

Morocco's Economic Growth Puzzle: The Role of Financial Development

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Abstract: This study delves into a significant theme that has undergone extensive theoretical and empirical scrutiny over the years. However, despite numerous investigations, a definitive consensus remains elusive, particularly in the context of low- and middle-income economies. This persistent divergence of opinion among researchers forms the crux of numerous academic and policy debates. To address this, the present work concentrates specifically on the case of Morocco, utilizing an error correction model—a potent analytical tool for probing both short-term and long-term relationships between economic variables. Financial development is assessed through three pivotal variables: loans granted to the private sector, stock market capitalization, and liquidity rates. The findings of this analysis provide intriguing nuances to our objectives. In the long term, only the liquidity rate appears to exert a positive influence on economic growth. Conversely, in the short term, loans granted to the private sector seem to play a more significant role in fostering economic growth. However, it is imperative to acknowledge that these findings are not without controversy, as the results also indicate that the Granger causality test fails to confirm a causal link between these variables and economic growth. In summary, this study sheds light on the intricacies of the relationship between financial development and economic growth, within the unique context of Morocco. It underscores the importance of considering both short and long-term timeframes, as well as the intricate interplay between various financial variables, to gain a deeper comprehension of the mechanisms governing this relationship. These results underscore the need for ongoing research and profound contemplation regarding the economic policies required to promote sustainable and balanced growth in the country.

Keywords: Morocco Economic Growth, Financial Development Variables, Error Correction Model Analysis, Short-term vs. Long-term Dynamics, Economic Policy Implications.

1. INTRODUCTION

The goal of financial liberalization is to encourage the efficient allocation of resources, create means for risk diversification, and promote financial markets. According to (Gamra & Clévenot, 2006), financial liberalization encompasses three fundamental aspects: deregulation of the domestic financial domain, liberalization of financial markets, and the lifting of restrictions on international capital movements. For (Boyer, & al., 2004), it is an approach aimed at eliminating any restrictive quantitative or qualitative regulation imposed by the state on the financial sector, both internally and externally.

According to (Papaioannou, 2009), this process results in free capital entry, national financial development, motivation for innovation, and an increase in investments and growth.

According to (Kangni Kpodar, 2006) Financial development is achieved when it promotes:

- The accumulation of financial assets.
- The expansion of the market for financial instruments.

- Performance and open competition in the financial sector.
- The availability of financial services for the population without restrictions.

According to (Čihák, & al., 2012), financial development is an approach to building the financial sector that associates factors and policies. These depend on the availability of financial resources to enhance economic growth. Building the financial sector requires not only the development of financial intermediaries and infrastructures, but also policies, regulations, and supervision to guide it in managing its resources so that the entities and financial markets can function properly.

This relationship has been proven by various research and theories. Indeed, the research of (Schumpeter, 1911), (Mckinnon, 1973), and (Shaw, 1973) has facilitated the migration towards a model based on financial development by developed nations and has been recommended by the IMF for nations in the process of development. In addition, this relationship is the subject of various research, whether in the short or long term, such as (World Bank, 1989), (Roubini & Sala-i-Martin, 1992), and (King & Levine, 1993).

In Morocco, the initiated financial reforms aim at amplifying the influence of market mechanisms for credit allocation, improving the capacities of financial institutions, and appre-

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ciating the performance of the establishment of free competition mechanisms among financial entities. These structural changes have the objectives of liberalizing the financial domain and increasing economic activity by creating a favorable financial climate for investments.

In this context, the objective of this paper is to assess the impact of the liberalization measures undertaken by Morocco in terms of economic growth.

Financial development in this study is gauged by three variables: the volume of domestic loans directed towards the private sector, stock market capitalization, and the liquidity rate. The analysis is conducted using the error correction model.

Consequently, this document is structured with the literature review in the second section, the methodological part in the following section, and the empirical findings in the final section.

2. LITERATURE REVIEW

The exercise of economic activities depends on the availability of financing resources. In this framework, the financial sector intervenes to identify available resources and proceed with their allocation for the financing of economic agents. According to (Tchamyou & Asongu, 2017), the development of the financial sector enables the benefit from financial products and constitutes a determining factor of capital flows. These flows encourage consumption and investment (by providing jobs) which reduce poverty and stimulate economic performance.

