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THE IMPACT OF MONETARY POLICY ON THE COOPERATIVE SECTOR: A COMPREHENSIVE ANALYSIS OF ITS ROLE IN COLOMBIA'S ECONOMIC STABILITY OVER THE LAST 5 YEARS

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Abstract
Colombia, akin to numerous other nations, is grappling with substantial economic transformations in the wake of the pandemic, the Russian invasion of Ukraine, and the prevailing cost-of-living crisis. In response to these challenges, the nation has adopted a series of measures aimed at tightening monetary policies. The fundamental objective of these measures is to ensure the economic sustainability of the nation in the short, medium, and long term. The present study aims to evaluate the financial impact on the cooperative sector in relation to the monetary policy measures employed as a mechanism of economic stability in Colombia over the past five years. An examination was conducted of a sample of savings and credit cooperatives, along with their financial reports from 2019 to 2023. The findings indicate that the profitability, solvency, and access to credit of these cooperatives have been adversely affected. However, the analysis also underscores the capacity for adaptation and innovation within the cooperative sector, as well as the opportunities that emerge in an ever-changing economic environment. This analysis underscores the importance of cooperatives as financial institutions and as key agents for promoting social inclusion and sustainable economic development in Colombia.

Keywords. Monetary policy, Economic stability, Cooperative, Interest rates, COVID-19, sustainable economic development

1. Introduction

Over the past five years, the Colombian economy has confronted a series of substantial challenges, which have evaluated its resilience and adaptability. The economic consequences of the post-pandemic recovery, which have had a profound impact on the country's social and financial infrastructure, in conjunction with the escalating volatility of international markets, have precipitated a deceleration in economic growth, an escalation in inflation, and a surge in interest rates. These factors have compelled the government to promptly implement measures to enhance sustainable development and address the economic disparities resulting from these crises.

The Bank of the Republic has conducted an analysis of the direct impact of these variations on the country's economy. The average unemployment rate in Colombia has been 12.39% during this period, and this has coincided with a decrease in the income of Colombian households. Consequently, there has been a reduction in the demand for services and products. In this context, economic stability has become a priority for both the government and financial institutions. (Banco de la República, 2024b). According to the International Monetary Fund (2023), the efficacy of monetary policy is contingent upon its ability to adapt and demonstrate flexibility in response to the evolving dynamics of the economic environment. This assertion underscores the significance of effective management in periods of uncertainty. (International Monetary Fund, n.d.).

In this context, economic stability has become a priority for the government and financial institutions through monetary policy. This policy has played a crucial role, acting as a key instrument for the economy and mitigating the adverse effects of crises through the regulation of the money supply and interest rates (Bloise, G. &Polemarchakis, H., 2006).

For this reason, the financial system became a primary focal point for the implementation of measures and the formulation of policies. This was due to its indirect role in mitigating the risks associated with interconnected balance sheets. The financial system was responsible for mobilizing savings and credit, thereby enabling the elimination of uncertainty among individuals and companies due to coverage. It facilitated exchange, grouping, and pricing in the face of risk. As stated in the work of Herring &Santomero (1991), as referenced in the study by Arbeláez et al. (2020).

The financial sector exerts a significant influence on long-term economic growth, as it serves to drive investment and optimize the utilization of capital. Financial institutions have been shown to mobilize and allocate resources in an efficient manner, thereby promoting productivity and facilitating the accumulation of capital for reinvestment. In response to financial crises, the system has undergone a process of regulation, resulting in an increased emphasis on the cooperative sector during periods of economic downturn. This sector offers stability and access to credit in circumstances where commercial banks are unable to provide them, thereby contributing to a more equitable distribution of wealth and income.

Cooperatives have been identified as playing a crucial role in Colombia's economic and social development in rural areas and marginalized communities. These organizations are guided by the principles of solidarity, democracy, and participation, and they provide financial services and promote social and economic inclusion. The aforementioned agents of change have been identified as key contributors to the long-term sustainability of families, a factor that has been demonstrated to reduce vulnerability and improve economic security (Sims & Rodríguez-Corcho, 2022). Financial cooperatives, in particular, have been identified as a primary axis of economic stability and wealth distribution. The provision of safe deposits and credit to households, small, and medium-sized enterprises by financial cooperatives has been shown to influence their efficiency and sustainability (McKillop et al., 2020).

In the challenging economic context of recent years, monetary policy has established itself as a crucial tool to achieve financial stability. In this scenario, the cooperative sector plays a fundamental role in the economic and social development of the country, acting as an engine of growth and a refuge from uncertainty.

The objective of this study is to analyze the impact of the monetary policy measures implemented by the Bank of the Republic over the past five years on the financial performance of the Colombian cooperative sector. The objective of this study is to evaluate the impact of these policies on the stability and economic dynamics of cooperatives. Specifically, the study seeks to identify the direct effects of these policies on key financial variables, such as profitability, liquidity, and solvency.

This study aims to contribute to a better understanding of the transmission mechanisms of monetary policies by considering the cooperative sector as an essential actor in the Colombian economy. Furthermore, the objective is to formulate recommendations for public policies that will fortify financial stability and encourage sustainable development in the nation. This will ensure that the cooperative sector maintains its pivotal role in the national economy.

The article's structure is delineated as such: The second section of the document presents a review of the relevant literature. The third section delineates the methodology that was employed, including the variables and the sample. The fourth section details the results of the study. The fifth section offers a discussion of the results and presents the conclusions.

