

Stock market development in the Algeria and its role in the economy: A comparison with the stock market activity of Tunis and Casablanca

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Abstract:

Financial development is of particular importance in any economy, because it allows to collect savings and channel them towards financing the most profitable investments. In this work, we are interested in the development of the Algiers Stock Exchange, after 30 years of existence. The objective of our work is to detect its role in the Algerian economy. The first results demonstrate that the Algiers Stock Exchange is still in an embryonic state, and its role remains residual and far behind the role of neighboring stock exchanges

Keywords: stock market, market capitalization, stocks, liquidity, GDP

Jel Classification Codes: G10, C02

1. INTRODUCTION

In any economy, the financial system has the main function of transforming household savings into productive investments. It is composed of financial markets and financial intermediaries. These actors play the same role, but in different ways.

Indeed, a properly functioning financial system facilitates the transmission of information, shares risks and ensures the optimal allocation of capital. These elements together constitute the keystone for the success of capitalist economies. However, even if, most often, the financial sector is positively correlated with economic growth, some observations of real economies reveal that beyond a certain level of financial development, this relationship is no longer evident (Philippon and Reshef, 2013).

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Financial development is of particular importance in explaining the correlation between the financial system and economic growth. It is an observation that many economists agree that the role of a financial system in an economy depends on its level of development (Arestis, P. and Demetriades, 1997, Turunç, 1999, Eggoh, 2010). Being a central element in any economy, financial development has sparked debates about its definition and determinants.

The term "financial development" does not find an explicit definition in the economic literature because of its qualitative nature.

However, after the wide success of McKinnon and Shaw's theory of financial liberalization, neoclassicals define financial development as a simple synonym for financial liberalization. In this sense, financial liberalization is advocated by the IMF and the World Bank as an economic development strategy. This definition is based on weak and unrealistic fundamental assumptions. She considers that financial liberalization would generate financial development, which would constitute an analytical error (Beji, 2009). Indeed, according to classical theory, financial markets are governed by pure and perfect competition, which means a total absence of information asymmetry. But, in reality, on financial markets, the availability of information is far from perfect.

Overall, the financial system develops when financial instruments, markets, and financial intermediaries minimize—but do not necessarily eliminate—information costs and transaction costs, which corresponds to a better functioning of financial systems (Demirgüç-Kunt and Levine, 2008).

Financial development, therefore, consists of the creation and expansion of financial institutions, instruments, and markets to support a country's economy.

Algeria, like other developing countries, has undertaken reforms since the end of the 1980s and the beginning of the 1990s that focus on the total transformation of the economy. The objective for the public authorities is to be in harmony with the changes and transformations of the global economy. The fundamental reform undertaken was manifested through Law 90-10 of April 14, 1990 relating to currency and credit (LMC). This law is

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part of a market economy spirit, with the main aim of shifting the Algerian financial system from a logic of debt economy to that of the financial market, while giving it efficiency in order to support economic growth. It was developed with the aim of integrating the Algerian economy into the global economy and putting an end to administrative interference in the financial system. In this context, after more than 30 years of reforms, many investigations, most often focused on the level of banking development, have been conducted in order to understand the extent of changes in the financial sector and their impact on the real sphere.

Our present work, rather focused on exploring the direct financing component, is part of these reflections aimed at assessing the level of financial development in Algeria. It aims to explore the following problem:

What is the extent of the development of the Algerian financial market? and how does it impact the country's economic growth?

In an attempt to answer our problem, we were interested in the second compartment of the Algerian financial market, namely the Algiers Stock Exchange.

In order to assess the level of stock market development, we chose to calculate stock market indices that seem adequate to the nature of the Algerian financial market: the level of market capitalization, the volume and value traded, with a comparison with the stock exchanges of neighboring countries, namely the Tunis Stock Exchange and the Casablanca Stock Exchange.

Subsequently, we will calculate certain ratios to analyze the role of the Algiers Stock Exchange in the Algerian economy.

2. Assessment of the level of financial development in Algeria

The economic literature has developed several financial indicators that are mainly used to measure the level of development of stock exchanges. In the following, we will calculate those that seem appropriate to the Algiers Stock Exchange.

