Independence and Credibility of the Central Bank in a Situation of Financial Liberalization

LIPEMBU MANZINGO Béatrice ‡, NTAL ONIM Jean Pierre‡‡ & LONZO LUBU Gastonfils †
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Abstract
This study attempts to advance our knowledge of the role, conduct, and standing of a credible, independent central bank in its duty to uphold the general price level's stability. In other words, it involves examining the theoretical and empirical connections between the effectiveness of monetary policy and debt, as well as the connections between independence and the maintenance of price stability in the Congolese economy in a context of financial liberalization. The study's research hypothesis—that the Central Bank of Congo is legally autonomous under the new law 027 of December 18th2018 regarding its structure and operations confirmed after examination. Although the stability of the currency depends on its monetary policy, this policy's implementation does not give rise to its legitimacy. A trustworthy central bank is one that can maintain the general price level, which is its ultimate goal.

Keywords: Central Bank, financial liberalization, VAR

JEL Code: E58, E32, N20

Résumé
Ce papier a pour objectif de contribuer à une meilleure compréhension du rôle, du fonctionnement et du statut d'une Banque Centrale indépendante et crédible dans sa mission de maintenir la stabilité du niveau général des prix dans un contexte de libéralisation financière. En d'autres termes, il s'agit de tester les liens empiriques et théoriques entre la crédibilité et l'efficacité de la politique monétaire, ainsi que les liens entre l'indépendance et le maintien de la stabilité des prix dans l'économie congolaise. Après analyse, l'étude confirme son hypothèse de recherche selon laquelle la Banque Centrale du Congo est légalement indépendante en vertu de la nouvelle loi 027 du 18 décembre 2018 portant organisation et fonctionnement de la Banque Centrale du Congo. Cependant, elle n'est pas crédible dans la mise en pratique de sa politique monétaire, bien que la stabilité monétaire dépende de la politique monétaire. Une Banque Centrale crédible est celle qui est capable d'atteindre son objectif ultime, à savoir la stabilité du niveau général des prix.

Introduction
1. State of the question and problem

Benston writes, "The bank is a marvelous animal of research for the economist," alluding to the wealth of material that has been written about it since the early 1950s.

It is important to place our investigation in connection to other prior studies on the same issue in order to explain the problem that will be looked at. This will enable us to tackle the topic of our additional research.

In fact, it would be arrogant to assert that debt and central bank independence—the two major neologisms of contemporary theory and practice of monetary policy were first studied. The goal of price stability is what these ideas seek to accomplish. The following is a chronological grouping of the synthesis of research pertaining to our problem:

In his 1992 work titled "The Implications of Central Bank Independence for the European Central Bank", **Aglietta (1992)** discusses the implications of granting independence to the future European Central Bank, as stipulated by the Maastricht Treaty. This move was heavily criticized for its perceived democratic deficit, with many arguing that it was modeled after the German system. **Aglietta** delves into the underlying principles of central bank independence, scrutinizes the rationale behind anti-inflationary policy as being "fragile", and casts doubt on the validity of empirical evidence that links the success of disinflation with the autonomy of monetary authorities, using France as a case study.

In the end, an analysis is conducted to differentiate between legal and de facto independence of Central Banks in accordance with the laws governing them. Emphasis is placed on the necessity of monitoring the financial system, and the inadequacy of the Maastricht Treaty in this regard is highlighted.

Undoubtedly, the intricate relationship between the Central Bank and the government, as well as the financial sector and the economy, must be considered when discussing the autonomy of the Central Bank and the formulation of monetary policy. To gain a comprehensive understanding, comparative studies have been undertaken to examine monetary practices within their institutional and situational context. Through this approach, it becomes clear that all Central Banks have multiple objectives in their operations, which are weighed differently depending on the situation and the impact of a crisis mentality. Consequently, Central Banks require a high degree of flexibility to respond to unforeseeable economic shocks.