The dependency between the real economy and the financial sphere, particularly the effect of economic development on the exposure of the financial system, is recognized by various economic theories. However, it has always been a question that diverges the opinions of economists.

This issue has been the subject of several pioneering works such as (Schumpeter, 1911) who analyzed the effect of the credit market on economic growth and concluded that banks, as intermediaries between savers and investors, facilitate and encourage capital accumulation which will be directed towards financing and promoting economic growth. This stance has been shared by other researchers such as (Gurley & Shaw, 1955), (Goldsmith, 1969), and (Hicks, 1969). However, the emergence of this idea is primarily due to the research of (McKinnon, 1973) and (Shaw, 1973).

This relationship has been frequently examined by researchers. Indeed, since the publication of (King & Levine, 1993), several empirical studies have explored this theme, such as (Wolde-Rufael, 2009) who concluded that there is a reciprocal link between the two variables in Kenya.

(Huang & Lin, 2009) revisited how the threshold of a country's economic development impacts the relationship between finance and growth and found a positive influence of financial sector development on economic evolution within low-income and high-income nations. However, this impact is much more significant within low-income nations compared to developed nations. (Arestis et al., 2001) demonstrated that financial development appreciates economic growth for five developed economies, namely Germany, the United

States, Japan, the United Kingdom, and France. (Alfaro et al., 2004) examined the essential roles of finance in various ways and concluded that this development plays a vital role in ensuring the significant contribution of (FDI) to economic growth, and (Ang, 2008) studied this effect in Malaysia and validated the positive long-term influence of development on growth.

According to (Choong & Chan, 2011) and (Fernández & Tamayo, 2017), well-functioning financial entities and markets bolster growth by minimizing transaction costs, speeding up transactions, advancing capital accumulation, and allocating investments to the most productive sector of the economy.

(Bittencourt, 2012) and (Estrada et al., 2010) indicated that financial development manages to impact growth or economic growth by fulfilling the function of financial intermediaries so that the distribution of financial resources can be absorbed by the productive sector. (Luintel et al., 2016) analyzed this impact in 69 nations and found that it had a significant effect.

According to (Guptha & Rao, 2018), financial development plays a very crucial role in channeling financial revenues towards productive sectors in order to finance investment needs, given that investment is considered one of the elements that can ensure the accomplishment of economic growth. Indeed, a developed financial sector can facilitate the efficient sharing of resources to improve productivity.

Recent research has delved into this topic, such as (Tran et al., 2020) who studied a sample of 40,000 Vietnamese companies and concluded the positive effect of our relationship. (Nguyen et al., 2019) confirm that financial markets support economic growth and that there is a positive impact of the stock market on economic growth in high-income nations, and (Yang, 2019) confirmed the significant impact within nations at medium and high income levels.

(Aluko & Ibrahim, 2020) were able to analyze financial development in terms of financial institutions and show that well-functioning financial institutions can increase capital accumulation by promoting productivity and efficiency to encourage economic growth.

Other factors have been included to measure this effect by various research such as (Kutan et al., 2017) who studied the important roles of FDI (Foreign Direct Investment) and institutional quality within the (MENA) nations on the report of development and growth. The findings agree on the positive impact in these nations. (Slesman et al., 2015) concluded that institutional quality is important for the efficient use of transactions of funds coming from abroad to have given a boost to economic growth in nations with a level of income situated between the categories of low and high income.

(Pradhan et al., 2019) examined this subject in the G20 nations and found that economic growth does not occur if financial development is not encouraged to develop further, and (Anarfo et al., 2019) demonstrated that financial development in Sub-Saharan Africa is capable of encouraging economic growth due to good access to financing by financial institutions. Similarly, (Ibrahim & Alagidede, 2018) found that even though Sub-Saharan African nations are still

developing, financial development is still capable of making a positive contribution to economic growth.

Several studies have challenged this relationship. Indeed, (Robinson, 1979) asserts that financial development is induced through economic growth, rather than being a factor of economic growth. (Modigliani & Miller, 1958) argue that the development of real sectors is not relevant for financial sectors.