2.1 Assessment of market capitalization

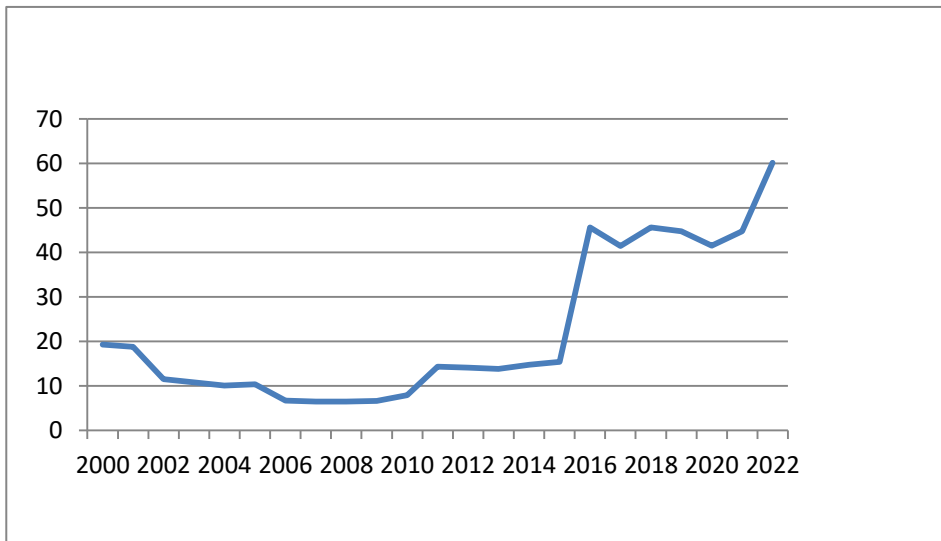
Market capitalization is the sum of the value of the shares of a listed company. It is calculated by multiplying the number of shares making up the share capital of a company by their prices.

The market capitalization of the Algiers Stock Exchange is the sum of the capitalizations of all listed companies.

In 2022, the Algiers Stock Exchange has 5 listed companies, namely: Alliance Assurance, EGH-Aurassi, Saidal, Rouiba, and Biopharm.

The capitalization of the Algiers Stock Exchange is as follows

Figure No. 1: Evolution of the market capitalization of the Algiers stock exchange in billion DA



Source : COSOB data, July 2023.

At the beginning of our study period, the market capitalization of the Algiers Stock Exchange reached a significant level in 2000, when it reached more than 19 billion DA, thanks in particular to the IPO of the hotel company El-Aurassi. From 2001, this capitalization has continued to decline due to the decrease in the prices of listed securities. Furthermore, it experienced its lowest volume in 2006 and 2007 with 6.71 and 6.46 billion DA respectively, due to the delisting of the company Eriad Sétif on April 10, 2006. It subsequently recorded a slight increase in 2009 and 2010 following the increase in the prices of the two listed companies, namely El-Aurassi and Saidal. In 2011, the capitalization doubled in volume from 7.9 billion to

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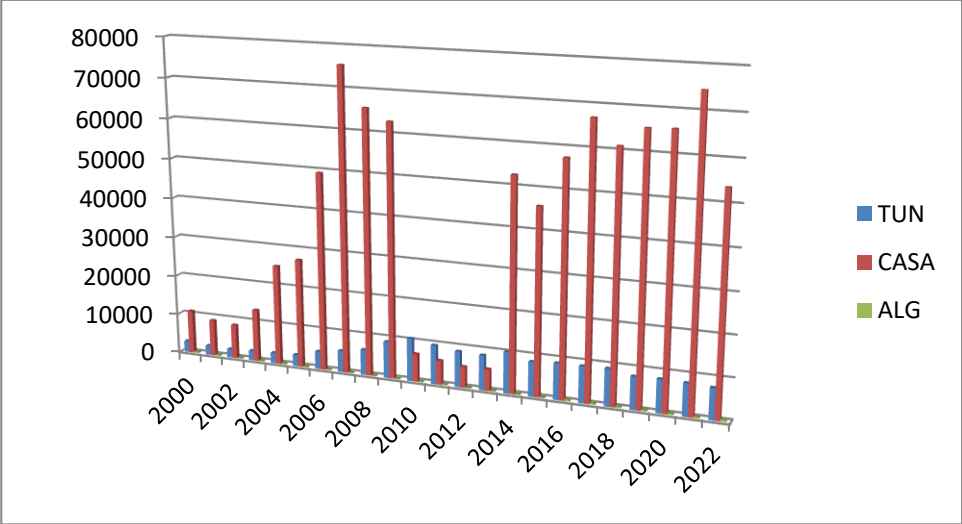
14.96 billion DA. This significant increase was the result of the IPO of the first private company, Alliance Assurance, which issued 1,804,511 shares with an issue value of 830 DA. Between 2011 and 2014, the market capitalization recorded a quasi-stable evolution of around 14 billion dinars despite the IPO of the private company NCA-Rouiba.