In his piece titled "The issue of self-rule and self-governance of Central Banks", **Noyer** (1992) examines the topic from the following perspective: the dilemma of the autonomy of Central Banks is frequently associated with the paradox of separating an economic policy entity from democratically elected power. This belief is founded on three key tenets: monetary policy is crucial to monetary stability; for it to be successful, it must be enduring; and lastly, political authority, susceptible to electoral influence, cannot ensure the durability of the battle against inflation.

Based on experience, the success of Germany in maintaining monetary stability seems to validate the concept of central bank independence, which the country has pushed to the extreme. A closer look at the statutes of central banks worldwide reveals that federal countries tend to grant independence, while unitary ones do not. This article presents the advantages (protection against inflation risks, simplified budget management) and disadvantages (overreliance on monetary policy for stability, potential risks for international financial cooperation and bank control) of central bank independence, acknowledging varying degrees of independence and the importance of dialogue with public authorities (**Artus, 1995).**

Nowadays, the topic of central bank independence is one that requires unbiased consideration. Though often linked to dogmatic views, it is crucial to contextualize the topic historically and consider the specifics of independence, including its scope and implementation. The authors of the Maastricht Treaty should be commended for their efforts to address these issues.

Bassoni and Cartapanis (2018)examine the debate surrounding central bank statutes and identify the main gray areas of the conventional autonomy thesis. They highlight the challenges of establishing an empirical link between central bank autonomy and macroeconomic performance, as well as uncertainties surrounding the theoretical foundations of the conventional approach to autonomy.

The level of self-governance that every central bank currently possesses is a consequence of its individual background and is reliant on both legal provisions and customary practices. This essentially reflects the way economic power is arranged within the state. Even though there is shared empirical proof, it cannot be regarded as a conclusive factor in macroeconomic performance.

However, the outcome of this analysis is that the autonomy of a Central Bank can only be relative, as **Goodhart** correctly asserts when he states that "an independent Central Bank will always require to maintain its effective backing and policies, ensuring that a satisfactory portion of the populace comprehends and accepts its objectives and actions". Does this imply that an "independent" Central Bank will inevitably become more "political" in its selections? This is a question that future central bankers cannot evade.

In his publication regarding the quest for the standards of a contemporary central bank, **Marwan**, **(2003)** compares the Banque du Liban, the Banque de France, and the European Central Bank, by recognizing the standards of a contemporary Central Bank in which the Banque du Liban could play its part. He identifies the primary shortcomings of the Banque du Liban concerning these three standards, which, according to him, describe a modern Central Bank, and which can be referred to in documents.

These criteria are as follows:

- Precise definition of the tasks of the Central Bank is crucial. It is imperative that the objectives are well-defined, feasible and relevant to the functions of a Central Bank, while

being complementary and non-overlapping. The primary and unambiguous objective is monetary policy;

- Institutional, instrumental, personal, collegial and financial autonomy is of utmost importance. However, this does not imply that the Bank operates in isolation or without accountability. It must be subject to financial, managerial and legal checks and balances;
- The Bank must be accountable by disclosing its monetary policy decisions and actions to the public and relevant authorities. Transparency must be ensured in all the Bank's activities and its role in accomplishing its assigned missions.
- Keeping these factors in mind, proposals for reforming the Banque du Liban could include:
- A clear delineation of its missions, with well-defined and complementary objectives that do not overlap;
- A single primary objective for monetary policy, namely maintaining price stability, and possibly a secondary objective of maintaining exchange rate stability;

• A strict prohibition on seeking or accepting instructions from the government or any other entity, for all members of the Central Council; etc.

Zouhaier (2006) assigning monetary policy to an independent Central Bank is a viable solution to tackle the issue of inflation. Although granting significant autonomy to the Central Bank aids in curbing inflation, it is crucial to acknowledge that it is dependent on various economic, political, and social factors. These factors are decisive in determining the level of autonomy that the Central Bank can enjoy.

The study aims to determine the correlation between the Central Bank's autonomy and inflation, as well as other controllable macroeconomic variables. To achieve this, the paper outlines the creation of different Cukierman indices. The approach to measuring legal independence is established, and the Tunisian Central Bank is used as a case study.

Ultimately, the Central Bank has some flexibility in managing its instruments, but it is legally obligated to maintain price stability. However, this autonomy is restricted by the objectives established by the government.