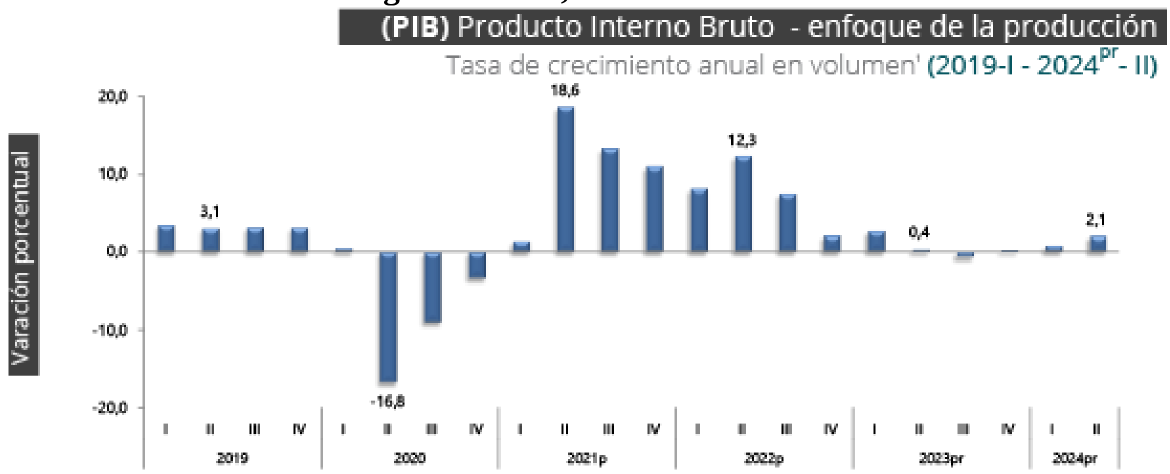
2. Literature review

2.1 Economic Slowdown in Colombia in the Last 5 Years

The economic downturn in Colombia has proven to be a multifaceted phenomenon, influenced by both domestic and international factors. According to the World Bank (2023), Colombia's robust institutional macroeconomic environment has been instrumental in ensuring its stability. However, Corficolombiana (2023) has indicated that the deceleration has been exacerbated by political uncertainty and a paucity of clarity in economic policies, which has engendered distrust among investors and impacted decision-making. It is imperative to acknowledge that this deceleration is not an isolated occurrence, but rather is situated within a broader global context. However, the repercussions of exogenous shocks upon the Colombian economy have been exacerbated by domestic factors, including but not limited to low productivity and inequality.

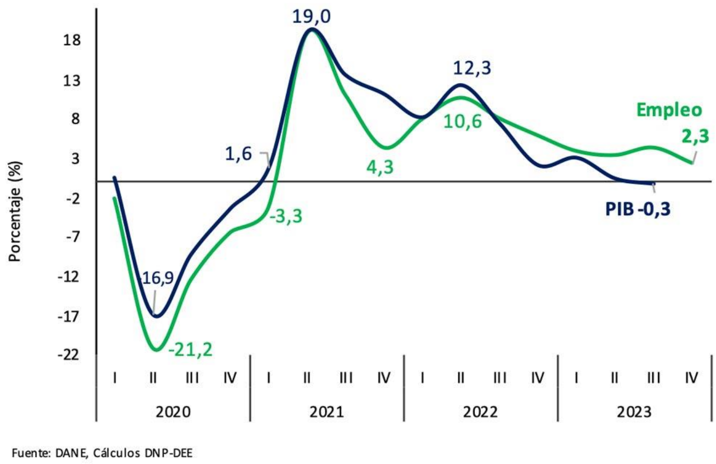
The economic downturn experienced by Colombia over the past five years has precipitated a series of deleterious repercussions on the nation's productive infrastructure. A salient consequence of this dynamic is the observable decline in economic growth. According to the World Bank (2023), the GDP growth rate has decreased significantly compared to previous periods. The economic contraction has been reflected in a decrease in private investment, due to the aforementioned uncertainty and lower expected profitability. Negative periods of up to -16.8 and low growth in recent quarters have contributed to this phenomenon.

Figure 1. GDP, 2019-2024 DANE



Consequently, the economic slowdown has precipitated an uptick in unemployment, particularly within sectors such as construction and commerce. The National Administrative Department of Statistics (DANE) has reported an unemployment increase of -16.9% in 2020, with a recovery of 2.3% projected for 2023. This has resulted in a deterioration of public finances, attributable to the decline in tax revenues. As Jiménez and Gómez Sabaini (2009) have demonstrated, a considerable diminution in tax revenues has been observed, a consequence of the economic downturn and the decline in the level of economic activity, as well as the decline in commodity prices.

Figure 2. Unemployment, 2020-2023 DANE



Conversely, the economic slowdown has exerted a substantial influence on the external sector. The decline in external demand and the subsequent decrease in commodity prices have had a deleterious effect on exports and the balance of payments. Moreover, the prevailing economic uncertainty has had a deleterious effect on foreign direct investment. Therefore, it is evident that the Colombian economy has exhibited significant social ramifications, exerting a substantial impact on the well-being of substantial segments of the population. A particularly salient concern is the escalating prevalence of poverty and inequality.

