP)	d(LNINF)	d(LNKB)
With Constant	t-Statistic	-3.4287	-13.8060	-3.6709
	Prob.	0.0191	0.0000	0.0110
		**	***	**
With Constant & Trend	t-Statistic	-3.6299	-13.4028	-3.7446
	Prob.	0.0466	0.0000	0.0369
		**	***	**
Without Constant & Trend	t-Statistic	-3.5013	-14.2677	-3.6233
	Prob.	0.0011	0.0000	0.0008
		***	***	***

Source: compiled by the author using Eviews, 10

The results of the test of unit root indicate that only the variable (LNINF) was stationary at (order zero) level. While (LNGDPP, LNKB) were shown to be non-stationary variables because they were stationary at their first differences before proceeding with the ARDL estimations.

3.2.2. Estimation of the Autoregressive Distributed Lag model - The Empirical Results of ARDL Estimation

Table 2. Results of Short –Run ARDL Error Correction Model

Dependent Variable : LNGDPT				
Method : ARDL				
Date : 04/29/23 Time : 20 :36				
Sample (adjusted): 1996 2020				
Included observations: 25 after adjustments				
Maximum dependent lags: 4 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (4 lags, automatic): LNINF LNKB				
Fixe dregressors: C				
Number of modelsevaluated: 100				
Selected Model: ARDL(2, 3, 3)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNGDPT(-1)	0.869728	0.248517	3.499668	0.0035
LNGDPT(-2)	-0.577814	0.241070	-2.396865	0.0311
LNINF	0.117155	0.045053	2.600354	0.0210
LNINF(-1)	0.012260	0.050245	0.244002	0.8108
LNINF(-2)	0.041127	0.045278	0.908330	0.3791
LNINF(-3)	0.092266	0.046376	1.989527	0.0665
LNKB	0.141478	0.207340	0.682350	0.5062
LNKB(-1)	0.234325	0.294441	0.795831	0.4394
LNKB(-2)	-0.113400	0.337272	-0.336229	0.7417
LNKB(-3)	0.323109	0.251016	1.287206	0.2189
C	3.606868	1.219641	2.957319	0.0104
R-squared	0.933630	Meandependent var		9.065519
Adjusted R-squared	0.886224	S.D. dependent var		0.378919
S.E. of regression	0.127812	Akaike info criterion		-0.976329
Sumsquaredresid	0.228703	Schwarz criterion		-0.440024
Log likelihood	23.20412	Hannan-Quinn criter.		-0.827581
F-statistic	19.69403	Durbin-Watson stat		1.928819
Prob(F-statistic)	0.000001			

Source: compiled by the author using Eviews, 10

We can conclude from table 2 that:

- The determination's coefficient (R^2) is quite high, indicating that approximately 93% of the total variation in GDP is accounted for by all the exogenous variables.
- GDP is positive and significant in short term
- Inflation is positively affects GDP and significant in short term
- Market capitalization has a positive impact but it has no economic significance in short term

Table 3. Results of ARDL Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINF	0.371153	0.081801	4.537251	0.0005
LNKB	0.826895	0.254015	3.255295	0.0058
C	5.093830	1.093587	4.657911	0.0004

Source: compiled by the author using Eviews, 10

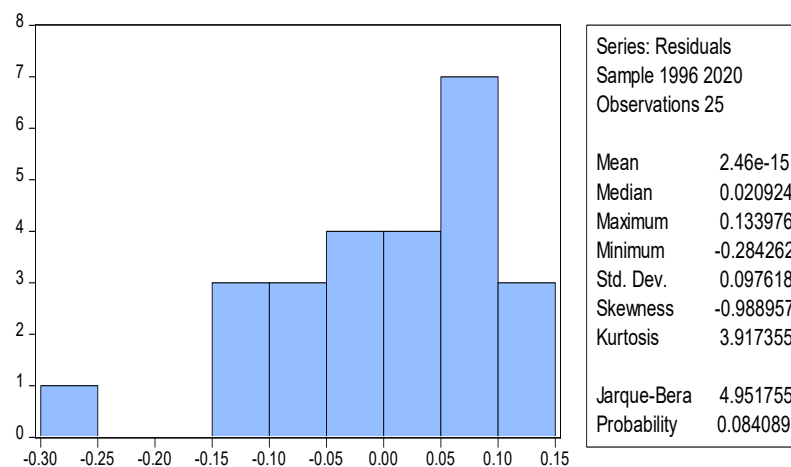
Based on table 3, we arrive at the following results:

- Inflation is positive and economically significant in long term
- GDP per capita is positively and significantly affected by the market capitalization in the long run.