Since 2015, the market capitalization of the Algiers Stock Exchange has continued to record a considerable increase, driven in particular by the IPO of the pharmaceutical company Biopharm in 2016.

In 2022, the market capitalization recorded a significant increase, an increase of 48%, following the resumption of activity after the period of crisis caused by the Covid 19 pandemic.

To better understand the level of capitalization of the Algiers Stock Exchange, we opted for a comparison with the stock exchanges of two neighboring countries, namely: Morocco and Tunisia.

Figure No. 2: Evolution of stock market capitalization in Algeria, Morocco, Tunisia in Millions of dollars.



Source : data from the Algiers Stock Exchange, the Tunis Stock Exchange and the Casablanca Stock Exchange. July 2024.

Comparison with the stock exchanges of neighboring countries demonstrates a significant delay in the development of the Algiers stock exchange.

The Casablanca stock exchange is by far the most developed in the Maghreb region, in all financial aspects: number of companies listed, values transacted and capital exchanged. In 2022, its market capitalization reached more than \$53 billion, and it has many financial assets held by foreigners, notably French. However, it has experienced a considerable decline in recent years, since it suffered the harmful consequences of the international financial crisis of 2008. It should be noted that the Casablanca stock exchange is largely dominated by the banking sector which represents 32.6 % of the value of capitalized securities (Casablanca Stock Exchange Report, 2023).

Likewise, the Tunis stock exchange, which has 77 companies, some of which are owned by foreigners, records significant capitalization estimated at more than \$7 billion in 2022. This capitalization is driven in particular by the renewed activity of the private sector. Indeed, numerous measures and financial reforms introduced have contributed to the development of the Tunisian financial market, in particular, the creation of a department responsible for SMEs in 2007.

The capitalization of the Tunis stock exchange has recorded a slight decline since 2019, linked in particular to the consequences of the covid-19 health crisis, and to the delisting of certain companies such as the financial institution Tunisie Valeur and the company Hexabyte in 2020 .

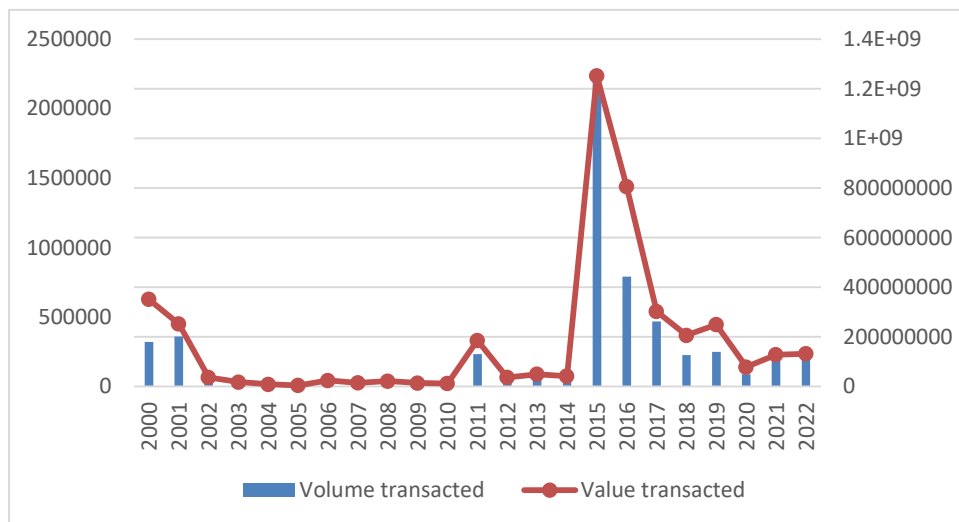
In Tunisia, financial companies still dominate the market capitalization with a share of 51.3%, followed by consumer goods and industry which hold 28.8% and 8.3% respectively (Stock Exchange Report of Tunis, 2022).