Similarly, (Morck & Nakamura, 1999) even claim that the banking sector has an adverse effect on economic growth. (Deidda & Fattouh, 2002) revealed that there isn't such a relationship between the two variables in low-income nations. (Rioja & Valev, 2004), through an empirical investigation based on a selection of 74 countries, found a weak relationship and an uncertain effect of financial market improvement on growth within nations where financial development is low. (Rousseau & Wachtel, 2011) studied the effect and found that the development of this sector, symbolized by loans granted to the private domain and the financial outlook, has no statistically significant impact on economic growth. (Jude, 2010) noted that the relationship is not linear and that the link is significantly moderated by openness, public consumption, and the inflation rate. (Kapaya, 2020), conducting research in (SADC), comprised of 16 countries, demonstrated that this development has no impact on growth. Some studies even found a negative impact of development such as (Moyo & Le Roux, 2020), (Petkovski & Kjosevski, 2014).

Several recent studies have arrived at the same findings. For instance, (Sharma & Kautish, 2020), while studying a set of middle-income nations from South Asia, demonstrated that financial development has no influence on economic growth. Similarly, (Samargandi et al., 2015), conducting a study on 52 nations, drew the same conclusion. These findings are also echoed by (Bahadir & Valev, 2017) who assert that financial development can never be considered as a key factor for growth, based on their study of 30 European countries.

Furthermore, some research has defined that the impact of development is positive up to a certain threshold and negative when this threshold is surpassed, such as (Cecchetti & Kharroubi, 2012) who found that the link between the two variables takes the form of an inverted U regarding the development of the financial sector only suits up to a certain level, after which it has a negative effect on growth.

Similarly, (Law & Singh, 2014), while studying a set of 87 countries, found that the effect is positive only within a certain threshold; beyond that, finance negatively impacts growth. Additionally, (Arcand et al., 2015) demonstrated that this development has a positive influence on growth until the loan granted to the private sector expressed as a percentage of the (GDP) reaches 100, beyond which, the impact is significantly negative.

Moreover, distinguishing between nations in correlation with income level to study this relationship was a research avenue pursued by several studies that found the effect of financial development varies according to income. Indeed, De (Gregorio & Guidotti, 1995) demonstrated concerning this development that it has a positive effect on the long-term growth of real GDP per capita within low and middle-income econ-

omies, but the relationship was fragile in high-income nations. Doumbia (2016) asserted that development has a positive effect in low-income and lower middle-income economies, and (Nguyen et al., 2019), studying 90 countries, summarized that development has a negative impact in high-income nations. However, it has a positive effect within low-income nations.

In Morocco, our question has been addressed by several studies such as (El Aidouni & Haddou, 2017) who used the cointegration technique to study the period 1985-2015 and found that there is a unidirectional causal relationship going from the real sphere to the financial sphere. (Sekali & Bouzahzah, 2021) who utilized the application of the autoregressive lag model over a period of 35 years found that there is a positive link of financial development analyzed by bank loans and by stock market capitalization with economic growth, and (El Balghithy & El Alaoui, 2022) who demonstrated that there is a sustainable connection of development and economic growth.

For modeling this relationship, several approaches have been used such as the Engle and Granger Cointegration, an error correction model, panel data, the autoregressive distributed lag model, the autoregressive lagged model, and others. This paper utilizes the error correction model to assess the effect of financial development on growth.

3. METHODOLOGY

3.1. Variable Definitions

This study aims to evaluate the influence of financial development on economic growth. For this, the variables used are presented as follows:

Table 1. Variables description.

GDP	Gross Domestic Product	WDI
DCPS	Domestic credit provided to the private sector as a percentage of GDP	WDI
LR	Liquidity ratio defined by the ratio (LR)	WDI
SMC	Stock Market Capitalization (annual variation)	WDI
CPI	Consumer Price Index	WDI

Financial development is represented by three variables:

CSP: Domestic credit provided to the private sector as a percentage of GDP This latter relates to the financial means provided to the private sector such as bank loans, bond borrowings, trade credits, accounts receivable, signature commitments, etc.

Liquidity ratio defined by the ratio M_2/GDP Assuming that a lower value of this ratio means that individuals hold less money which is synonymous with a significant level of financial sector development that allows the economy to have other means and payment instruments.

CAP: Stock Market Capitalization (annual variation) This variable uses the annual variation of stock market capitaliza-

tion. It measures the maturity or timing of direct financing and its ability to accompany economic growth.