- Diagnostic tests

- **Normality test**

Fig.5. Normality test's results

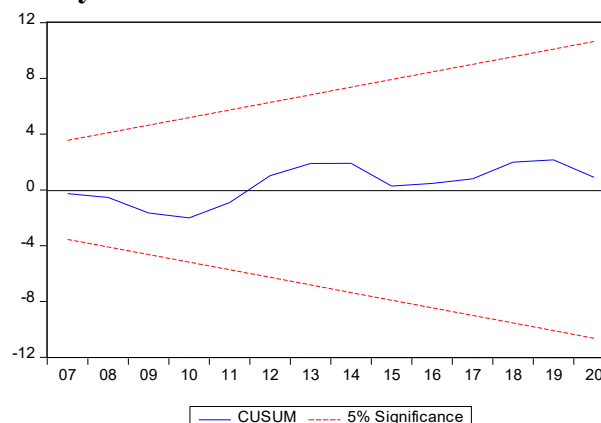


Source: compiled by the author using Eviews, 10

The residuals are normally distributed according to the Jarque-Bera probability statistic, which was estimated at 85% exceeding the critical value of 5%, as shown in the figure above.

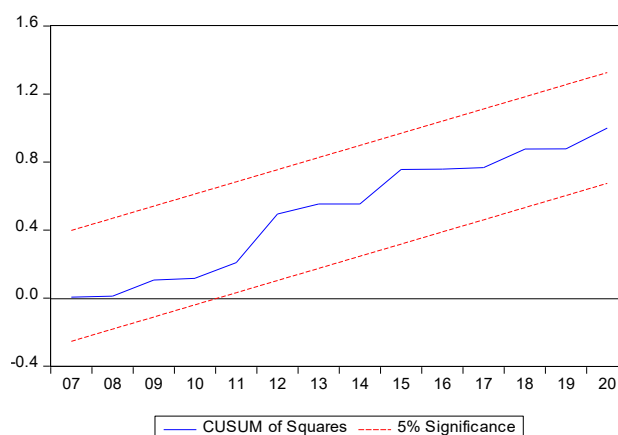
- **Structural stability**

Fig 6. Structural stability test of CUSUM



Source: compiled by the author using Eviews, 10

Fig 7. Structural stability test of CUSUM



Source: compiled by the author using Eviews, 10

From figure 6, we observe that the trend falls within the boundaries of the model, therefore we can say that there is structural stability for the parameters of the studied model

4. Conclusion

The nexus between stock market development and growth can be examined from two main perspectives. The first one is positive reasoned by liquidity and market efficiency, increased investment and innovation, and enhanced capital allocation. While the second is negative and argued by financial instability, regulatory challenges, insufficient financial infrastructures such as inadequate banking systems and unequal access to financial service. This is what encouraged us to study this relationship experimentally in the UAE in order to verify which of these two views is correct.

The United Arab Emirates is recognized as a country with an advanced, high-income economy. In recent years, the UAE has made remarkable strides in economic, social, and technological development, resulting in high rankings in human development indicators. While it began as a developing country, it is now considered one of the most advanced in the region regarding economic growth, stock market development and technological innovation. Until 2024, the UAE has shown a strong link between financial development and economic growth. The nation's strategic initiatives, regulatory improvements, and diversification efforts have established it as a premier financial center, fostering sustainable economic expansion. Banking sector, stock market, international financial centers, Islamic finance and financial technology are the most important keys in growing the UAE's economy. These elements together enhance the UAE's status as a premier financial hub both regionally and internationally. The sector's expansion is fueled by strategic plans, regulatory improvements, and efforts to diversify, all aimed at cultivating a robust and adaptable financial landscape."