The situation in Tunisia is not an isolated case, as Cukierman has suggested new criteria to measure the difficulty of implementing legal autonomy in developing countries compared to developed ones. These two novel criteria consist of the evaluations of Central Bank experts and the rate of governor turnover. A high turnover rate indicates a lower level of independence for the Central Bank. This measure permits the validation of the essential hypothesis concerning the correlation between independence and inflation. The empirical findings support the theory that an autonomous central bank is significantly associated with reduced inflation. The adoption of independence thus guarantees price stability, without affecting other economic variables. While this measure is a trustworthy way to assess central bank independence in developing countries, its drawback is that the governor's length of service may suggest that they have yielded to government pressures. In response, **Cukierman & Webb** have proposed the index of political susceptibility.

In his research on "The Impact of Central Bank Independence on Economic Growth," **Nesrine Ressaissi (2008)** proposes to examine the relationship between independence and economic growth by presenting the arguments of both advocates and critics. The aim is to explore the various views on the impact of Central Bank independence on economic growth found in the literature and to compare them with actual economic data.

After analyzing the relationship between Central Bank independence and economic growth in a broad range of economies over an extended period, the study concludes that the impact of the degree of autonomy of monetary decisions on economic growth is not as significant as some authors claim. Central Bank independence is not a requirement for nor a guarantee of economic growth stimulation.

Artusand Virard (2016)center their attention on the function of banks in a context where, since the early 2000s and particularly since 2008, they have attempted to prevent a catastrophe that would be even more severe than that of 1929 by injecting billions of dollars or euros into the economy. Nowadays, the intervention of central banks is indispensable to revive growth, combat deflation, manage the debt issues of countries, or prevent the breakup of the euro.

Nonetheless, according to the authors, bankers have been unsuccessful in getting the economy back on track. To make matters worse, by inundating the market with liquidity, they are engaging in a hazardous game. Their inconsistency has led to a period of continuous financial crisis, in which every shock is even briefer and has devastating aftershocks.

The publication scrutinizes in detail the vicious cycle created by central banks and clarifies how an "ideal" monetary policy could contribute to prosperity, wealth creation, and job opportunities.

The book presents an unfavorable assessment of the Central Banks' quantitative easing policy. Although this policy was implemented to deal with the crisis, it has turned into an unmanageable whirlpool that has several negative financial repercussions, which are explained explicitly in the book. These interventions have no impact on credit expansion, inflation outlooks, or economic revival. Given this risky efficiency, the authors propose that central banks should consider growth as a more crucial objective and should no longer be independent (Artus, 1995).

Even though an independent central bank is preferable for guiding monetary policy, it should be moderately conservative. However, there is a possibility that if a central bank is too focused on maintaining price stability, it may not be able to carry out its stabilizing role effectively by counterbalancing unfavorable supply and demand shocks.

The authors' main focus is on ensuring the "reliability of the Central Bank of Congo by adhering to principles of openness". **Winkler, Eijffinger and Greaats (2014)**, as well as those of the IMF. During the 1990s, many central banks gained more autonomy from political authorities in developing and executing their monetary policies. They also made significant efforts to publicize and clarify their goals, strategies, and the reasoning behind their decisions in terms of monetary regulation.

The study's findings indicate that the Central Bank of Congo has followed this historical trend in the conduct of monetary authorities around the world. Since the early 2000s, several measures, regulatory and legal documents have been implemented to enhance the credibility of the Congolese Issuing Institute's monetary policy. However, there are still uncertainties, and the lack of transparency in some positions does not adequately reassure the market, despite achieving a statutory objective of reducing inflation from 135% in 2001 to 1.04% in 2014, compared to an average objective of 3.0%, although it is not yet fully accomplished. The CBC's new goal must be to seek credibility through frequent, clear, and genuine communication, explaining its past, present, and future decisions, as well as justifying its errors to enable the market to behave as desired by the authority.

In conclusion, it is crucial to uphold the principles of transparency to guarantee the accuracy of decisions made. Despite efforts to stabilize inflation, opacity has not been beneficial, which is why transparency is necessary to reassure the public and democratically oversee the actions of an independent central bank.