This study uses a control variable which is inflation calculated through the Consumer Price Index, denoted INF.

Model presentation

This paper employs the error correction model, which is defined by the following formula (1):

$$\Delta Y_t = \mu + \sum_{i=1}^n \beta_i \Delta Y_{t-i} + \sum_{i=1}^n \varphi_i \Delta X_{t-i} - \rho(Y_{t-1} - \alpha_1 X(1)_{t-1} - \alpha_2 X(2)_{t-1} - \alpha_3 X(3)_{t-1} - \alpha_4 X(4)_{t-1} - cte) + \varepsilon_t \quad (1)$$

With

$$\sum_{i=1}^n \varphi_i \Delta X_{t-i} - \sum_{i=1}^n \gamma_i \Delta X(1)_{t-i} + \sum_{i=1}^n \delta_i \Delta X(2)_{t-i} - \sum_{i=1}^n \theta_i \Delta X(3)_{t-i} + \sum_{i=1}^n \lambda_i \Delta X(4)_{t-i}$$

Where:

Y_t : The variable to be explained represents the GDP.

$X(1)$: The domestic credit provided to the private sector (CSP).

$X(2)$: The liquidity rate (M2).

$X(3)$: The market capitalization (CAP).

$X(4)$: L'inflation (INF)

ρ : The error correction coefficient.

ε_t : The residual.

n : Number of lags.

μ : A constant.

3.2. Validation Test

We will proceed by studying this long-term relationship, and then we will evaluate the error correction model in the short term.

In order to perform this test, the variables must exhibit stationarity; therefore, a Dickey-Fuller and augmented Dickey-Fuller stationarity test will be used for the different variables (GDP, CSP, M2, CAP, and INF).

3.2.1. Stationarity Test

In order to perform this test, the variables must exhibit stationarity; therefore, a Dickey-Fuller and augmented Dickey-Fuller stationarity test will be used for the different variables (GDP, CSP, M2, CAP, and INF).

3.2.2 Cointegration Test

The long-term relationship will be assessed through cointegration tests as presented by Granger and Engle in 1987. This test helps identify relationships among variables by examining the presence of a cointegration element and isolating its effect.

The null hypothesis of the absence of a long-term relationship is written as follows:

$$H_0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = 0$$

The alternative hypothesis indicating the presence of a long-term relationship is:

$$H_1: \alpha_1 \neq 0, \alpha_2 \neq 0, \alpha_3 \neq 0, \alpha_4 \neq 0$$

(Johansen & Juselius, 1990) developed two likelihood ratio tests: the maximum eigenvalue test, which evaluates the null hypothesis of r cointegration vectors versus the alternative of $(r+1)$ cointegration vectors, and the trace test, which assesses the null hypothesis of at most r cointegration vectors against the general null hypothesis of p cointegration vectors. In the case of a bivariate VAR (Vector Autoregression), the null hypothesis is that there is no cointegration among the variables, and the alternative hypothesis is the existence of a single cointegration vector.

After estimating the probability of a long-term relationship among the variables, the second step involves selecting the optimal lag length using standard criteria such as the Schwartz Bayesian (SBC) or the Akaike Information (AIC). Subsequently, long-term and short-term coefficients can be predicted. The form of the long-term model is presented by the following formula (2):

$$\Delta Y_t = \mu + \sum_{i=1}^n \beta_i \Delta Y_{t-i} + \sum_{i=1}^n \gamma_i \Delta X(1)_{t-i} + \sum_{i=1}^n \delta_i \Delta X(2)_{t-i} - \sum_{i=1}^n \theta_i \Delta X(3)_{t-i} + \sum_{i=1}^n \lambda_i \Delta X(4)_{t-i} + \varepsilon'_t \quad (2)$$

The error correction term is used in the short-term model. The dynamic short-term model can be presented by the following formula (3):

$$\Delta Y_t = \mu + \sum_{i=1}^n \beta_i \Delta Y_{t-i} + \sum_{i=1}^n \varphi_i \Delta X_{t-i} - \rho V_{t-1} + \varepsilon_t \quad (3)$$