2.2 Evolution of the volume and value of stock market transactions

The study of the evolution of the volume and value of stock market transactions allows us to appreciate the depth of the Algerian financial market.

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Figure N° 3: Evolution of the value in DA and the volume transacted in number of securities.



Source : data from the Algiers Stock Exchange

In 1999, the first year of securities listing, the Algiers Stock Exchange achieved a low level of volume and value. Indeed, the first listing took place on September 13, 1999, so in less than four months of activity and with only two listed companies, there were only 16 listing sessions.

Transactions on the Algiers stock exchange reached their maximum value in 2000. This improvement was the result of the IPO of the hotel company El-Aurassi which put in place liquidity contracts.

As for the volume, it recorded its peak in 2001, thanks in particular to the sale of Saidal and El-Aurassi shares for the benefit of their employees:

- The transfer of 29,430 shares for the benefit of 3,052 Saidal employees.
- The sale of 18,197 shares for the benefit of 650 El-Aurassi employees.

From 2001 to 2005, the volume and value of transactions transacted continued to decline, reaching a minimum threshold in 2005. The Algiers stock exchange recorded a low volume transacted compared to the securities presented on the market. Thus, in 2004, out of a total volume of 104,481 securities, only 22,183 securities were exchanged, or 21% of the securities. In 2005, this volume fell further to reach 13,487 securities traded, since the company Eriad Setif had experienced a 100% drop and El-Aurassi

by 52.75% in the volume of transactions. This drop in the amount exchanged, during the period from 2001 to 2005, is largely explained by the drop in the volume exchanged.

From 2006, and despite the delisting of the company Eriad Sétif, the volume and value of transactions recorded a fairly significant improvement, despite a slight decline in 2009 and 2010.

As with market capitalization, the volume and value transacted achieved an exceptional increase in 2011, thanks to the IPO of the company Alliance Assurance.

Since 2015, the volume and value transacted on the Algiers stock exchange has experienced a continuous decline, despite a slight recovery in 2020. This decline results from the lack of dynamism experienced by the stock market which results in a low rate of transactions carried out daily.

2.3. The volatility rate of the Algiers stock market

The volatility rate of a financial security reflects the amplitude of variations in its price. The higher the volatility of a security, the riskier the investment in that asset.

The volatility of a portfolio is equal to the sum of the variances of the rates of return of each of the securities and the covariance of the rates of return of these same securities. For example, if a portfolio consists of two securities X and Y, this means that we add the variance of X to the variance of Y, and we add the correlation (interdependence) of X and Y.

The Algiers Stock Exchange portfolio is currently made up of three securities. Thus, to calculate its volatility rate, you must add the variances of each security weighted to their weight, and also all the weighted covariances which link one security to another.

We calculate security variances using the following formula:

$$V(x) = \sigma^2 = \frac{\sum n_i (x_i - \bar{x})^2}{\sum n_i} = \sum x_i^2 - n_i \bar{x}^2$$

Variances =

As for the covariance, it is calculated as follows:

$$\text{Covariance} = \text{Cov}(xy) = \sum (x_i - \bar{x})(y_i - \bar{y}) = \sum x_i y_i - N \bar{x} \bar{y}$$

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As a result, the volatility rate of the Algiers stock market is calculated according to the following formula:

$$\sigma_p^2 = \sum_{i=1}^n x_i^2 \sigma_{i,j} + 2 \times \sum_{i=1}^n \sum_{j=1}^n x_i x_j \sigma_{i,j}$$

With x_i and x_j , the respective weights of each security i in the portfolio, σ_{ij} the covariances of securities i and j one by one.