The main objective to this study is to explore the impact of financial development on economic growth in the United Arab Emirates from 1993 to 2020 based on an ARDL model. It found that (i) GDP per capita is positive and significant in short term. (ii) There is a significant positive impact of the market capitalization of listed domestic companies on GDP per capita in the long run, but this impact remains positive and without economic significance in the short run. (iii) Inflation is positive and significant in short and long run. We have to say that the findings from the Autoregressive Distributed Lag model indicate a positive

relationship between stock market development, as measured by market capitalization, and growth, as measured by Gross Domestic Product per capita, in the UAE over the period 1990-2023. Moreover, we can reflect this added value on emerging or developed countries that are distinguished by the effectiveness of their financial markets and the strength of their financial performance because the positive impact of financial development on economic growth can be greatly reduced in the presence of financial system instability, inadequate regulatory frameworks or insufficient financial infrastructure.

There is a positive correlation between stock market development and growth according to the analyses of the results derived from the ARDL model, in line with the results of some previous studies conducted in the UAE. Among these studies we find the study of : (i) Kahsay. S.G (2022) concluded that financial development significantly contributes to the overall economic growth and development of the UAE. (ii) The results of Shadab. S (2021) indicated that both broad money and private sector credit are essential for the growth and advancement of the financial sector in the UAE. (iii) The findings of Zarrouk, H., El Ghak, T., & Abu Al Haija, E (2017) showed that the the direction of causality in the relationship between financial development and economic growth runs primarily from financial development to economic growth in the UAE, suggesting that improvements in the financial sector lead to increased economic activity. However, this relationship is not bidirectional, meaning that economic growth does not necessarily drive financial development in the reverse direction. (iv) The feedback hypothesis of Sbia. R & Shahbaz. M, Ozturk. I (2017) suggested a bidirectional relationship between financial development and economic growth in the UAE. (v). Sbia. R & Al Rousan. S (2015) revealed the existence of cointegration between financial development and economic growth. In the UAE Cointegration suggests a long-term equilibrium relationship between these two variables, (vi) Al-Malkawi H.N, Marashdeh. H, Abdullah. N (2012) showed a negative correlation between the independent variable and the dependent variable in the UAE, however, they found that financial development causes growth and economic growth also causes financial development. (vii) The results of Nasri. H & Mouawiya. A (2005) suggested that in the long run, financial development and economic growth may be related to some extent in the UAE. This indicates a potential interdependence where financial development could contribute to sustained economic growth, and vice versa. However, in the short run, panel causality tests reveal that real economic growth appears to be the primary driver of changes in financial development.

In contrast we cite: (i) Goaied & Sassi (2005) extracted that the impact of stock market development on growth is negative regarding oil-exporting Middle East and North Africa countries. (ii) The study of Musaov, A. and Sahouna, N.M.F. (2005) revealed that there is a negative and statistically insignificant correlation between the independent variables and the gross domestic product in the United Arab Emirates. Economically, these findings are explained by the role which plays stock market in growing GDP per capita in UAE. The stock market can enhance economic growth in UAE by numerous activities. First, an efficient stock market allows international and local investors to diversify their portfolio and to reduce their risks, and so enhancing liquidity. This influx of investment can result in substantial capital inflows into the country, stimulating economic activity and improving liquidity. Second, the

importance of the stock market can also be manifested in generating new employment opportunities that lead to reduce unemployment and increase income levels. Third, the stock market's performance also reflects the economic situation as a strong stock market can achieve economic stability and growth. Finally, by issuing shares, the stock market allows companies to raise funds for expansion, invest in cutting-edge technologies, and improve their operations. These actions, in turn, contribute to economic growth.

In our future research, we hope to highlight how Islamic financial market in region MENA can affect economic growth, using other data indicators required by PANEL model.

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