

The evolution of the interest rate in Morocco from the COVID-19 crisis until 2024

L'évolution du taux d'intérêt au Maroc depuis la crise du COVID-19 jusqu'en 2024

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Abstract

Morocco faced major financial and economic shocks due to the COVID-19, including a slowdown in growth, volatile inflation, and a decline in commodity prices, in addition to monetary tightening at the international level. Bank Al-Maghrib has enhanced its role by using the key rate as the principal monetary policy instrument.

The policy rate underwent three different phases between 2020 and 2024: monetary easing supporting the economy, tightening to control inflation, and loosening to support the economic recovery.

To analyze the impact of these decisions, it is necessary to use a conceptual model of monetary transmission such as VAR, and ARDL. This model suggests that short-term interest rates are first influenced by the key rate, which has an impact on the credit conditions offered by commercial banks. Economic growth is influenced by changes in consumption and investment behaviors caused by these conditions. Also, inflation expectations and price stability are influenced by monetary policy.

A few questions arise in this context:

- What actions has the Central Bank taken to reduce the consequences of economic shocks?
- What is the significance of the policy rate as a crucial tool for financing the actual economy?
- Is it feasible to maintain price stability in a climate with structural constraints with the recent decline in the policy rate in 2024-2025?

This study aims to assess the policy rate's ability to transmit its effects to the real economy and maintain prices in a Moroccan context characterized by significant economic turbulence.

Keywords: « Interest rate», « Inflation», « Credit Growth», « VAR», « ARDL», « Monetary Policy», « Central Bank», « COVID-19».q

Paper type: Empirical research article.

Résumé

La crise sanitaire du COVID-19 a provoqué une série de chocs financiers et économiques majeurs au Maroc, avec un ralentissement de la croissance. Une inflation qui fluctue, une baisse des prix des matières premières, et un resserrement monétaire à l'échelle internationale.

Dans ce contexte, Bank Al-Maghrib, a consolidé son rôle en mettant l'accent sur le taux directeur en tant qu'outil de politique monétaire principal. Entre 2020 et 2024, le taux directeur a subi trois changements distincts : un assouplissement monétaire pour soutenir l'économie, puis un resserrement pour contrôler l'inflation, et enfin un desserrage pour soutenir la reprise économique.

Pour étudier l'effet de ces décisions, il est indispensable de se baser sur des modèles économétriques conceptuel de transmission monétaire à savoir VAR, ARDL. Ces modèles affirment que le taux directeur commence par influencer les taux d'intérêt à court terme, ce qui affecte les conditions de crédit offertes par les banques commerciales. Ces conditions ont un impact sur les comportements de consommation et d'investissement, ce qui a un impact sur la croissance économique. De plus, la politique monétaire influence également les anticipations d'inflation et la stabilité des prix. Dans ce contexte, plusieurs interrogations se posent :

- Quelles mesures la Banque centrale a-t-elle prises pour réduire les effets des chocs économiques ?
- Comment le taux directeur est-il devenu un élément clé du financement de l'économie réelle ?
- La récente baisse du taux directeur en 2024-2025 est-elle adéquate pour maintenir la stabilité des prix dans un contexte où les contraintes structurelles sont présentes ?

L'objectif de cette étude est d'évaluer si le taux directeur peut influencer l'économie réelle et stabiliser les prix, dans un contexte marocain marqué par des turbulences économiques importantes.

Mots clés : « Taux d'intérêt », « inflation », « VAR », « ARDL », « croissance de crédit », « Banque centrale », « COVID-19 », « politique monétaire ».

Type de document : Article de recherche empirique.

Introduction

Economic theory and practice depend on the interest rate as one of the fundamental pillars. As a price of money during time. It is crucial in the allocation of resources, investment, and consumption, while also guiding the financing decisions of households, businesses, and the State.

Since Fisher's 1930 work on the relationship between nominal rate, real rate, and expected inflation, and current approaches to Taylor's rule (1993), and the concept of natural rate (Laubach), are both crucial to understanding the relationship between nominal rate, real rate, and expected inflation, the literature highlighted the importance of monetary policy and a prime macroeconomic indicator as factors.

The empirical research has demonstrated that interest rates' dynamics are influenced by multiple factors, including term structure, inflation expectations, bank competition, and overall liquidity conditions. Morocco, for instance, has a significant interest rate due to the transition towards an inflation targeting regime and increased openness to international financial markets. And for; some recent analyses by the International Monetary Fund (IMF, 2021) and Bank Al-Maghrib (Central Bank) emphasize moreover that the transmission of policy rates to lending and creditor rates remains partial and heterogeneous what makes monetary policy effective, particularly after the choices made during the COVID-19 crisis.

Then, it is crucial to study the interest rate, its determinants and the transmission mechanisms to detect and comprehend both financial stability and economic growth. The purpose of this literature review is to present the primary theoretical and empirical approaches to the subject, and emphasizing the Moroccan context.

To summarize, our initial focus will be on the literature review, followed by the empirical analysis, and finally the empirical results.

1. Literature review

The interest rate is a crucial part of economic and financial research; it has a significant impact on resource allocation, investment decisions, and monetary policy management. Interest rates are not just about the cost of borrowing and the return on savings, as the cost of money changes over time. They are also a key tool that central banks use to control inflation and regulate economic activity.

The interest rate has been extensively studied from both theoretical and empirical perspectives over the years. The foundation for understanding interest rate determinants has been laid by

classical contributions, such as Fisher's theory of nominal and real rates (1930) and Keynes' theory of liquidity preference (1936).