Where:

$$V_{t-1} = Y_{t-1} - \alpha_1 X(1)_{t-1} - \alpha_2 X(2)_{t-1} - \alpha_3 X(3)_{t-1} - \alpha_4 X(4)_{t-1} -$$

The null hypothesis that we will test is the "non-existence of a long-term relationship," defined as:

$$H_0: \beta_i = \gamma_i = \delta_i = \theta_i = \lambda_i = 0$$

The alternative hypothesis is "the presence of a long-term relationship."

$$H_1: \beta_i \neq 0, \gamma_i \neq 0, \delta_i \neq 0, \theta_i \neq 0, \lambda_i \neq 0$$

In the ECM (Error Correction Model), the cointegration rank refers to the number of cointegration vectors. A significant negative coefficient ρ in the ECM indicates that any short-term fluctuation within the explanatory variables and the dependent variable will lead to a stable long-term relationship among the variables.

3.2.3 Granger causality test

(Granger, 1969) proposed a procedure for studying causality using lagged time series and residuals. Let's assume there is a series or vector Y_t for which we want to obtain k future forecasts, denoted as Y_{t+k} , based on an information matrix Ω representing the data of the studied series.

Concerning the error correction model, which is expressed as:

$$\Delta Y_t = \mu + \sum_{i=1}^n \beta_i \Delta Y_{t-i} + \sum_{i=1}^n \varphi_i \Delta X_{t-i} - \rho V_{t-1} + \varepsilon_t$$

X influences Y in Granger's reference if the past values of X provide explanatory power for the current values of Y. Indeed, the past values of X appear in the terms $\sum_{i=1}^n \varphi_i \Delta X_{t-i}$. This implies that, according to Granger, X does not cause Y if $\varphi_i = \rho = 0$.

The null hypothesis is therefore:

$$H_0: \varphi_i = \rho = 0 \text{ (X does not influence Y in the Granger sense)}$$

To test this hypothesis, the test statistic is a Fisher test in which means are compared to tabulated values. Indeed, the hypothesis is rejected if the p-value is less than the critical threshold of 0.05.

4. RESULTS

4.1 Stationarity Test for Time Series

The analysis of time series stationarity is based on the Dickey-Fuller and Augmented Dickey-Fuller tests at a 5% significance level. The results of these tests are presented in Table 1 as follows:

Table 2. Stationarity test using the Augmented Dickey-Fuller test at a 5% significance level.

Variable	Empirical value	Critical value	p-value	Order of integration
PIB	-9.401862	-3.020686	0.0000	I(1)
CSP	-4.494927	-3.012363	0.0000	I(1)

Table 3. Test (Trace).

Hypothesis	Eigenvalue	Trace statistique	Valeur critique 5%	P-value	Retard optimal
H0: no long term relationship	0.882182	82.33539	69.81889	0.0000	I(1)
Au moins 1	0.590527	37.42456	47.85613	0.3278	I(1)
Au moins 2	0.351924	18.67400	29.79707	0.5165	I(1)
Au moins 3	0.330623	9.565313	15.49471	0.3157	I(1)
Au moins 4	0.052647	1.135753	3.841466	0.2866	I(1)

Source: Developed by authors.

Table 4. Test (Maximum Eigenvalue).

Hypothèse	Eigenvalue	Max-Eigen Statistique	Valeur Critique 5%	P-value	Retard Optimal
H0: no long term relationship	0.882182	44.91084	33.87687	0.0000	I(1)
At least 1	0.590527	18.75056	27.58434	0.4340	I(1)
At least 2	0.351924	9.108687	21.13162	0.8236	I(1)
At least 3	0.330623	8.429559	14.26460	0.3367	I(1)
At least 4	0.052647	1.135753	3.841466	0.2866	I(1)

Source: Developed by authors.

<i>M₂</i>	-4.997352	-3.012363	0.0000	I(1)
<i>CAPB</i>	-3.792811	-3.012363	0.0000	I(1)
<i>INF</i>	-8.018511	-3.012363	0.0000	I(1)

Source: Developed by authors.

The results in Table 1 show that all series of the five variables are stationary because the p-value is below 5% (empirical value lower than the critical value). Likewise, this means that all series are integrated of order 1 (I(1)), implying that the variables are stationary.

Therefore, the variables in the model, GDP, CSP, M₂, CAPB, and INF, are cointegrated, indicating an opportunity to estimate the error correction model.