This research aims to examine the issue of central bank creation and independence in general, with a focus on the Democratic Republic of Congo and its primary objective of maintaining price stability. The Central Bank is responsible for monetary policy, and many changes have been made to the laws governing its activities to ensure the effectiveness of monetary policies. The primary objective of these changes is to establish a Central Bank that is independent of political power (**Bénassy-Quéré & Pisani-Ferry, (1994)**).

The necessity to ensure the autonomy of central banks arises from the apprehension that governments may wield the monetary tool capriciously prior to elections, in a bid to enhance their chances of re-election, disregarding the detrimental effects this can have on price stability, particularly in developing nations like the Democratic Republic of Congo. Since 2002, the primary objective of the Central Bank in this country has been to preserve the stability of the general price level independently, based on historical and theoretical considerations. This primary objective can be augmented by other goals, such as economic performance and employment within the jurisdiction of the Central Bank.

The implementation of institutional independence is a crucial pillar for central banks to achieve their ultimate objective of price stability. The rationale for this requirement is two-fold, stemming from the insights of macroeconomic theory, on one hand, and empirical observations, on the other. In terms of the teachings of economic theory, it is evident that an autonomous central bank will be better equipped to cultivate and sustain its support, as well as to withstand the pressures of interest groups (**Bénassy-Quéré & Pisani-Ferry, (1994)**).

The second foundation for justifying the achievement of low and stable inflation is based on empirical observations. It is crucial for the central bank to have independence to achieve this objective. While central bank independence has an impact on inflation, it does not affect other variables such as growth or unemployment.

The theory of inflationary bias supports the need for independence. This theory suggests that the central bank gains credibility through independence, which instills confidence in economic agents. As a result, they do not expect the central bank to renege on its monetary target, leading to a reduction in inflationary biases.

Reliability and autonomy are fundamental concepts that provide significant benefits to the central bank, especially when it seeks to convince the public of its commitment to maintaining price stability. These concepts are solid foundations on which modern monetary policy success is built, and they are an essential component of the new "quality standard" for central banks.

When economic actors perceive a monetary policy as credible, they take on most of the stabilization work, relieving the central bank. The perception of determination from the authorities and their reputation, which is derived from the institutional framework of the central bank, including its independence, transparency, and accountability, as well as the personality of its leaders, all play a role in this perception.

In light of the above, this article aims to examine the contentious issue of the establishment and independence of the central bank of the Democratic Republic of Congo and its impact on inflation results.

With the increasing interest in the issue of the central bank and its autonomy, the focus of this research centers on the following inquiry: "Can the independence of the Central Bank of Congo, along with its debt, effectively achieve its primary goal of ensuring price stability?" This study aims to provide an answer to this question.

A research problem inherently involves one or more research hypotheses. In the context of this study, the formulated hypothesis is as follows: "The independence and debt of the Central Bank of Congo have enabled it to achieve its primary objective of ensuring price stability." The fundamental idea is that the creation of a positive reputation for the Congolese issuing institution is the crucial prerequisite for the success of its monetary policy, while independence serves as a means to achieve the objective of price stability through the monetary policy instrument.

Incorporating the concept of independence into the Central Bank would be a critical element of its mandate, encompassing both political and economic considerations. Political independence would ensure the absence of any political intervention in decision-making and the institutional structure of the Central Bank. In terms of economic independence, it allows the Central Bank to freely determine the objectives to be accomplished (whether they are quantifiable or not) and the means to be utilized, while excluding the possibility of financing the government's budget deficits through monetary creation.

The primary objective of this study is to contribute to a better comprehension of the role, functioning, and status of a credible and independent Central Bank in its mission of preserving the stability of the general price level. In other words, the study aims to analyze the empirical

and theoretical connections between debt and the effectiveness of monetary policy, as well as the direct associations between independence and price stability in the Congolese economy.