The decline in household incomes has constrained their access to fundamental services, including health and education, thereby compromising the quality of public services and impeding the development of human capital within the nation. Moreover, the economic crisis has exacerbated food insecurity in certain regions, particularly those with a high degree of reliance on agriculture. The economic downturn has also had ramifications for the labor market, giving rise to heightened job insecurity and a decline in the purchasing power of workers. Consequently, a substantial proportion of informality and the underground economy have been documented (DANE, 2023).

2.2 Monetary Policy in Colombia

Monetary policy constitutes a pivotal instrument utilized by central banks to regulate a nation's economic landscape. The central bank's objectives are to regulate the money supply and interest rates, thereby pursuing macroeconomic goals such as price stability, full employment, and economic growth (Immanuel & Yayamo, 2020). This is an issued regulation that influences interest rates, thereby affecting aggregate demand, employment, and inflation in the economy. It is used to stabilize business cycles (King, n.d.).

Central banks utilize a range of instruments to execute their monetary policies, including the short-term interest rate and the monetary base, which are pivotal in influencing the economy (Bordo, 2010). Moreover, central banks are capable of conducting open market operations, which entail the purchase or sale of government debt with the objective of adjusting the supply of money in circulation (Burke, 2021). These actions have a direct impact on the economy because, by modifying interest rates, central banks can stimulate or slow down economic activity, thus achieving their objectives of stability and growth

(Friedman, 2000).

Monetary policy has undergone a remarkable evolution over time, adapting to changing global economic needs and challenges. In particular, it has incorporated innovative approaches such as quantitative easing (QE) to deal with economic crisis situations (Burke, 2021). These instruments have enabled central banks to exert influence over market expectations and to provide additional liquidity during periods of elevated uncertainty and economic recession.

Conversely, Modern Monetary Theory (MMT) has emerged as an alternative perspective that challenges traditional conceptions of economic management (Burke, 2021). According to MMT, sovereign governments, which issue their own currency, are not constrained by the same financial limits that households or businesses face. According to this theoretical framework, governments are capable of financing substantial public investments and expansionary policies without significant concern for the deficit, provided that inflation remains within acceptable limits. This approach has gained prominence in recent debates, particularly in contexts where fiscal responses are necessary to stimulate growth and address structural inequalities.

The implementation of monetary policy must carefully balance price stability with overall economic stability. This objective encompasses not only the regulation of inflation, but also the promotion of sustainable economic growth and the attainment of full employment. Achieving these objectives simultaneously necessitates precise and flexible management of the available monetary tools.

Moreover, the political autonomy of the central bank is imperative to the efficacy of monetary policy. An autonomous institution, liberated from immediate political pressures, is capable of making decisions based on long-term economic objectives rather than responding to short-term political interests (Walsh & Woodford, 2005). This autonomy is instrumental in safeguarding the central bank's credibility, a prerequisite for sustaining market confidence and adeptly managing economic expectations.

In the context of Colombia, the field of Monetary Policy Theory plays a pivotal role in the nation's macroeconomic management. The Bank of the Republic serves as the primary institution responsible for implementing and supervising monetary policy. The primary objective of this policy is to curtail inflation, which is regarded as one of the nation's most pressing economic concerns. The money supply and interest rates are managed by the Bank of the Republic to influence aggregate demand, with the aim of keeping inflation within a target range, generally between 2% and 4% (Burke, 2021).

To this end, the primary objective of the Bank of the Republic is to maintain low and stable inflation. This objective is essential to preserve the purchasing power of the currency and promote a predictable economic environment that favors investment and savings (Banco de la República, 2024b). Moreover, the objective of monetary policy is to support sustainable economic growth, thereby contributing to the generation of employment and the enhancement of the living conditions of the population. Financial stability is also a central objective, especially in a country where external shocks, such as price volatility in services, can have a significant impact on the economy (Gil-León, 2020).

Banco de la República employs a range of instruments to implement monetary policy in Colombia. A number of the aforementioned entities are associated with the financial sector.

Table 1. Monetary policy instruments

Instrument	Purpose
Intervention rate	This is the interest rate that the Bank of the Republic charges financial institutions for short-term loans. It is a key tool for influencing market interest rates and, therefore, aggregate demand and inflation.
Open Market Operations	Through the purchase and sale of securities, the Bank of the Republic regulates liquidity in the financial system, adjusting the amount of money in circulation.
Bank reserve requirements	It refers to the percentage of deposits that financial institutions must maintain as reserves in the Bank of the Republic. Modifying this percentage directly influences the ability of banks to grant credit, affecting the money supply.

Note: Prepared by the author from (*Policy Interest Rates | Bank of the Republic*, 2024)

It is imperative to underscore that its emphasis on maintaining low and stable inflation not only safeguards the purchasing power of the currency but also fosters an environment conducive to investment and savings. This is imperative for sustainable economic growth and the enhancement of the population's living conditions.

Financial stability, particularly in the face of external shocks, constitutes an additional fundamental pillar of its strategy. The instruments employed by the Banco de la República, including the intervention rate, open market operations, and bank reserve requirements, serve as pivotal mechanisms that empower the institution to regulate liquidity, impact interest rates, and thereby exert control over the money supply.

Accordingly, the Bank of the Republic is established as a pivotal entity for the nation's economic well-being, striving to maintain a equilibrium that prioritizes both economic expansion and financial stability.