4.2. Cointegration Test

Cointegration analysis is conducted using the trace test and the maximum eigenvalue test proposed by Johansen and Juselius (1990). The results of both tests are presented in Tables 2 and 3 as follows:

At the 5% significance level, the trace statistic rejects the null hypothesis of the absence of a long-term relationship among the studied variables in favor of the hypothesis of the existence of a single cointegration link, as the p-value of Mackinon-Haug-Michelis is less than 5%.

At the 5% significance level, the maximum eigenvalue statistic rejects the null hypothesis of the absence of a long-term relationship among the studied variables in favor of the hypothesis of the existence of a single cointegration link, as the p-value of Mackinon-Haug-Michelis is less than 5%.

As a result, the explanatory variables are cointegrated in the long term with the dependent variable. This cointegration is achieved through a single equation.

4.3 Assessment of the Long and Short-term Relationship between GDP and Financial Development

The stationarity tests have shown that the series exhibit integration of a certain order, namely, I(1). Therefore, the error correction model is defined by an equation in which the dependent variable and the explanatory variables are measured in first differences. For the error correction term, it is estimated by the coefficient related to the lagged residual of the cointegrating equation.

The relationship between the variables GDP, CSP, M₂, CAPB, and INF will be estimated in this paragraph in both the short and long terms. The outcome of the long-term relationship estimation is detailed in Table 4 as follows:

Table 5. Estimation of the error correction model (long-term dynamic).

Cointegration Equation	Normalized Cointegration Coefficient
PIB(-1)	1.00000
CSP(-1)	0.171294
CAP(-1)	-0.021272
M₂(-1)	0.071242
INF(-1)	0.975653
C	-7.948275

Source: Developed by authors.

The coefficients in the cointegration equation from Table 4 are normalized. The value of the coefficient ρ in the model is -2.54007. The result of the short-term relationship estimation is detailed in Table 5 as follows:

The previous estimations allow us to define the long-term and short-term relationships through the following formulas 4 and 5, respectively:

$$\Delta PIB_t = 1.10 + 0.35\Delta PIB_{t-1} - 2.54V_{t-1}(4)$$

With:

$$V_{t-1} = PIB_{t-1} - 0.171CSP_{t-1} + 0.021CAP_{t-1} + 0.071M_{2,t-1} - 0.975INF_{t-1} + 7.948$$

$$\begin{aligned} \Delta PIB_t = & 1.108 + \\ & 0.351\Delta PIB_{t-1} + \\ & 0.337\Delta CSP_{t-1} - \\ & 0.023\Delta CAP_{t-1} - \\ & 0.57\Delta M_{2,t-1} - 1.579\Delta INF_{t-1} - \\ & 2.54V_{t-1} \end{aligned} \quad (5)$$

Table 6. Estimation of the error correction model (short-term dynamic).

Variables	CointEq1	$\Delta PIB(-1)$	$\Delta CSP(-1)$	$\Delta CAP(-1)$	$\Delta M_2(-1)$	$\Delta INF(-1)$	C
Coefficient	-2.540007	0.351770	0.337105	-0.022825	-0.570474	1.579602	1.108656

Source: Developed by authors.

With:

$$V_{t-1} = PIB_{t-1} - 0.171CSP_{t-1} + 0.021CAP_{t-1} + 0.071M_{2,t-1} - 0.975INF_{t-1} + 7.948$$

The equation expressed by formula 4 shows the presence of a long-term relationship. Indeed, this link explains the existence of an effect of the variables used to express financial development on GDP growth (for example: a 1% increase in CAP generates a long-term improvement in GDP of 0.02% and a 1% decrease in INF leads to a GDP increase of 0.98%

The analysis of the coefficients of the model allows us to observe that the M₂ variable positively influences economic growth. This conclusion was drawn by the research of (King & Levine, 1993). In contrast, inflation has a negative effect on GDP growth with a coefficient of (-0.975). This observation confirms some works in this framework such as (Bruno & Musso, 2000) and (Barro, 1996). For the CSP variable, the model yields a negative coefficient, namely, (-0.171). Therefore, credits granted to the private sector negatively impact growth. This conclusion was drawn by certain works such as (Andersen & Tap, 2003). For the CAP variable, the model yields a low coefficient equal to 0.02, which means that the impact of the stock market is insignificant on long-term economic growth.