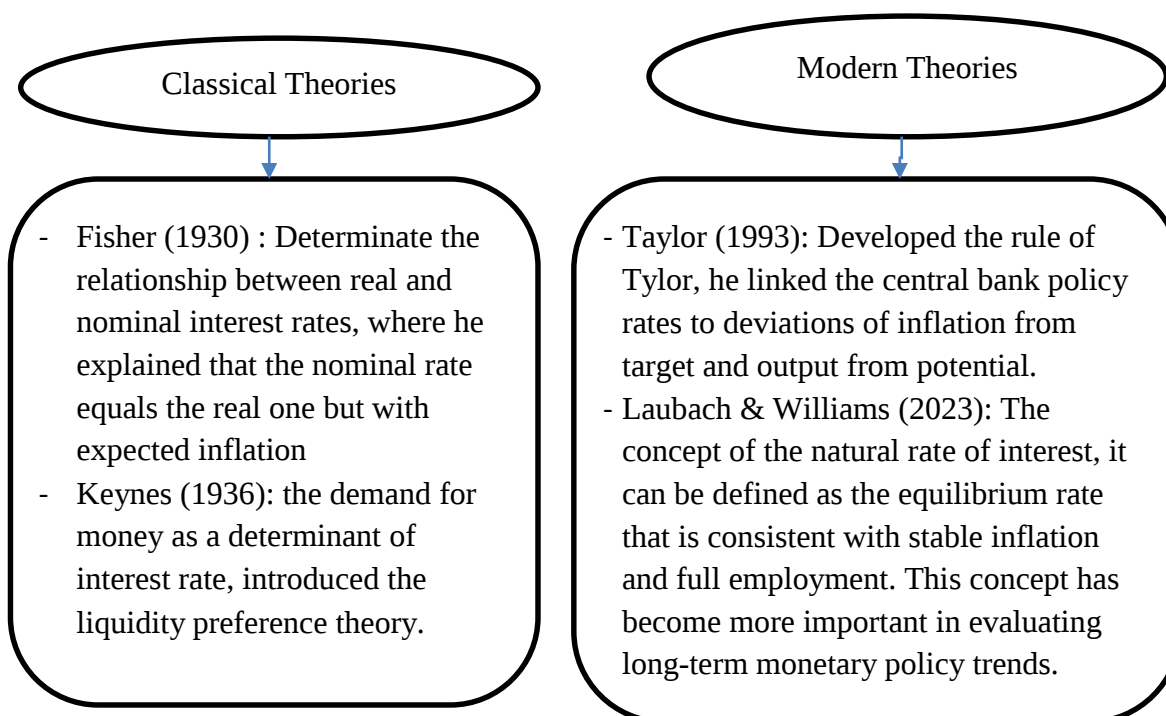
More recently, approaches such as Taylor's (1993) monetary policy rule and the concept of natural interest rates (Laubach & Williams, 2003) have established a direct link between interest rate, macroeconomic stability, and the effectiveness of monetary policies.

Since the COVID-19 crisis, the dynamics of monetary policies have undergone major changes on a global scale. Faced with the unprecedented economic shocks caused by the pandemic, central banks have deployed unconventional measures—notably quantitative easing, keeping rates at historically low levels and targeted interventions in financial markets — to ensure liquidity and support the economic recovery. Recent literature highlights the essential role of these measures in preventing financial collapse and economic recovery (Borio et al., 2021; Chen et al., 2022). However, this work also highlights the limitations of these policies, in particular the risks associated with an excessive prolongation of low rates, such as the formation of asset bubbles and persistent inflationary pressures. The effectiveness of Bank Al-Maghrib's post-COVID measures has been evaluated by several recent studies in the Moroccan context. Despite cuts in key interest rates and liquidity support schemes, monetary transmission to the real sector remains limited by structural rigidities, notably the shallow financial market and the weight of the informal sector, as well as the constraints on access to credit for certain segments of businesses and households (El Amrani, 2023; Benjelloun, 2024).

The health crisis has underscored the importance of coordinating monetary and fiscal policy, as well as integrating macroprudential tools, to enhance the overall effectiveness of economic interventions.

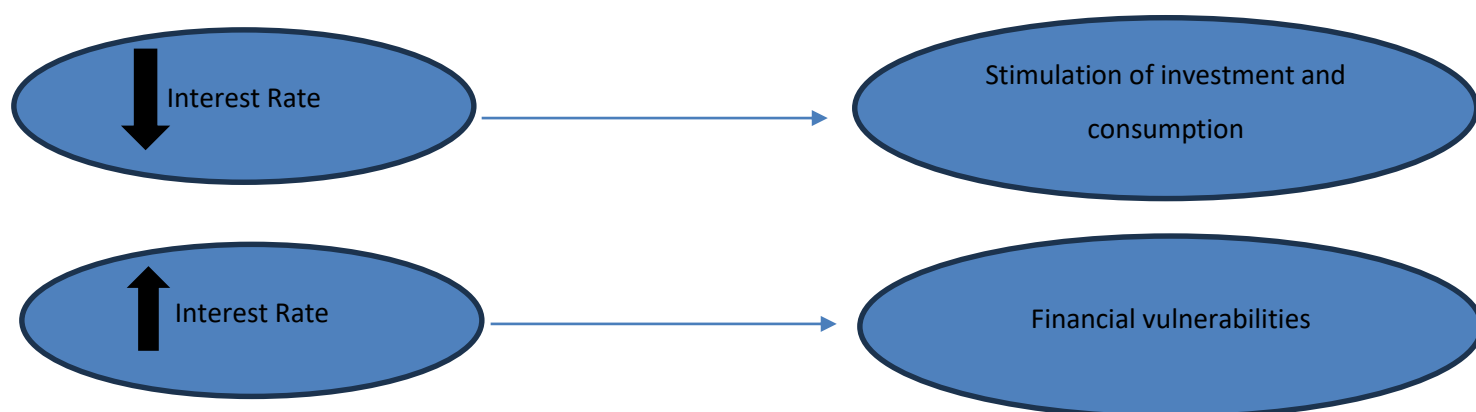
By analyzing recent international and Moroccan literature in depth, it is possible to gain a better understanding of the current challenges of monetary policy, particularly in a post-pandemic context. Through this reflection, we can improve the transmission of interest rates, facilitate access to financing, and support more robust and resilient economic growth.

1.1. Theoretical Background



1.2. International Empirical studies

The interest rate transmission across so many economies has been analyzed in empirical research, these researches shows that the pass from policy rate to market is incomplete, its influenced by so many factors such as banking competition, risk perception, and market structure (De Bondt, 2005). Otherwise, there is a complexe relationship between interest rate, growth and inflation:



Source : élaboré par les auteurs

1.3. Stylized facts

In this section we aim to analyse how does the changes of Interest rate by Bank Al-Maghrib is transmitted to market rate to manage macroeconomic variable such as inflation, private

investment and the growth of the economy. With a focus on the period from 2020 to 2025 that cover pre and post COVID-19.