In order to determine the volatility of the Algiers stock market, it is necessary to know the relative weight of each security in relation to the portfolio. This is presented in the following table:

Année	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Eriad	48%	52%	50%	46%	50%	48%																		
Saidal	40%	37%	37%	40%	34%	35%	66%	62%	58%	59%	66%	46%	34%	33%	38%	42%	13%	16%	14%	13%	13%	12%	9%	9%
Aurassi	12%	11%	13%	14%	16%	17%	34%	38%	42%	41%	34%	20%	18%	17%	18%	18%	6%	7%	7%	7%	8%	8%	5%	5%
Alliance												34%	48%	26%	23%	20%	6%	6%	5%	5%	5%	6%	6%	6%
Rouiba														25%	21%	20%	6%	6%	5%	5%	1%	2%	2%	2%
Biopharm																	69%	65%	69%	69%	72%	72%	78%	78%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table N°1: Evolution of the shares of each company in the market capitalization in billion DA.

Source : Calculated by the authors

The volatility rate of the portfolio comprising the securities sold on the Algiers stock exchange is presented in the following table.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Volatility Rate	0	0,122	0,056	0,043	0,117	0,028	0,148	0,029	0,039	0,303	0,041	0
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Volatility Rate	0,0010		0,001	0,001	0,00049	0,000039	0,000039	0,00013	0,000126	0,000117	0,000265	0,000243

Table No. 2: Evolution of the volatility rate on the Algiers stock exchange in %

Source : Calculated by the authors

According to the previous table, we notice zero volatility in 2009, 2011 and 2013. Indeed, in 2009, the title of the hotel company El-Aurassi recorded continuous stability throughout the year, and therefore zero volatility, while the stock of the pharmaceutical company Saidal recorded a clear

improvement. Thus, the stock market volatility rate was strongly driven by the El-Aurassi stock. As for the year 2011, the Algiers Stock Exchange was marked by the entry of the first private company, the Alliance group. The title of this company stabilized during its first year of trading

We note low volatility on the Algiers stock market. As a result, financial securities are risk-free or have very little risk. Paradoxically, in financial theory, the riskier a security, the more profitable it is; therefore, securities listed on the Algiers stock exchange do not bring profitability.

We attempted to assess the level of development of the Algerian financial market. It clearly emerges that this market is characterized by significant underdevelopment. The Algiers stock exchange is struggling to establish itself as a reliable source of financing for the Algerian economy.

The Algerian financial system also suffers from the absence of a developed financial market. Created in 1993, this market began its activities in 1999, with the aim of supporting the banking system in financing the economy. Nearly 20 years later, it remains underdeveloped and does not meet the objectives assigned to it.

Thus, the financial market in Algeria remains almost non-existent for many reasons:

- The conditions for the IPO are penalizing for the nature of Algerian companies.
- The lack of transparency on the part of certain companies, particularly in terms of accounting information necessary for the IPO.
- More than 90% of Algerian companies are SMEs, a large majority of which are family properties which are characterized by a hesitation to open up their capital;
- The predominance of the State and banks in financing the economy.
- The persistence of the Algerian economy as a debt economy.

To better assess the level of financial development, we will study the role of the Algerian financial system in the economy, by measuring its impact on economic growth.

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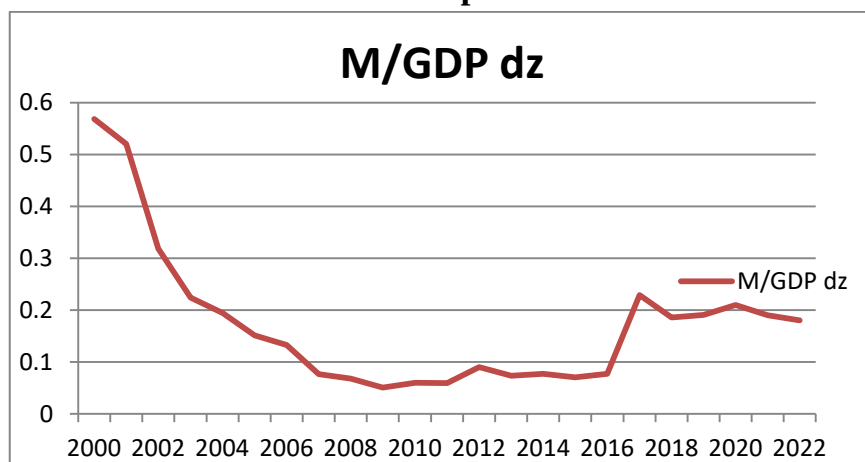
3. The role of the Algiers Stock Exchange in the Algerian economy

The Algerian financial market presents the characteristics of a very underdeveloped market, namely a low market capitalization, a low level of transaction volume and a limited number of listed companies.