2.3 The Role of Credit Unions in the Colombian Economy

The role of credit unions (CACs) in the Colombian economy is critical, especially in terms of financial inclusion and local economic development. These cooperatives function as financial intermediaries in regions where traditional banking has a limited or non-existent presence, thereby facilitating access to fundamental financial services to populations that would otherwise be excluded from the formal financial system. Presently, CACs are present in 71.9% of the country's departments, signifying their role as a pivotal entity in promoting financial inclusion in rural areas and remote municipalities (Díaz, Jhon, 2024).

The growth of the cooperative sector is evidenced by the increasing number of members. In the last five years, the CACs have registered an increase of more than 600,000 new members, reaching a total of 4,237,534 associates (Banco de la República, 2024a).

This growth is indicative of the population's confidence in cooperatives and their capacity to address the financial needs of an expanding demographic. Cooperatives offer a diverse portfolio of financial products, including traditional savings and credit accounts, as well as microcredits and other products tailored to meet the needs of unbanked sectors, such as small producers and rural entrepreneurs. This diversity of financial services has been demonstrated to contribute to the economic stability of communities by facilitating investment in local projects that generate employment and promote economic growth in the regions where they operate (Kravec &Jurevičienė, 2022).

In terms of their economic impact, credit unions assume a significant role in the promotion of local economic development. By offering access to credit and savings services, they enable both individuals and small businesses to invest in productive projects, which in turn stimulates job creation and strengthens local economies. Despite their relatively modest market share in comparison to commercial banks, with assets amounting to 20.2 trillion pesos (equivalent to 2.0% of the assets of credit institutions), the impact of credit cooperatives (CACs) on the economy is significant, particularly with regard to financial inclusion and regional development (Superfinanciera, 2024).

The stability and sustainability of the cooperative sector in Colombia is supported by a robust regulatory framework. The CACs are subject to oversight by the Superintendence of Solidarity Economy, which aims to ensure the transparency and efficiency of their operations and to safeguard the savings of their members. This regulatory framework is pivotal in fostering public confidence in these institutions and ensuring their viability and safety as an alternative to traditional banking services.

As demonstrated, credit unions in Colombia fulfill a pivotal function in the promotion of financial inclusion, local economic development, and the country's financial stability. Their presence in rural areas and their capacity to offer financial products tailored to the needs of unbanked populations contribute to the strengthening of the economy, while offering a reliable alternative to traditional financial institutions. The state's ongoing supervision and regulation of these cooperatives is instrumental in maintaining their status as a foundational element within the Colombian financial system.

2.4 Santander as a Fundamental Pillar in Cooperativism

The department of Santander, located in Colombia, has been a prominent proponent of cooperativism within the nation. This region has developed a cooperative model predicated on the values of solidarity, mutual aid, and sustainable development, which has enabled Santander's cooperatives to become a fundamental pillar for economic and social growth, both within the region and on a national scale (Confecoop, n.d.).

The cooperative movement in Santander has a long history, dating back to the early 20th century. The region, renowned for its robust tradition of entrepreneurship and collective action, adopted the cooperative model as a response to the socioeconomic disparities that afflicted both rural and urban communities. The initial cooperative enterprises in Santander concentrated on savings and credit, enabling residents to access financial services that were previously inaccessible within conventional banking models.

The role of savings and credit cooperatives in the economic development of the region has been significant, particularly in sectors such as agriculture, commerce, and artisanal production (Bombón Orellana & Pacheco Rodríguez, 2021). Cooperativism has facilitated the establishment of employment opportunities, the provision of financial resources to small entrepreneurs, and the enhancement of quality of life in underprivileged communities. According to data from the Confederation of Cooperatives of Colombia (Confecoop), Santander has been a leader in the establishment of agricultural cooperatives, thereby enhancing the productivity of sectors such as coffee and cocoa, which are the region's primary products (ECLAC, FAO and IICA. – San José, C.R, 2022)

2.5 Cooperativism as an Agent of Social Inclusion

The economic impact of cooperativism in Santander has been significant, but its role in fostering social inclusion is equally noteworthy. Cooperatives foster member participation in decision-making processes and ensure the equitable distribution of profits. This characteristic has rendered the cooperative model fundamental in the fight against poverty and inequality in the region (Vargas Prieto et al., 2022). Furthermore, cooperatives have played a pivotal role in facilitating access to fundamental services, including education and healthcare. In Santander, certain worker cooperatives have established support systems for their members, facilitating access to technical and higher education, as well as supplementary health services.

The experience in question has served as a model for the rest of the country. A significant number of cooperatives in disparate regions of Colombia have emulated Santander's model with regard to organizational structure, sustainability, and a pronounced emphasis on community engagement. Moreover, Santander's cooperative movement has garnered international acclaim (Confecoop, 2024). Representatives of regional cooperatives have engaged in global forums on cooperativism, wherein they have presented their success narratives and demonstrated the adaptability of this model to diverse economic and social contexts.

Cooperativism in the region has been a fundamental pillar for development, and its focus on solidarity, sustainable development, and social inclusion has made it a model to follow, both nationally and internationally. The impact of cooperativism in this region has been demonstrated to transcend economic borders, thereby promoting a culture of cooperation that has been shown to strengthen the social and economic fabric of Santander.