1.3.1. Chronology of policy rate decision 2020 -Mid 2025

Since the first quart of 2020 the key rate underwent several adjustments through June 2025:

Date	Policy Rate	Comment
17/03/2020	2.00%	Decrease from 2.25% to 2% to support economic activity during the crisis COVID-19
18/06/2020	1.50%	Decrease from 2% to 1.50% for the same reason as support the activity during the crisis
27/09/2022	2.00%	Increase because the inflation rate is up to 8%
23/03/2023	3.00%	Inflation rate > 10.1% - Rein
27/06/2024	2.75%	Reduced as the inflation moderated
19/12/2024	2.50%	Reduced further
20/03 to 26/03/2025	2.25%	Stagnate and maintained

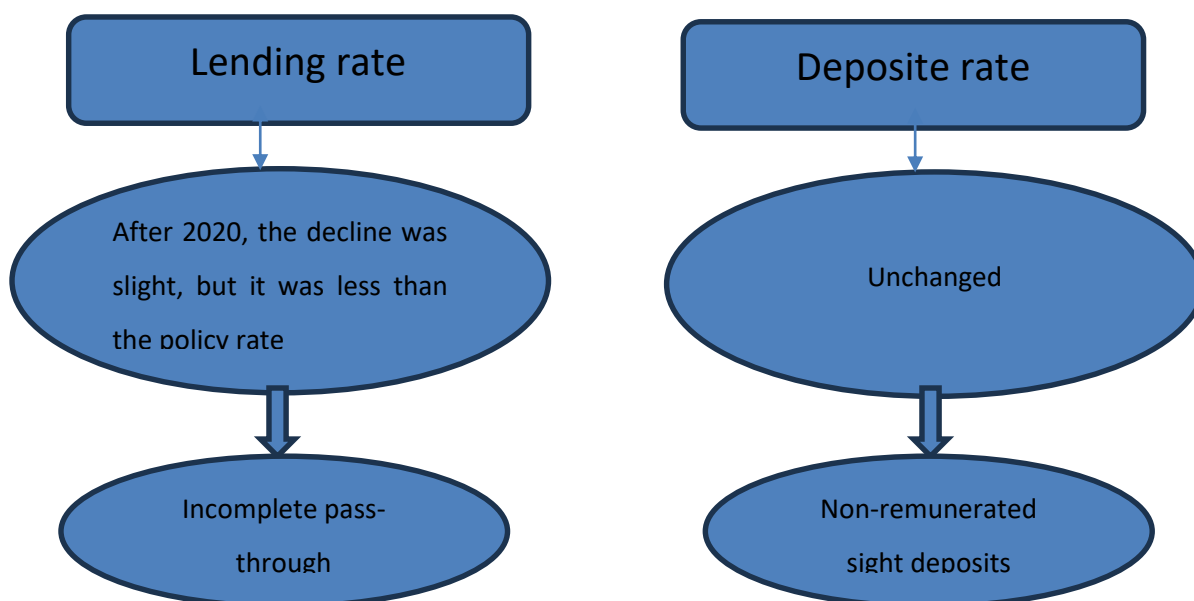
Source : élaboré par les auteurs

Bank Al-Maghrib, announced a 25-basis point reduction in its key interest rate to 2.25%, as inflation remains under control and economic growth needs support.

The inflation remains moderate while growth accelerates with a decrease of 0.9% regarding the previous two years.

1.4. Interpretation

1.4.1. lending and deposit rates



Source : élaboré par les auteurs

1.4.2. Inflation

The World Bank reveals that Morocco's consumer prices increased by approximately 0.70% in 2020 and by approximately 1.40% in 2021.

The inflation rose sharply from 1.40% in 2021 to 6.66% in 2022, then slight easing in 2023 to about 6.09%. Due to the food and energy shocks.

In 2024, it decreased from around 6% to 1%, which is a result of the moderated food prices and easing of global supply shocks.

For 2025 some upward pressure is expected due to increased spending and possible tax adjustment, but not a return to extremely high inflation, according to forecasts.

1.4.3. Gross Domestic Product GDP

A remarkable steepest drop since 1995 it was a drop of -7.2%, but 2021 saw a +8% increase, followed by a +1.3% increase in 2022. By 2023-2024, it had stabilized around +3%.

1.4.4. Credit to private sector

In 2020 even with the rate cuts, credit growth slowed significantly and was aided by state guarantee schemes called 'Damane Oxygen'.

Indicator	2020	2021	2022	2023	2024 (proj.)
Real GDP Growth (%)	-7.2	+8.0	+1.3	+3.0	+2.9
Inflation (%)	+0.7	+1.4	+6.6	+6.1	~0.9
Policy Rate (%)	↓ to 1.50	1.50	↑ to 3.00	3.00 → easing	~2.5

1.4.5. Highlight simplification

Morocco followed an anti-cyclical policy, making strong easing during the crisis, threatening inflation and re-loosening.

Despite the volatility of inflation and supply-side shocks, the role of monetary policy is decreasing, the sensitivity of credits in Morocco reflects reliance on fiscal support and high-risk aversion.

Otherwise, economic growth is impacted more by climatic conditions and external shocks than by interest rate policy.

The transfer of monetary policy to the real economy is partially visible, as illustrated by the facts discussed earlier.

2. Empirical Analysis

2.1. Objective of the Empirical section

The econometric models selected—VAR and ARDL—were chosen for their ability to capture the dynamic and interdependent relationships between monetary policy, inflation, GDP growth, and credit to the private sector. The VAR model is particularly useful for analyzing the

bidirectional causality between macroeconomic variables without imposing strict assumptions about exogeneity, making it appropriate for Morocco's context. Meanwhile, the ARDL bounds testing approach is ideal for data containing both stationary $I(0)$ and non-stationary $I(1)$ variables, consistent with the ADF test results of this study. Combining these two models provides a comprehensive understanding of both short- and long-term relationships. The choice of the 2020–2024 period is justified by Morocco's major economic shifts during and after the COVID-19 crisis. This period captures three distinct monetary phases—easing, tightening, and re-loosening—enabling a deeper assessment of the effectiveness of Bank Al-Maghrib's interest rate management. It also corresponds to the phase of inflation moderation and gradual macroeconomic stabilization, offering a relevant timeframe to test policy responsiveness to domestic and global shocks.

In this section we aim to demonstrate the effectiveness of monetary policy transmission in Morocco since 2020 to 2024, as a period marked with several shocks and crisis.

With this investigation we focus on two important subjects:

- Evaluation of policy rate and its impact on inflation, real GDP growth and credit to private sector.
- If the transmission mechanism has become weaker due to crisis and fiscal dominance.
- Recognize potential discrepancies in the results of monetary policy.