This indicates the need for fresh response elements or the creative utilization of existing ones, particularly (i) defining fundamental concepts and analyzing the theoretical framework related to the topic; (ii) reevaluating Central Bank independence at two levels, starting with identifying the reasons for a Central Bank's separation from the government and specifying the ways of achieving this independence; (iii) demonstrating the benefits that a designated property can offer to certain Central Banks, especially those in developing countries like the DRC; and (iv) examining the effectiveness of independence as a solution to inflation, particularly in the case of the DRC.

The primary focus of this research is on the Central Bank of the Democratic Republic of Congo during the period of 1988 to 2018. This time frame is chosen to analyze data for 14 years before and 15 years after the independence of the Central Bank of Congo in 2002. Moreover, this period is marked by significant developments in the Congolese economy: (i) 1974 - 1988: sluggish growth and rampant inflation; (ii) 1989 - 2001: economic downturn, wealth destruction, and hyperinflation; and (iii) 2002 - 2018: economic revival, independence in objective definition and monetary policy choice of the CBC, and inflation under control.

To accomplish the research objectives and address the problem at hand, this article is divided into three parts. The first section discusses the criteria for Central Bank autonomy. The second section delves into the practical study of the Central Bank of Congo's autonomy. Lastly, the third and final section is dedicated to the practical validation of the Central Bank of Congo's autonomy and reliability.

1. Reminder of the measures of the degree of independence of the Central Bank
The primary aim of the Central Bank is to uphold the stability of prices. However, this objective cannot be realized if there are factors such as the inadequacy of the financial market, the ineffectiveness of the taxation system, inadequate savings, and the accumulation of public debt. In order to attain this goal, it is imperative that the Central Bank ceases to be the means of financing the budget deficit. The attainment of price stability hinges on the Central Bank's acquisition of a certain level of autonomy that can be gauged by three principal benchmarks. A first measure stems from the work, in 1992 and 1995, respectively, of **Cukierman**, **Webb and Neyapti** (1992); as well as **Cukierman** & **Webb** (1995). This measure was modified by **Jacome (2001)**. These are the legal indicator and two other indicators that relate to the true conduct of the Central Bank that is the subject of this study.

1.1. Legal index

Legal autonomy is a fundamental feature of the concept of central bank independence. It underscores the extent of self-governance granted to the Central Bank. **Cukierman** & al. (1995), state that the standard employed to evaluate the legal independence of the Central Bank is contingent upon the exactitude of the provisions outlined in the constitutional laws governing the institution. However, gauging the legislative independence of the Central Bank is a complicated task that involves a certain degree of subjectivity, particularly due to certain reservations related to the laws governing the Central Bank.

Cukierman introduced a chart that classifies the Central Banks of developed countries based on their legal independence. The latter is assessed according to various legal components included in the laws regulating the operations of the Central Bank, with each of these components being given a weight based on its significance. These components include the operation of the office or the governors (such as the duration of the governor's term, the method of compensation, the list of circumstances for which the governor can be dismissed, etc.), the process by which monetary policy is decided (whether the Central Bank has an advisory role or participates with political authorities in establishing monetary targets), and the constraints and terms of government loans. The degree of independence ranges from 0 (dependence) to 1 (independence).

Table n° 1: Classification of Central Banks by their degree of legal independence (1980-1990)

Country	Degree of independence
Swiss	**0.68**
Germany	**0.66**
Austria	**0.58**
United States	**0.51**
Denmark	**0.47**
Canada	**0.46**
Holland	**0.42**
Ireland	**0.39**
Luxemburg	**0.37**
Iceland	**0.36**
Britain	**0.31**
Australia	**0.31**
France	**0.28**
Sweden	**0.27**
Finland	**0.27**
New Zealand	**0.27**
Italy	**0.22**
Spain	**0.21**
Belgium	**0.19**
Japan	**0.16**
Norway	**0.14**

Cukierman A. Webb S and Neyapti B, 1992, Evaluation of the Level of Autonomy of Central Banks and its Impacts on Policy Results, World Bank Economic Review No. 6 p 353 – 398.

Jacome (2001)suggests an expansion of the customary standards for the legal index. This comprises the political and economic standards, along with the standards of fiscal autonomy, comprehensibility of the policies and procedures of the Central Bank's actions.