3. Materials and methods

The research methodology employed in this study employs a mixed approach, integrating quantitative and qualitative techniques to obtain a comprehensive understanding of the phenomenon. In the quantitative approach, data from official sources such as the Bank of the Republic and the Superintendence of Corporations were used. These data were related to interest rates, financial indicators of cooperatives (profitability, solvency, access to credit), and macroeconomic variables. These data were then subjected to a statistical analysis, which identified correlations and trends that reflect the impact of monetary policies.

Conversely, the qualitative approach encompasses the execution of a documentary review, an analysis of financial reports of cooperatives, documents on monetary policies, and academic literature. This review enables us to contextualize the impact of policies on the sector and to contrast empirical findings with theory. Furthermore, an examination of the monetary policies implemented in Colombia in recent years was conducted to ascertain their direct relationship with the cooperative sector.

In the context of the comparative method, the performance of multiple cooperatives, categorized based on size and geographical location, was examined to identify common patterns or discrepancies in their response to monetary policies. Key financial indicators, including profitability, liquidity, indebtedness, and the quality of the loan portfolio, were evaluated before and after the implementation of these policies to measure their direct impact.

The analysis incorporated a multifaceted approach, entailing the integration of quantitative findings with qualitative insights derived from interviews and case studies. This integration, known as data triangulation, was a pivotal element in the analysis. The integration of methods enabled the corroboration of the findings and the elaboration of

the results.
In the final phase of the study, a trend analysis was conducted over a period of five years. This analysis assessed how the cooperatives' financial indicators varied in response to monetary policies. This approach was successful in identifying long-term patterns and the sustainability of the strategies adopted by cooperatives.

3.1 Population and sample

The population of this study consists of all the cooperative entities registered in the department of Santander, according to the Superintendence of Societies. A total of 476 entities have been identified, which are distributed as follows.

Table 2. Cooperative entities registered in the department of Santander

Entity Type	Quantity	Sector Supervision
Cooperative public administrations	4	Associative
Contributions and credit	8	Associative
Mutual Associations	8	Associative
Worker cooperatives	70	Associative
Specialized in savings and credit	18	Financial
Specialized without savings section	88	Associative
Employee Funds	82	Associative
Specialized auxiliary institutions	7	Associative
Integral without savings section	22	Associative
Multi-asset with savings and credit	5	Financial
Multi-active without savings section	149	Associative
Economic body	1	Associative
Representative body	2	Associative
Other organizations	3	Associative
Pre-cooperatives	4	Associative

The total population of 476 cooperative entities is reduced to a sample of 26 entities that belong to Santander's Savings and Credit sector. This sample contributes to the results obtained being representative and applicable to the entities that play a crucial role in the cooperative financial system of the region.
For the selection of the sample, a non-probabilistic type of sampling was used for convenience, where the selection of participants presents characteristics and inclusion criteria established as follows:

- Cooperative type: Multi-active with savings and credit and Specialized savings and credit
- Registration and Reporting: Only those entities that are registered with the Superintendence of Companies and that report financial information on a regular basis are included.
- Location: The selected cooperatives must be located in the 7 provinces of the department of Santander such as: Metropolitana, Soto, Magdalena Medio, García Rovira, Comunera, Guanentá and Vélez, which are the areas of interest for the study.
- Economy sizes: Top, Small, Micro, Megas, Medium and Large

Based on these criteria, a total of 23 entities that meet the requirements to be included in the sample were determined.

The methodology used is based on inclusion criteria, ensuring that the selected entities are relevant to the analysis, and that they reflect the reality of financial cooperativism in Santander. By considering factors such as the type of cooperative, its registration and reporting to the Superintendence of Corporations, as well as its geographical location and economic size, it is ensured that the results obtained are applicable and significant.

4. Results

4.1 Monetary Policy Developments in Cooperatives

In recent years, Colombia has experienced sustained economic growth, which has resulted in the formation of new cooperatives and solidarity enterprises. Despite the absence of specific policies tailored to the solidarity sector, the prevailing economic policy, with its emphasis on financial inclusion, has, albeit indirectly, redounded to the benefit of these organizations (Acosta Castillo et al., 2018). This context has enabled cooperatives to be more fully integrated into the national financial system.

The implementation of expansionary monetary policy has contributed to the stabilization of the Colombian peso, leading to a decline in interest rates. This has in turn facilitated access to credit for cooperatives at reduced costs. This has led to a notable expansion of the solidarity sector, characterized by an increase in operational activities and a refinement of its service offerings. Furthermore, these policies have been instrumental in promoting financial inclusion in rural areas and among vulnerable populations, primarily through the provision of financial education and the development of infrastructure.

Banco de la República has played a pivotal role in this process, promoting programs and tools that facilitate the evaluation of the performance of the cooperative sector and the design of more effective policies.

4.1.1 Impact of the COVID-19 Pandemic

The ongoing global pandemic has had a considerable effect on the solidarity sector, intensifying pre-existing challenges such as unemployment and informal employment. Cooperatives, which frequently depend on the informal sector for their operations, have been significantly impacted. The financial weakness inherent in their organizational structure has rendered these entities less capable of coping with a protracted crisis. The increase in unemployment and informality has led to a decrease in the capacity of cooperatives to operate, as many of these organizations depend on informal workers, making them vulnerable to sudden changes in the economy (Social Prosperity, n.d.).