3.1 Market capitalization compared to GDP:

This ratio aims to reflect the liquidity of a financial market. It was used by Demirgüç-Kunt and Levine in 1996 as well as by Arestis and Demetriades in 1997.

Figures N°4: Evolution of market capitalization in relation to GDP in %



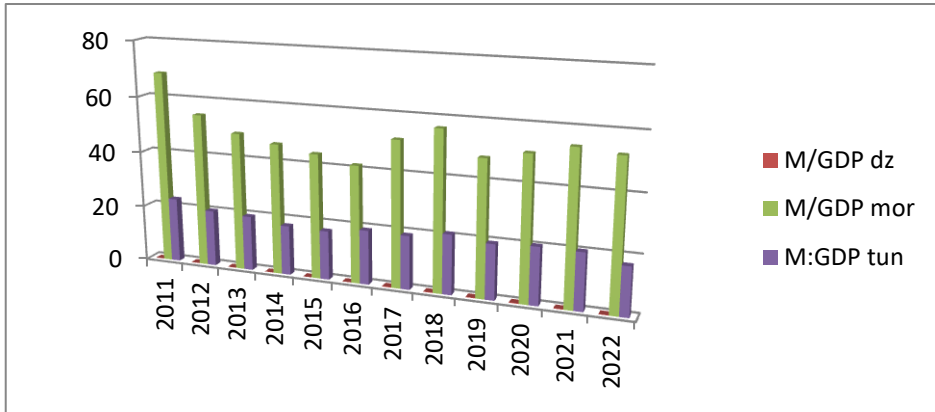
Source: data from the Algiers Stock Exchange

The ratio of market capitalization to GDP is very low throughout the period studied. It went from 0.59% in 1999 to 0.09% in 2013. This same ratio recorded a fairly significant jump in 2017, going from 0.07% in 2016 to 0.22% in 2017 driven mainly by the IPO of pharmaceutical company Biopharm.

We can conclude that the Algiers Stock Exchange does not constitute an alternative for financing the Algerian economy.

To better illustrate this, we make a comparison with the Casablanca Stock Exchange and the Tunis Stock Exchange.

Figure N°5: Evolution of market capitalization compared to GDP in % in Algeria, Morocco and Tunisia.



Source: data from the Algiers Stock Exchange, the Tunis and the Casablanca Stock Exchange
The Algerian economy lags significantly behind in the development of financial markets compared to its neighboring countries.

The Casablanca Stock Exchange occupies an important place in the Moroccan economy, the market capitalization represents nearly 52% of GDP with 77 companies listed in 2022. As for the financial markets of Algeria and Tunisia, they remain relatively weak with a market capitalization rate of 0.08% for the Algiers stock exchange with 5 listed companies and nearly 20% for the Tunis stock exchange.

We must also note the existence of shares held by foreigners on the Casablanca Stock Exchange and the Tunis Stock Exchange.

In Algeria, the delay in the development of the financial market can be attributed to two factors:

- A large proportion of businesses are family SMEs, small and reluctant to open up their capital. Even if an SME compartment has been created on the Algiers Stock Exchange since 2012, the latter only has one company introduced in 2013, namely “AQM invest spa” with 4596030 shares issued with a nominal value of 100 DA. In 2022, only 8 transactions with a transacted value of 6,338,100.00 DA and a transacted volume of 26,500 were carried out in this compartment.
- The low liquidity of stock exchanges due to the limited number of shares issued.

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For Levine and Zervos (1998), market capitalization reflects the price of assets, which in turn represent the present value of future dividends. They thus underline the problem of endogeneity of the correlation between stock market capitalization and GDP. Furthermore, capitalization may be significant, but exchanges may remain weak.

Therefore, the most appropriate indicator for measuring the impact of a financial market on economic growth is liquidity. In fact, a stock market can have both a high turnover rate and a low capitalization.

Thus, the turnover ratio and market capitalization are two complementary indicators.