2.2. Data and variables

❖ Time Period:

- Quarterly data: 2020Q1-2024Q4.
- Yearly data: y2020-2024.
- Or last available.

❖ Source :

- Bank Al Maghrib (BAM).
- High Commission for planning (HCP).
- World Bank.
- International Monetary Fund (IMF).

❖ Key variables :

- Real GDP Growth.
- Inflation rate.
- Credit to private.

- Policy rate of BAM.
- ❖ Control variables :
 - Global Prices.
 - Fiscal deficit.

2.3. Methodology

This empirical investigation will contain a combination of two strategies at the same time:

1. Descriptive statistics and correlation: Used to capture preliminary relationships between monetary policy, inflation and growth.
2. Econometric specification:
 - VAR to analyse interactions among variables, and have feedback effect.
 - ARDL that stands for distinguishing between the short and long runs effects of policy rate adjustments.
 - Diagnostics test that includes ADF stationary test, cointegration test (Bounds) and residual diagnostic to ensure model robustness.

2.4. Hypotheses

H1: Inflation impact is limited by policy rate.

H2: Growth depends more on external shocks than on monetary policy.

H3: Credit to private sector is resilient due to state support.

H4: Expansionary policies perform better than tightening.

2.5. Expected results

The results that we expect can be summarised as follow:

- The short-term relationship between policy rate changes and inflation is weak or statically insignificant.
- GDP growth is affected indirectly and partially, but it's overshadowed by climatic and global shocks.
- The resilience of credit growth is stronger due to fiscal interventions, not monetary policy.
- The structure of Morocco's monetary transmission is weak.

3. Empirical results and discussion

Date	Policy Rate (PR)	Lending Rate (LR)	Deposit Rate (DR)	CPI Index	Chain-linked volume	Annual GDP	Credit to Private Sector	Inflation (%)	GDP Growth (%)	Credit Growth (%)
2020Q1	2.00%	4.87%	2.875	102.3	105.9	91.3	723007	-0.13%	-12.46%	1.48%
2020Q2	1.50%	4.58%	2.86	102.17	92.7		733737	0.45%	13.16%	0.73%
2020Q3	1.50%	4.30%	2.59	102.63	104.9		739113	0.14%	-41.18%	0.26%
2020Q4	1.50%	4.42%	2.655	102.77	61.7		741010	-0.33%	108.17%	1.09%
2021Q1	2,50%	4.45%	2.62	102.43	128.44	124.189	749082	1.31%	66.73%	2.83%
2021Q2	2,50%	4.32%	2.52	103.77	214.145		770297	0.25%	-30.09%	0.13%
2021Q3	2,50%	4.35%	2.475	104.03	149.71		771323	1.29%	-11.23%	0.44%
2021Q4	2,50%	4.44%	2.36	105.37	132.9		774731	1.10%	-13.94%	0.59%
2022Q1	1.50%	4.28%	2.315	106.53	114.38	128.688	779338	3.54%	14.50%	3.60%
2022Q2	1.50%	4.29%	2.18	110.3	130.96		807378	1.88%	17.81%	1.81%
2022Q3	2.00%	2.24%	2.25	112.37	154.29		822029	1.51%	-25.39%	0.84%
2022Q4	2.50%	4.50%	2.455	114.07	115.12		828913	2.33%	1.29%	-2.38%
2023Q1	3.00%	5.03%	2.535	116.73	116.6	151.65	809212	0.92%	-35.08%	2.05%
2023Q2	3.00%	5.26%	2.63	117.8	75.7		825836	0.08%	154.16%	-0.29%
2023Q3	3.00%	5.36%	2.505	117.9	192.4		823423	0.36%	15.33%	1.03%
2023Q4	3.00%	5.36%	2.825	118.33	221.9		831922	-0.64%	-64.94%	-1.18%
2024Q1	3.00%	5.40%	2.6	117.57	77.8	153.005	822079	0.99%	75.58%	1.01%
2024Q2	2.75%	5.43%	2.985	118.73	136.6		830414	0.56%	37.72%	1.46%
2024Q3	2.75%	5.21%	2.72	119.4	188.12		842518	-0.17%	11.37%	0.61%
2024Q4	2.50%	5.08%	2.665	119.2	209.5		847673	0.70%	-20.14%	0.24%

Source : élaboré par les auteurs

3.1. Descriptive statistics and Correlation

3.1.1. Correlation

	Policy Rate (PR)	Lending Rate (LR)	Deposit Rate (DR)	CPI Index	Chain-linked volume	Credit to Private Sector	Inflation (%)	GDP Growth (%)	Credit Growth (%)
Policy Rate (PR)	1	0.556413999	0.236901156	0.693200461	0.375321406	0.630068678	-0.266681646	0.062450677	-0.304128668
Lending Rate (LR)	0.556413999	1	0.60558268	0.463600533	0.061585908	0.26788629	-0.395732399	0.252113797	-0.106825545
Deposit Rate (DR)	0.236901156	0.60558268	1	0.121399582	-0.005346771	-0.101190632	-0.667523683	0.120691495	-0.149129013
CPI Index	0.693200461	0.463600533	0.121399582	1	0.338325232	0.948760445	-0.085815327	0.105633675	-0.275578544
Chain-linked volume	0.375321406	0.061585908	-0.005346771	0.338325232	1	0.442744266	-0.145473855	-0.554770937	-0.233362808
Credit to Private Sector	0.630068678	0.26788629	-0.101190632	0.948760445	0.442744266	1	0.099250886	0.044332871	-0.325192667
Inflation (%)	-0.266681646	-0.395732399	-0.667523683	-0.085815327	-0.145473855	0.099250886	1	-0.040189759	0.329119937
GDP Growth (%)	0.062450677	0.252113797	0.120691495	0.105633675	-0.554770937	0.044332871	-0.040189759	1	0.154643772
Credit Growth (%)	-0.304128668	-0.106825545	-0.149129013	-0.275578544	-0.233362808	-0.325192667	0.329119937	0.154643772	1

Source : Eviews, Statistic.