Furthermore, cooperatives generally possess less robust organizational structures, which impedes their ability to withstand protracted crises and hinders their access to the financial resources and funding essential for sustained operations (International Monetary Fund, n.d.). Despite the government's efforts to provide support to the social and economic sectors, including significant allocations, this support has not been sufficient to cover all the needs of the solidarity sector. The measures implemented have included subsidies and tax relief, yet many sectors continue to face critical challenges due to a lack of liquidity and solvency (Ministry of Agriculture, n.d.). The contemporary landscape of the solidarity sector is intricate, characterized by a confluence of economic challenges and structural limitations. While government support has been a positive development, it is evident that more effective and specific measures are necessary to address the genuine needs of cooperatives and other entities in the solidarity sector (The Ministry of Commerce, Industry and Tourism, n.d.).

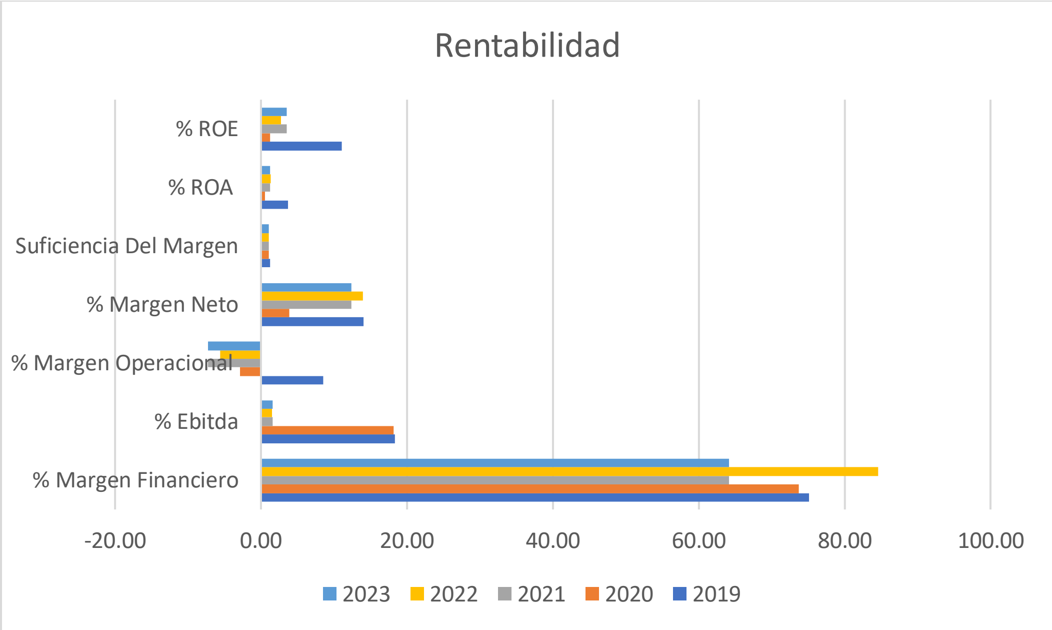
The evolution of monetary policies in Colombia has had a significant impact on the development of the cooperative sector. The promotion of favorable economic conditions, in conjunction with specific measures implemented during crises such as the pandemic, has contributed to the reinforcement of this alternative economic model. Nevertheless, it is imperative to persist in the formulation of bespoke policies that cater to the distinct requirements of the solidarity sector, thereby ensuring its sustainability and continued growth. Recent experience has highlighted both the challenges confronting this sector and its potential to serve as a catalyst for fostering a more inclusive and resilient economy.

4.2. Impact of monetary policies on financial performance

4.2.1 Impact of monetary policies on profitability

Profitability is a pivotal indicator of companies' financial performance, closely associated with monetary policy decisions. The capacity of cooperatives to generate profits is substantially influenced by fluctuations in interest rates and credit conditions.

Figure 3. Profitability as a key factor.



The impact of expansionary and restrictive monetary policies on the profitability of cooperatives was assessed by analyzing financial indicators from 2019 to 2023. In 2021, a low-interest rate environment, characteristic of expansionary monetary policies, drove growth in net income and sales. However, the financial margin underwent a contraction, indicative of diminished efficiency in generating interest income within a milieu of diminished interest rates. Notwithstanding this fact, ROE (Return on Equity) exhibited an increase, indicating a more efficient utilization of equity.

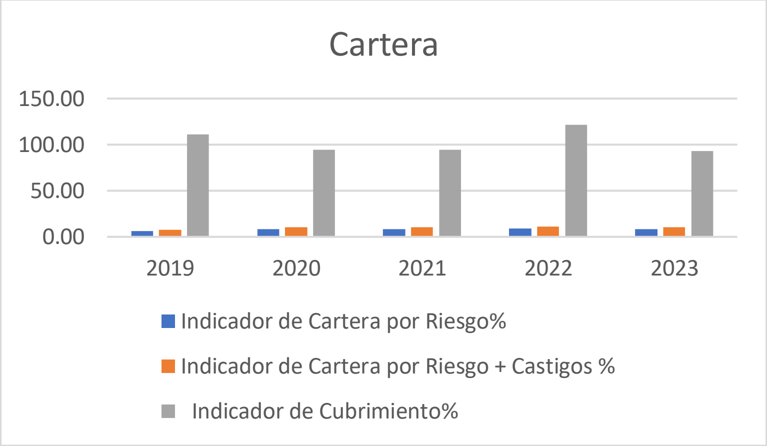
Conversely, in 2022, restrictive monetary policies and the subsequent increase in interest rates exerted pressure on the profitability of cooperatives. Net income exhibited a slight contraction, and the financial margin, while demonstrating recovery in comparison to 2021, continued to manifest volatility. Operating efficiency indicators, including EBITDA and operating margin, exhibited a consistent decline throughout the period under scrutiny, indicating ongoing difficulties in cost management.