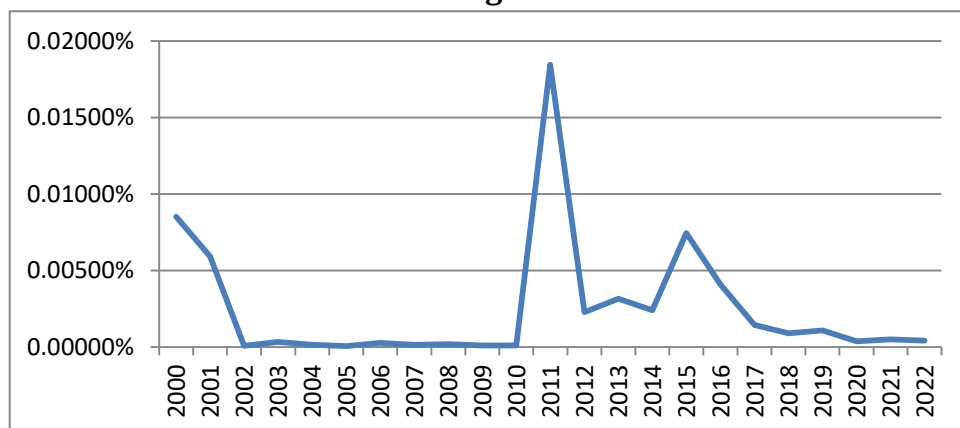
3.2 The liquidity of the Algiers stock exchange and the turnover ratio:

Liquidity is the ability to easily buy and sell securities in the financial market. An increase in turnover implies a reduction in transaction costs.

There are various ways to measure liquidity. Among the most robust measures is the total value of shares traded on the stock market as a percentage of GDP, as well as the turnover ratio.

The liquidity rate of the Algiers stock exchange is presented in the following two figures.

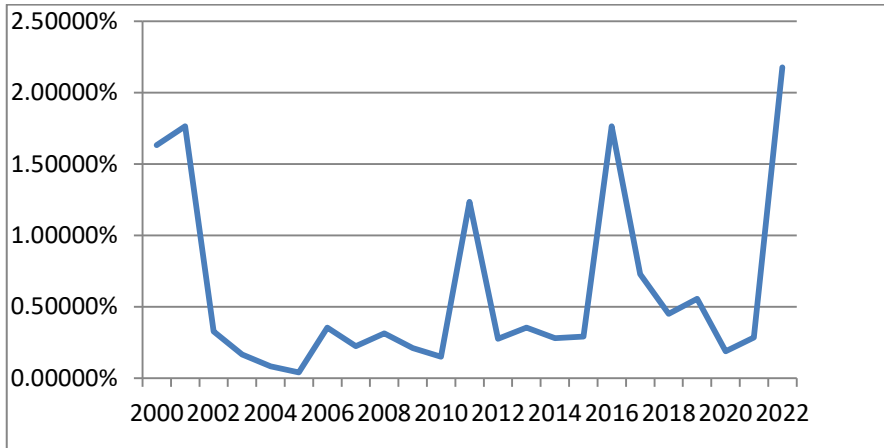
Figure N°6 : Evolution of the liquidity ratio of the Algiers stock exchange in%.



Source : calculated by thr authors

The second ratio which makes it possible to measure the liquidity of financial markets is the turnover ratio. This relates the total value of the shares traded to the market capitalization.

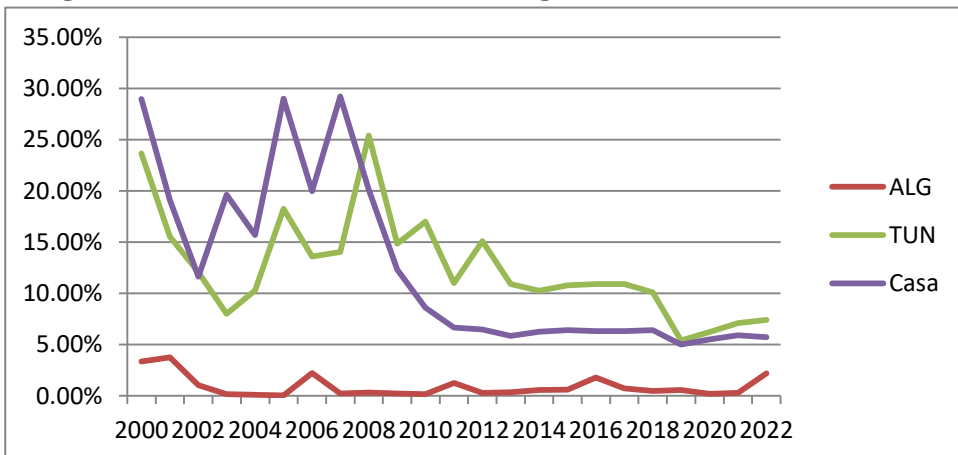
Figure N°7: Evolution of the turnover ratio in % of the Algiers Stock Exchange