3.1.2. Statistics

	Mean	Median	Standard Deviation	Minimum	Maximum
Policy Rate (PR)	0.0235	0.025	0.005815135	0.015	0.03
Lending Rate (LR)	0.046585	0.0454	0.007182382	0.0224	0.0543
Deposit Rate (DR)	2.581	2.595	0.211750847	2.18	2.985
CPI Index	110.72	111.335	7.06652077	102.17	119.4
Chain-linked volume	136.18825	129.7	47.55669684	61.7	221.9
Credit to Private Sector	793651.75	808295	40556.09723	723007	847673
Inflation (%)	0.008222132	0.007404754	0.009988644	-0.006422716	0.035389092
GDP Growth (%)	0.150751296	0.122629098	0.528870002	-0.649391618	1.541611625
Credit Growth (%)	0.008166167	0.007850638	0.013011751	-0.023767271	0.035979254

Source : Eviews, Statistic.

As we can see in the correlation table, the policy rate shows a positive relation with inflation with a 0.69 rate and with the lending rate with a rate of 0.55, which means that change in policy rate are transmitted to prices and bank lending condition.

For the credit to Private Sector its highly correlated with chain-linked volume (0.94), so credit expansion moves with economic activity.

Regarding the Inflation rate with GDP growth link its very weak (-0.04), confirming that growth is not directly driven by inflation but with external shocks.

Otherwise, Credit Growth correlated negatively with policy rate (-0.30), means that higher interest rates slow down credit expansion.

Moving to statistics, it shows that policy, lending and despite rates remains stable but variate during the period, For the inflation and credit growth average is low and that means limited volatility. But GDP growth remains stable, which suggests its resilient to external shocks.

3.2. Econometric Results

3.2.1. Stationary Test (ADF)

Variable	t-Statistic	Critical Value 5%	Stationary	Integration Order
Policy rate	-1.593	-3.0299	H0 - NON Stationary	I(1)
Inflation	-2.9295	-3.0299	H0 - NON Stationary	I(1)
GDP growth	-4.4407	-3.7597	H1 -Stationary	I(0)
Credit Growth	-6.1489	-3.7332	H1 -Stationary	I(0)

Source: Own elaboration based on EViews output. VAR Model.

The table of Augmented Dicky Fuller (ADF) test shows a mixed results in term of the variables stationarity. GDP and credit growth stationary order is I(0) while the policy rate and inflation stationarity is I(1). This combination imposes the use of an ARDL bounds test which is made for this kind of models with two different stationarity variables but not beyond I(1).

3.2.2. ARDL Bounds Testing

Variable	F-Statistic	PerasanBounds Value	Critical Value	Decision
Policy Rate	5.061	1% k=3	I(1)	Cointegration
Inflation	1.971	10% k=3	I(0)	No cointegration
GDP Growth	1.109	10% k=3	I(0)	No cointegration
Credit Growth	4.912	1% k=3	I(1)	Cointegration

Source: Own elaboration based on EViews output. VAR Model.

The ARDL testing table shows that Policy rate and credit growth are cointegrated in long run, since their F-Statistic are above the critical bounds. On the contrary of Inflation and GDP

growth they don't show a cointegration which means they are driven by short run or external shocks.

This demonstrate the monetary policy is not affecting growth and prices.

3.2.3. VAR Estimation Results

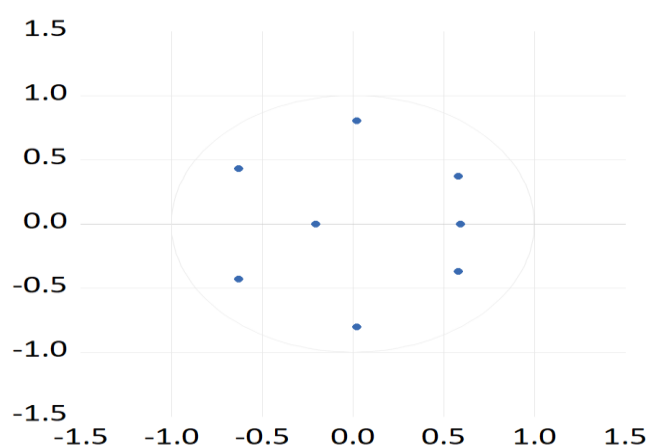
Variable	Lag	Coefficient	t-Statistic	Significance
Policy Rate	-1	0.6811	2.0242	Significant
Inflation	-1	-0.018	-3.187	Significant
GDP Growth	-2	-0.5288	-2.1072	Significant

Source: Own elaboration based on EViews output. VAR Model.

From VAR results only three variables are significant: Policy Rate -1, Inflation -1 and GDP Growth -2. Their t-Statistic is greater than 2 or less than -2. Which indicate that these lags have a relevant impact on the system

The other variables are excluded from the interpretation because they are not significant influence as their t-Statistic does not exceed the critical thresholds.

Inverse Roots of AR Characteristic Polynomial



Source: Own elaboration based on EViews output. VAR Model.

The VAR conditions of stability test point out that all roots lie inside the unit circle, which confirms that the VAR model is stable.

As a result, the impulse response and variance decomposition are stable.

3.2.4. Impulse Response Functions (IRF)

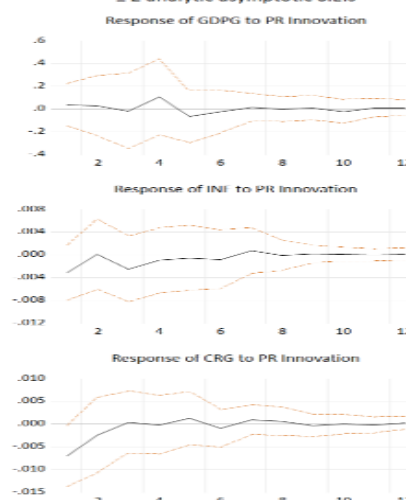
a. Response to Policy Rate shocks

- **GDP Growth:** Shows a small short-lived reaction, which means it has a small impact from the monetary policy
- **Inflation:** Response is not clear, meaning the weak role of interest rate policy in price stability.
- **Credit Growth:** Slight decrease, means higher rates reduce lending somewhat.