The data presented in the graph indicate that the capacity of cooperatives to transfer fluctuations in interest rates to their revenues and sustain stable margins has been constrained. Furthermore, the volatility in profitability indicators indicates that cooperatives are confronted with difficulties in adapting to a fluctuating interest rate environment. Consequently, it is imperative that cooperatives fortify their risk and cost management strategies.

4.2.2. Impact of monetary policies on the portfolio

A cooperative's portfolio is its main asset and source of income. Its management is crucial for the stability and profitability of the institution.

Figure 4. Portfolio indicators by risk



The present study aims to analyze the effects of expansionary and restrictive monetary policies on the growth of the loan portfolio of cooperatives. In addition, the impact of these policies on portfolio quality and profitability will be examined. To this end, key portfolio indicators between 2019 and 2023 will be considered.

The implementation of expansionary monetary policies in the context of low interest rates has been observed to stimulate growth in the loan portfolio, thereby augmenting sales and net income. This phenomenon can be interpreted as indicative of a favorable dynamism within the sector. The Risk and Punishment Portfolio indicator for 2021 remained at the level of 8.23% and 10.11%, respectively, similar to 2020.

The 2021 Coverage Index registered at 94.28%, indicating a modest decline compared to the 2019 figure. This suggests a potential reduction in the level of risk protection.

In the context of restrictive monetary policies, an increase in interest rates was observed, which led to an increase in the cost of credit and a subsequent decline in loan demand, resulting in a contraction of sales and net income. The risk and punishment portfolio indicator for 2022 increased to 8.73% and 10.79%, respectively, indicating a deterioration in portfolio quality, possibly due to the difficulty of passing on costs to customers.

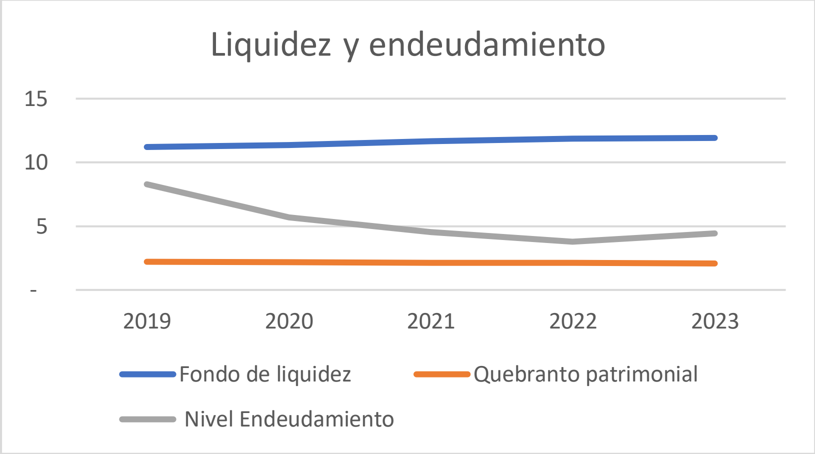
Conversely, the coverage indicator for the aforementioned term exhibited a substantial improvement, reaching 121.66%. This development could be attributed to the necessity for enhanced coverage in light of the escalating risk of delinquency.

In consideration of the year 2023, and notwithstanding the persistence of restrictive monetary policy, there was a marginal decline in the risk portfolio indicator to 8.65%, and a concomitant rise in the risk + punishment portfolio indicator to 10.72%. Concurrently, the coverage indicator experienced a decline, reaching 93.08%, a development that may be linked to modifications in the provision and management of the portfolio.

This analysis demonstrates the impact of monetary policies on the growth and quality of loan portfolios, as well as the risk-hedging decisions made by cooperatives in various economic environments.

4.2.3 Impact of monetary policies on indebtedness and liquidity

Figure 5. Impact of policies on indebtedness and liquidity



The debt management of cooperatives is significantly influenced by monetary policies. From 2019 to 2023, a downward trend in indebtedness was observed, despite the stability of the liquidity fund from 2021 onward. This suggests that cooperatives have prioritized greater solvency and financial stability, even during periods of low interest rates.

The rise in interest rates in 2022, concomitant with restrictive monetary policies, does not appear to have precipitated a pervasive liquidity crisis within the cooperative sector. However, the finding that 40% of cooperatives have experienced challenges in accessing credit during that period suggests that heightened financial constraints have exerted pressure on specific entities.

The combination of a declining level of indebtedness and a stable liquidity pool suggests that cooperatives have achieved a more prudent balance in their financial management. By decreasing their exposure to credit risk and preserving a robust liquidity position, cooperatives are more adept at confronting prospective economic turbulence.

4.2.4 Impact of monetary policies 2019-2023

The quantitative analysis reveals a discernible correlation between monetary policies and the financial performance of cooperatives. The implementation of expansionary policies has had a favorable impact on cooperatives, enhancing their liquidity and profitability. This has enabled them to fulfill their obligations and expand their operations. However, when policies become restrictive, the adverse effects become evident. These effects include a reduction in access to credit, a contraction in sales, and a fall in net income.