In summary, the study did not confirm the impact of financial development on long-term economic growth in Morocco.

Previously, the short-term cause-and-effect relationship was validated by the model given that the value of the coefficient ρ is negative and significant, i.e., (-2.540007). This coefficient represents the speed at which the dependent variable evolves or adjusts towards equilibrium to correct the long-term deviation.

In the short term, formula No. 5 shows that two variables have a positive effect on GDP growth, which are credit to the private sector (CSP) and inflation (INF) with positive and significant coefficients respectively equal to 0.337 and 1.579. On the other hand, stock market capitalization (CAP) has a non-significant negative effect with a coefficient equal to (-0.022), and the M₂ variable has a negative effect with a coefficient equal to (-0.57).

In summary, in the short term, financial development determinants have no positive effect on economic growth except for credit to the private sector (CSP), which has an effect that may be taken into consideration only in a past year (a single lag).

Also, the examination of short and long-term coefficients shows that for the four variables used, the positive impact in the short term takes a negative value in the long term and vice versa. This situation is due to financial fragility in the short term according to (Loayza & Ranciere, 2006).

Table 7. Results of granger causality test.

Null hypothesis	F-Statistique	Prob.
CSP does not influence GDP in the Granger sense.	1.77620	0.2011
GDP does not influence CSP in the Granger sense.	5.54891	0.0148
CAP does not influence GDP in the Granger sense.	1.52149	0.2484
GDP does not influence CAP in the Granger sense.	0.29704	0.7470
INF does not influence GDP in the Granger sense.	4.30509	0.0319
GDP does not influence INF in the Granger sense.	0.21027	0.8126
M_2 does not influence GDP in the Granger sense.	2.30921	0.1315
GDP does not influence M_2 in the Granger sense.	6.49570	0.0086

Source: Developed by authors.

4.4 Granger Causality Test

The results of this test are presented in Table 6 as follows:

The results of this test show that the causal link between GDP and each variable is not verified in both directions. Indeed, for the variables CSP, CAP, and M_2, the null hypothesis cannot be invalidated, meaning that these variables do not influence growth in the Granger context. On the other hand, the effect of GDP on these variables cannot be rejected. For inflation, the null hypothesis can be invalidated, meaning that inflation can have effects on growth.

5. CONCLUSIONS

The theory of financial development, as well as previous studies in economic literature, has often posited the hypothesis of a positive effect of financial development on economic growth. However, this assertion is not universally agreed upon among researchers, as evidenced by the conflicting outcomes of empirical studies conducted in the same field.

We sought to test this hypothesis by applying an error correction model, a powerful statistical tool for analyzing relationships within long and short-term economic variables. The variables chosen to represent financial development, including market capitalization and liquidity rate, did not provide convincing evidence of their impact on economic growth.

However, the analysis revealed that certain variables have a positive effect on growth, both in the short and long term. For example, private sector credit (CSP) showed a positive influence in the short term, while the liquidity rate had a positive effect in the long term. These results highlight the complexity of the relationships within financial development and economic growth, with temporal factors playing a significant role.

Previously, it appears important to note that Morocco has undertaken significant structural changes in its financial system in recent years. These reforms have allowed the Moroccan financial system to better mobilize savings, allocate resources efficiently, and stimulate innovation. However, the present study underscores the observation that these reforms alone are not sufficient to stimulate economic growth, espe-

cially in the short term. Therefore, financial liberalization must be complemented by other measures and reforms, such as inflation control, the stability of the financial system, the growth of the financial market, and tax reform. These elements are essential to create an environment conducive to sustainable and balanced economic growth in Morocco.

6. PATENTS

This section is not mandatory but may be added if there are patents resulting from the work reported in this manuscript.

AUTHOR CONTRIBUTIONS

For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used “Conceptualization, AM and O,K.; methodology,A,M.; software, N.D validation, N.D,A,M and O,K; formal analysis, S.E.; investigation, A.M.; resources, D.N.; data curation, D.N.; writing—original draft preparation, A.M, writing—review and editing, N.D; visualization, S.E.; supervision, O.K.; project administration, K.O.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest

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