Period	GDPG	INF	CRG
1	0.037844 (0.09393)	-0.003172 (0.00244)	-0.007034 (0.00334)
2	0.029039 (0.13338)	6.51E-05 (0.00308)	-0.002450 (0.00415)
3	-0.018953 (0.16690)	-0.002501 (0.00291)	0.000416 (0.00343)
4	0.106930 (0.16889)	-0.000947 (0.00288)	-0.000173 (0.00324)
5	-0.068186 (0.11515)	-0.000543 (0.00287)	0.001316 (0.00292)
6	-0.024246 (0.09332)	-0.000798 (0.00260)	-0.000974 (0.00209)
7	0.014963 (0.06032)	0.000772 (0.00202)	0.000918 (0.00164)
8	-0.002658 (0.05478)	-0.000110 (0.00133)	0.000606 (0.00158)
9	0.008158 (0.05408)	0.000175 (0.00078)	-0.000365 (0.00124)
10	-0.022419 (0.05235)	0.000132 (0.00061)	-6.71E-06 (0.00109)
11	0.009857 (0.04052)	-3.30E-05 (0.00055)	-0.000228 (0.00086)
12	0.010161 (0.03505)	0.000149 (0.00053)	0.000232 (0.00071)

Cholesky One S.D. (d.f. adjusted)
Cholesky ordering: PR INF GDPG CRG
Standard errors: Analytic

Response to Cholesky One S.D. (d.f. adjusted) Innovations
± 2 analytic asymptotic S.E.s



Source: Own elaboration based on EViews output. VAR Model.

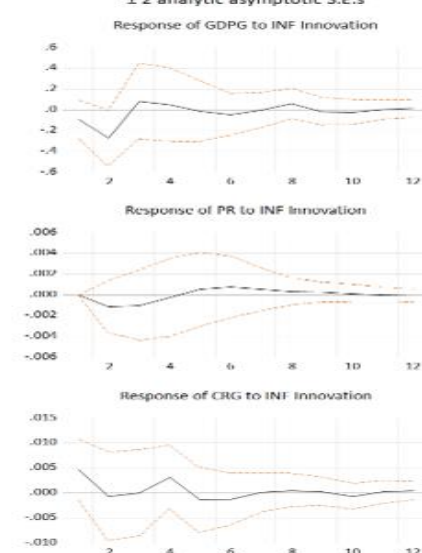
b. Response to Inflation shocks

- **GDP Growth:** Drops quickly after the shocks, it shows that inflation impact the economic activity.
- **Policy Rate:** Shows a very weak adjustment, which means the limited reaction for central bank to inflation shocks.
- **Credit Growth:** Short-lived effect, indicating that inflation does not heavily restrict lending.

Period	GDPG	PR	CRG
1	-0.091873 (0.09246)	0.000000 (0.00000)	0.004611 (0.00303)
2	-0.273679 (0.13286)	-0.001173 (0.00126)	-0.000724 (0.00446)
3	0.081275 (0.18269)	-0.001011 (0.00171)	3.04E-05 (0.00432)
4	0.047967 (0.17601)	-0.000263 (0.00187)	0.003186 (0.00319)
5	-0.013794 (0.14486)	0.000508 (0.00178)	-0.001394 (0.00325)
6	-0.044935 (0.09877)	0.000738 (0.00149)	-0.001294 (0.00259)
7	-0.003625 (0.08340)	0.000510 (0.00102)	5.90E-05 (0.00196)
8	0.056903 (0.07302)	0.000309 (0.00064)	0.000483 (0.00168)
9	-0.017148 (0.06556)	0.000242 (0.00048)	0.000279 (0.00143)
10	-0.023550 (0.05953)	0.000108 (0.00043)	-0.000709 (0.00130)
11	0.003715 (0.04802)	-4.09E-05 (0.00038)	0.000173 (0.00113)
12	0.011485 (0.04396)	-8.37E-05 (0.00031)	0.000404 (0.00091)

Cholesky One S.D. (d.f. adjusted)
Cholesky ordering: PR INF GDPG CRG
Standard errors: Analytic

Response to Cholesky One S.D. (d.f. adjusted) Innovations
± 2 analytic asymptotic S.E.s

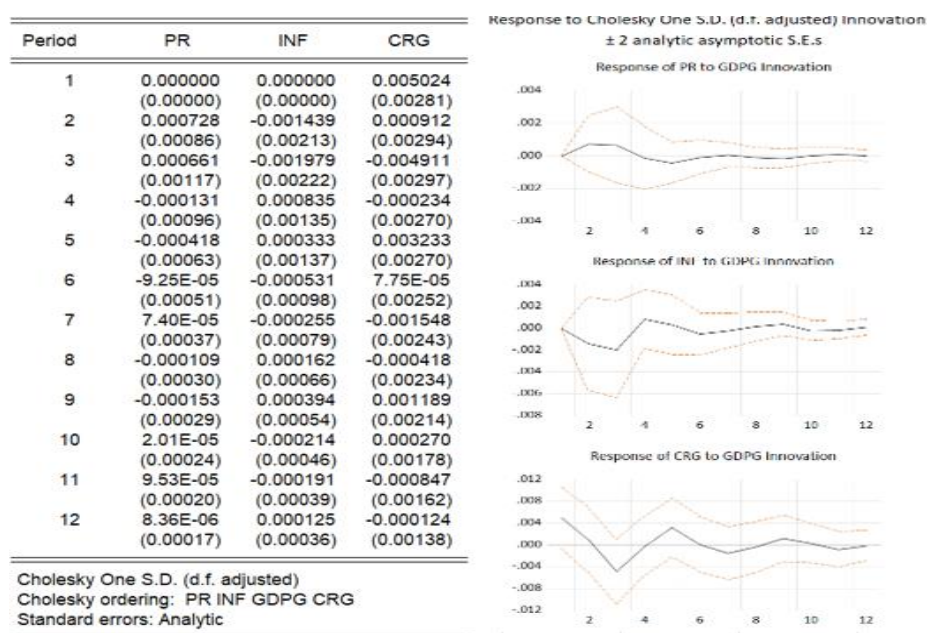


Source: Own elaboration based on EViews output. VAR Model.

c. Response to GDP Growth

- **Policy Rate:** almost there is no reaction, it means that Monetary policy does not respond strongly to growth changes.