Table 3. Impact of monetary policies from 2019 to 2023

Year	**Monetary policy**	**Sales Growth**	**Net Income**	**Indebtedness**	**Remarks**
2019	Expansive	Positive growth	Significant increase	Stable	Accommodative policies boosted consumer spending. 29
2020	Cautious	Contraction	Sharp	Volatility	Economic uncertainty due

			decline		to the pandemic. 28
2021	Expansive	Positive growth	Increase	High	Lower interest rates stimulated consumption and investment. 28
2022	Restrictive	Slight shrinkage	Decrease	Increase	Higher interest rates affected demand and access to credit.
2023	Restrictive	Slight shrinkage	Decrease	Increase	Moderate inflation, financial restructuring

In 2019, amid an environment characterized by expansive monetary policy, the company experienced a positive growth in sales and a substantial increase in net income. The low interest rate environment provided a significant stimulus to consumer spending. The stability in indebtedness suggests that companies have been exercising prudent financial management.
In comparison to the year 2020, the economic uncertainty stemming from the pandemic resulted in a more cautious monetary policy. This strategic decision led to a contraction in sales and a precipitous decline in net income. The financial obligations of the entity in question exhibited signs of variability, a consequence of the prevailing ambiguity within the economic milieu.
In the aftermath of the pandemic, the economy experienced a recovery, prompting the implementation of expansionary monetary policies in 2021. The implementation of low interest rates resulted in a stimulatory effect on consumption and investment, thereby contributing to positive sales growth and an augmentation in net income. However, indebtedness reached elevated levels, which could be indicative of increased corporate leverage.
In the final analysis, the transition to restrictive monetary policies to control inflation in 2022 and 2023 resulted in a slight contraction in sales and a decrease in net income. The ongoing rise in indebtedness exhibited a decelerated trend, indicating a heightened degree of prudence among corporate entities in the context of the escalating costs associated with credit.

5 Discussion

The present study analyzes the impact of monetary policies on the cooperative sector in Colombia, revealing various theoretical and practical implications. From a theoretical standpoint, the interplay between monetary policy and economic stability enables cooperatives to function as a stabilizing mechanism during periods of economic turbulence. Despite the economic challenges faced, the cooperative sector has exhibited remarkable resilience and adaptability, thereby substantiating the significance of diversity within the financial system for ensuring comprehensive economic stability.
From a pragmatic standpoint, the findings underscore the imperative for policymakers to acknowledge the pivotal function that cooperatives fulfill within the economic landscape. This process entails the formulation of policies aimed at fortifying their operational capacity and facilitating access to financial resources. It is also recommended to promote a regulatory environment that facilitates innovation within the cooperative sector. This will allow these organizations to contribute effectively to the economic and social development of the country.
The monetary policy measures implemented by the Bank of the Republic have had significant effects on the profitability, solvency, and access to credit of savings and credit

cooperatives. Notwithstanding the aforementioned challenges, the sector has demonstrated a noteworthy capacity for adaptation and innovation, thereby suggesting the potential for cooperatives to play a pivotal role in fostering regional economic stability. Furthermore, it has been observed that the cooperative sector provides access to financial services during periods of critical need, when other institutions may demonstrate less responsiveness in terms of lending. This underscores their significance not only as economic entities but also as catalysts for social transformation, promoting financial inclusion and sustainable development.

It is imperative to acknowledge that monetary policies must be meticulously crafted with the unique characteristics of the cooperative sector in mind. It is recommended that future public policies be designed to create a regulatory environment that fosters innovation and growth within the cooperative sector. Additionally, the operational capacity of the cooperative sector should be strengthened. This study underscores the necessity for additional research to be conducted on the perceptions of these policies and their long-term impact on the sustainability of the sector. A comprehensive understanding of these aspects could facilitate the development of more effective policies, thereby ensuring balanced and sustainable development in Colombia.

5. Conclusions

Monetary policy has played a pivotal role in addressing recent economic challenges in Colombia, including the ongoing effects of the pandemic and the resulting cost-of-living crisis. Notwithstanding the aforementioned challenges, the cooperative sector has exhibited a noteworthy aptitude for adaptation and innovation. Modern Monetary Theory (MMT) posits that governments that issue their own currency can implement expansionary policies without encountering the typical constraints faced by households or firms. In this context, the Bank of the Republic may have greater capacity to implement expansionary policies, provided that inflation remains within acceptable limits.

Moreover, the argument is posited that economic fluctuations are primarily attributable to fluctuations in productivity. In Colombia, domestic factors such as low productivity and inequality have exacerbated the economic slowdown. This suggests that effective monetary policies must be complemented by structural reforms to enhance productivity and attain sustainable growth. From this perspective, it is essential to emphasize the importance of aggregate demand in order to boost economic growth. Consequently, adjusting interest rates could be crucial to revitalize the Colombian economy.

The interaction between monetary policy and the cooperative sector underscores contemporary challenges and concomitant opportunities for more inclusive and sustainable economic development. In order to fortify this sector and its contribution to economic stability, it is imperative to deliberate theoretical approaches such as Modern Monetary Theory (MMT) and to execute public policies that promote both access to credit and financial inclusion. Furthermore, it is imperative to implement reforms that will enhance productivity and mitigate structural inequalities. These measures are crucial for ensuring robust and equitable economic growth over the long term

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Conflict of interest
The authors declare that they have no conflict of interest in relation to the publication of this article.

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Author2: Conceptualization, Methodology, Validation, Review, Resources

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