Source: data from the Algiers Stock Exchange, the Tunis Stock Exchange and the Casablanca Stock Exchange

To better understand the evolution of the turnover ratio, we compare it to the evolution of the ratio of the Casablanca Stock Exchange and the ratio of the Tunis Stock Exchange.

Figure N°8: Evolution of the turnover ratio in % of the Algiers stock exchange, the Casablanca stock exchange and the Tunis stock exchange.



Source: data from the Algiers Stock Exchange, the Tunis Stock Exchange and the Casablanca Stock Exchange

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Throughout the period studied, the Algiers stock market suffers from a weakness in the two ratios calculated, hence its insufficiency in terms of liquidity. This weakness indicates the difficulty of investments in finding financing, particularly in the long term. Indeed, in Algeria, companies struggle to raise funds through the issuance of financial securities, at the same time, investors (savers) buy illiquid securities that they cannot sell easily.

As a result, the Algiers Stock Exchange does not fulfill its function of collecting and distributing capital.

Since 2007, the Casablanca Stock Exchange has experienced a fall in its volume and its activity value and a remarkable decline in its market capitalization. Thus, its turnover ratio has continued to decline in recent years. This is explained by the fact that this stock exchange records more delistings than new purchase offers. For example, during 2014, five companies were deregistered due to their delicate financial situation. For example, the Sherifian Company of Fertilizers and Chemical Products (SCE) was delisted after 53 years of trading on the Casablanca Stock Exchange.

The Tunis stock exchange has recorded the highest turnover ratio in the region in recent years. This performance is driven by the arrival of new companies, particularly in the agri-food sector, and by the creation of an alternative market intended for SMEs. However, the Tunisian financial market suffered the full brunt of the consequences of the 2011 revolution since the market capitalization fell, during that same year, by 5.8%, and the value transacted fell by 40%. Thus, the turnover ratio of the Tunis stock exchange continues to decrease throughout the period studied. Going from 10% in 2018 to 5% in 2019, this ratio fell due in particular to the overall volume of transactions which marked a drop of more than 12% also implying a drop in market capitalization of 2.69%. It should be noted that in 2019, the company ELBENE Industrie was delisted from the main market. Through the evaluation of market capitalization and the multiple ratios calculated, we note that, despite a good start, direct finance remains underdeveloped. The capital market remains embryonic:

- The activity of the equities compartment remains modest in number of securities and in value; however, the bond market has observed a certain dynamism since 2004;

- The market capitalization is very insignificant compared to the Tunis stock exchange and the Casablanca stock exchange;
- Securities prices display little volatility and little liquidity;

To this end, the market capitalization represents less than 1% of GDP, we conclude that the contribution of the Algerian financial system to economic growth remains insufficient in view of the needs and potential of the country.

5. Conclusion:

In this present work, we were interested in the second compartment of the Algerian financial market, in this case the Algiers stock exchange. Our objective was to measure its level of financial development and its impact on the economy.

It appears that the Algiers stock market is lagging significantly and remains below the stock exchanges of neighboring countries. Its main market has only five listed companies compared to 77 for the Tunis stock exchange and the Casablanca stock exchange.

The results obtained demonstrate that the role of the Algiers Stock Exchange in the Algerian economy is residual, Algerian companies, to cover their financing needs, opt for bank financing or even for self-financing.

Thus, the problem of financing the economy lies in both the supply and demand of financing sources. The lack of demand is linked to the nature of the Algerian economy. 90% of private companies are SMEs which do not request financing because they often have a self-financing financial situation. Furthermore, they are generally family-based and avoid external financing to avoid any form of control.

The supply of financing is also insufficient, attributing this to the structure of resources. Deposits are generally of short duration, while funding requirements are long term. The second factor in the insufficiency of supply is linked to the underdevelopment of the Algerian financial market which struggles to attract the opening of business capital, despite the establishment

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of an SME compartment.

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