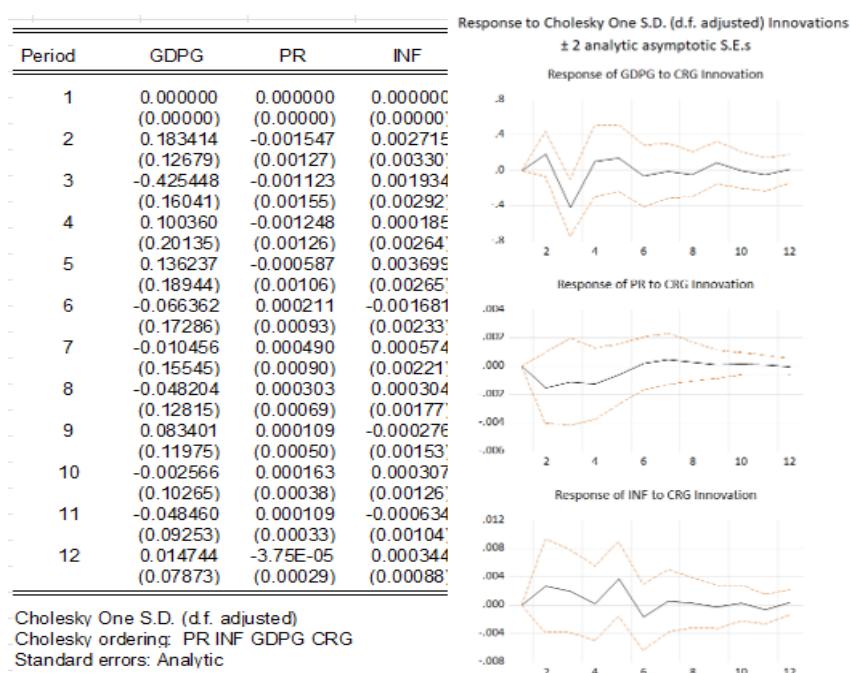
- **Inflation:** Small effect, growth does not easily pass through to prices.
- **Credit Growth:** Shows that lending reacts more to growth than any of the variable.



Source: Own elaboration based on EViews output. VAR Model.

d. Response to Credit Growth

- **GDP Growth:** Increase visibly, that means credit expansion supports economic activity.
- **Policy Rate:** No effect showed, weak relation with interest rate.
- **Inflation:** Moderate effect temporary, credit has little effect on inflation.



Source: Own elaboration based on EViews output. VAR Model.

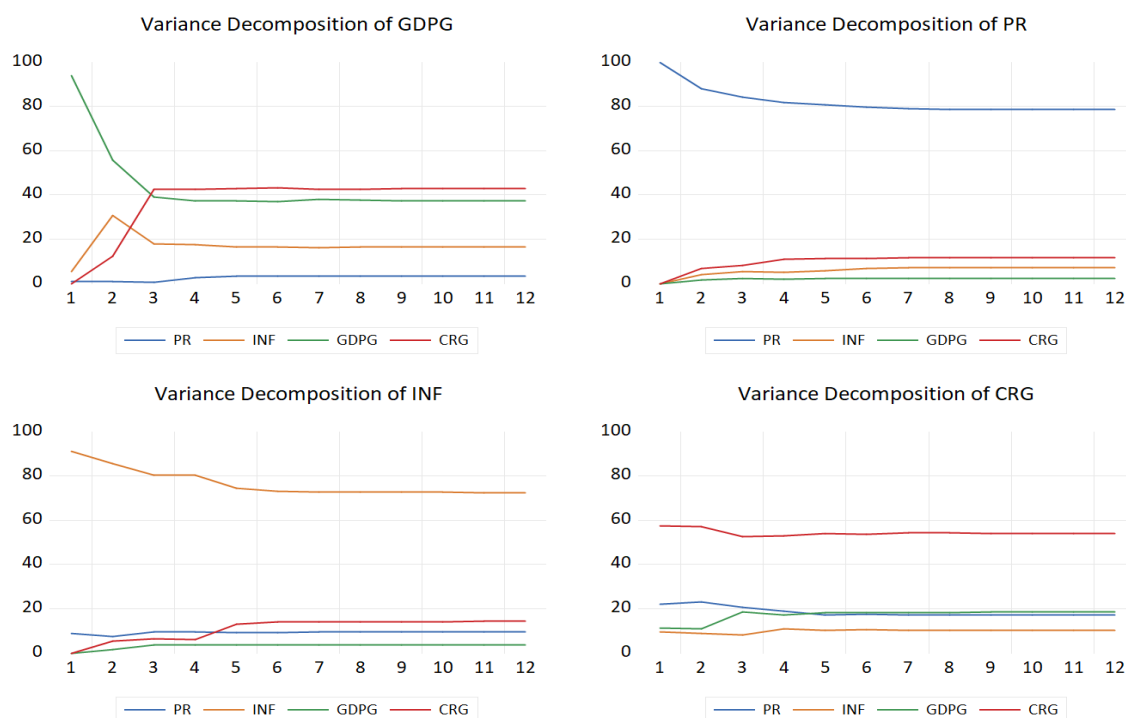
3.2.5. Variance Decomposition-FEVD

Variance Decomposition of GDPG:						Variance Decomposition of PR:					
Period	S.E.	PR	INF	GDPG	CRG	Period	S.E.	PR	INF	GDPG	CRG
1	0.004025	0.897697	5.290738	93.81157	0.000000	1	0.010609	100.0000	0.000000	0.000000	0.000000
2	0.005976	0.843678	30.90100	55.78210	12.47322	2	0.011621	87.96022	3.851852	1.483519	6.704407
3	0.006699	0.522181	17.82728	39.10788	42.54266	3	0.012998	84.36001	5.340377	2.154340	8.145269
4	0.006913	2.660557	17.44516	37.39705	42.49723	4	0.013374	81.87331	5.159970	2.059283	10.90743
5	0.006973	3.307218	16.33250	37.37604	42.98424	5	0.013892	80.58358	5.602847	2.383172	11.43040
6	0.007026	3.368132	16.47909	36.94151	43.21127	6	0.014052	79.66496	6.622790	2.364535	11.34771
7	0.007087	3.352825	16.21840	37.88823	42.54054	7	0.014087	79.00579	7.028050	2.334908	11.63125
8	0.007117	3.322043	16.61427	37.53385	42.52984	8	0.014094	78.79167	7.156653	2.338376	11.71330
9	0.007128	3.271827	16.35664	37.46587	42.90566	9	0.014103	78.66984	7.250379	2.377656	11.70213
10	0.007131	3.349751	16.41996	37.39982	42.83047	10	0.014111	78.61195	7.267162	2.376478	11.74441
11	0.007132	3.346157	16.32575	37.36038	42.96771	11	0.014129	78.57711	7.267221	2.393282	11.76239
12	0.007133	3.360474	16.33406	37.33735	42.96812	12	0.014135	78.56516	7.279388	2.392893	11.76256

Variance Decomposition of INF:						Variance Decomposition of CRG:					
Period	S.E.	PR	INF	GDPG	CRG	Period	S.E.	PR	INF	GDPG	CRG
1	0.399420	8.939756	91.06024	0.000000	0.000000	1	0.015027	21.91268	9.415577	11.17880	57.49295
2	0.519329	7.453559	85.55450	1.532816	5.459122	2	0.015541	22.97125	9.020085	10.79579	57.21287
3	0.710312	9.660806	80.21623	3.544406	6.578562	3	0.016420	20.64155	8.080413	18.61431	52.66372
4	0.727175	9.626562	80.40307	3.737416	6.232952	4	0.017122	18.99502	10.89408	17.13893	52.97196
5	0.752311	9.075453	74.53613	3.521615	12.86680	5	0.018193	17.34655	10.23557	18.33763	54.08025
6	0.757093	9.192063	73.21721	3.584699	14.00603	6	0.018275	17.47493	10.64485	18.17477	53.70545
7	0.763207	9.446135	72.85369	3.599181	14.10100	7	0.018577	17.15539	10.30243	18.28255	54.25963
8	0.766873	9.443712	72.81228	3.609156	14.13485	8	0.018623	17.17674	10.31897	18.24276	54.26153
9	0.774051	9.446025	72.71787	3.682322	14.15378	9	0.018667	17.13481	10.29312	18.56334	54.00874
10	0.774740	9.444465	72.66863	3.701241	14.18566	10	0.018698	17.07874	10.40341	18.52340	53.99446
11	0.777027	9.421133	72.51761	3.710099	14.35116	11	0.018740	17.01608	10.36474	18.64349	53.97568
12	0.777349	9.424917	72.46083	3.714998	14.39926	12	0.018747	17.01818	10.40316	18.63334	53.94531

Source: Own elaboration based on EViews output. VAR Model.

Variance Decomposition using Cholesky (d.f. adjusted) Factors



Source: Own elaboration based on EViews output. VAR Model.

GDP Growth grows slowly, which means that credit expansion support economic activity.	Policy rate has a very small effect; it means the link with interest rate is weak.
The inflation moderate effect temporary, when credit impacted prices for a little.	Credit Growth has a limited influence from other variables; it responds mainly to its own shocks.

4. Residual Diagnostics

4.1. Residual Normality test (Jaques-Bera)

Component	Prob. Value	Decision
Skewness (Joint)	0.3803	Normal Distribution
Kurtosis (Joint)	0.1978	Normal Distribution
Jarque-Bera (Joint)	0.2504	Normal Distribution

Source: Own elaboration based on EViews output.

All profanities are higher than 5%, this means that we do not reject the null hypothesis. Which explained the validity of the model and the residuals are normally distributed.

5. Results and discussion

The empirical investigations showed that the policy rate has a weak impact on the inflation and GDP growth at the same time, which confirms that monetary transmission in Morocco remains limited.

Otherwise, the inflation is mainly explained by its own shocks, where credit growth is connected highly to economic activity than to interest rate fluctuation. These finding validate the first and the second hypotheses:

H1: Inflation impact is limited by policy rate.

H2: Growth depends more on external shocks than on monetary policy.

In addition, credit to private sector is resilient as it reacts also to its own process, which supports the third hypothese:

H3: Credit to private sector is resilient due to state support.

At last, the link between GDP growth and credit expansion is positive which resume that expansionary policies are more effective than tightening, supporting the last hypothese:

H4: Expansionary policies perform better than tightening.

6. Regional Comparative Perspective

Insights from Maghreb and West African Economies to provide a broader understanding of Morocco's post-crisis monetary policy, it is important to compare its experience with other Maghreb and West African economies. Following the COVID-19 pandemic, most countries in the region faced similar macroeconomic challenges, a sharp decline in growth, rising inflation, and liquidity constraints. However, the responses of central banks differed significantly depending on their economic structure and policy space. In Morocco, Bank Al-Maghrib implemented a gradual and measured approach by cutting the key policy rate by 75 basis points between 2020 and 2022. This decision aimed to sustain credit to the private sector while preventing a surge in inflation. The policy proved effective in

maintaining a stable financial environment, with inflation contained below the regional average and banking liquidity improving progressively.

By comparison, Tunisia adopted a more restrictive stance due to persistent inflationary pressures and weaker external reserves. The Central Bank of Tunisia maintained a higher policy rate throughout the recovery period, prioritizing price stability over growth stimulus. As a result, the transmission of monetary easing to the real economy remained limited. In West Africa, the Central Bank of West African States (BCEAO) pursued an expansionary policy but within a fixed exchange rate framework tied to the euro. The BCEAO kept its policy rate stable while introducing targeted refinancing operations to support commercial banks. This helped mitigate the impact of the crisis but constrained monetary autonomy, making the recovery more dependent on fiscal measures.

Overall, Morocco's strategy stands out for its balanced and cautious mix of monetary flexibility and financial prudence. Unlike many African peers that faced inflation spikes or capital outflows, Morocco managed to restore growth while preserving macroeconomic stability. This comparative analysis suggests that Morocco's post-crisis monetary framework can serve as a model for other emerging economies seeking to maintain stability in times of global uncertainty. Such regional comparisons underline that the effectiveness of monetary policy depends not only on the level of interest rates but also on the institutional credibility, coordination with fiscal authorities, and structural resilience of the banking sector — areas where Morocco has shown consistent progress in recent years.

Conclusion

This study reveals that the transmission of conventional monetary policy through the policy rate in Morocco remains limited, particularly during periods of crisis such as the COVID-19 pandemic. The weak effect of the policy rate on both GDP growth and inflation indicates that interest rate adjustments alone are not sufficient to stimulate the real economy. For Bank Al-Maghrib, these results highlight the need to diversify and strengthen the monetary policy toolkit. Complementary instruments — such as macroprudential measures, targeted credit programs, and innovative transmission channels — should be further developed to enhance the effectiveness of policy actions and improve control over inflation and economic financing.

From the government's perspective, the findings stress the importance of closer coordination between monetary and fiscal policies to foster growth. Since credit plays a central role in supporting economic activity, ensuring a stable and inclusive financial environment that

facilitates access to financing, especially for SMEs, is crucial for long-term resilience and recovery.

Overall, the results call for an integrated and multidimensional policy approach in Morocco, where Bank Al-Maghrib and fiscal authorities work hand in hand to design measures adapted to the country's structural characteristics and evolving challenges. Such collaboration would strengthen Morocco's capacity to achieve sustainable growth and macroeconomic stability.

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