To sum up, this encompasses ten markers that are assigned values of 0, 0.5, and 1, and a weighting factor (1, 2, 3) that mirrors the significance of each marker in its contribution to the autonomy of the Central Bank and, consequently, its function in curbing inflation.

1.2. In real dependence

The research carried out by **Cukierman, Webb &Neyapti (2001)** is highly regarded in evaluating the extent of autonomy of the Central Bank and its correlation with inflation. This research introduced a technique to gauge not just the legal aspect of central bank independence, but also two other criteria to evaluate the actual conduct of the central bank. Thesecriteria are:

- The rate of turnover of the Governor of the Central Bank,

- The political susceptibility of the central bank governor.

The inclusion of these criteria highlights that the independence of the Central Bank is not solely determined by legislation, but also by other factors, such as the informal agreements between the Central Bank and the government, the caliber of the research department of the Central Bank, and the personalities of the Bank and government personnel.

1.2.1. Central Bank Governor turnover rate

This gauge is founded on the premise that a swift substitution of the governor of the central bank implies a deficient level of institutional autonomy. In fact, when political authorities have the chance to appoint a new governor frequently, they have a tendency to select individuals who are willing to comply with their policies. Computed between 1950 and 1989, noteworthy disparities were discovered among nations. The primary outcome reveals that the frequency of governor turnover is much greater in emerging economies than in developed nations. The maximum substitution rate in developed countries is observed in Spain and Japan, with an average turnover rate of 0.2 per year, or an average tenure of 5 years. In France, this rate is 0.15, ie an average tenure of 6.5 years, while in Germany it is 0.10, ie one replacement every 10 years. According to the work of **Cukierman** (1995), half of developing nations retain a rate that exceeds the maximum rate measured in developed nations. South Africa has the lowest rate with 0.10, while Costa Rica and Argentina have the two highest rates with 0.58 and 0.93 respectively.

It is important to bear in mind that a low rate of staff turnover does not necessarily ensure the autonomy of the Central Bank. The incumbent governor can continue to hold their position as long as they do not come into conflict with political authorities. A governor who is concerned about losing their position may be more inclined to heed the advice of political authorities and avoid implementing long-term reforms. However, given that the average term length in

developed nations is five years, a rate above 0.20 suggests that the term has not been completed. Nonetheless, there is no instance of a rate above 0.20 in OECD countries. Therefore, the governor's rate of turnover can be used as an estimate of independence in developing nations, but this estimate loses its significance in developed nations.

1.2.2. Governor's Political Vulnerability Index

The **Cukierman & Webb** (1995) duo utilized this indicator to gauge the actual independence of the Central Bank, despite its original intended use being different. The two writers stipulated that the political susceptibility of the Central Bank's governor can be gauged by computing the proportion of executive authority alterations that resulted in a change of governorship within a period of no more than half a year. As per this concept, political susceptibility is a barometer of the government's sway over the central bank. As a result, a high proportion implies significant government control over the central bank. The Political Vulnerability Index is an expansion of the Governor Rotation Index of the Central Bank. However, it deviates from it by only considering changes in governors who were replaced within six months of any executive authority change, while the turnover index accounts for all instances of governor replacement.

1.3. Evaluation of the degree of independence of the Central Bank of Congo

This section examines the autonomy of the Central Bank of Congo, utilizing the aforementioned accusation; the lawful indicator and the factual autonomy.

1.3.1. Legal index

As previously stated, the legal indicator is evaluated based on various legal standards outlined in the laws that govern the operations of the Central Bank. Each of these standards is assigned a weight based on its significance.

The initial legal criterion of the indicator is the objective assigned to the Central Bank. The roles of the Central Bank of the Democratic Republic of Congo are stipulated in the "Constitution of the Democratic Republic of Congo of February 18, 2006 as amended and supplemented to date" as follows: "the Central Bank is the Institute of Issue of the Democratic Republic of Congo. Therefore, it has the following mission" (Art.176): (i) the protection of public funds; (ii) preservation of monetary stability; (iii) determination and implementation of monetary policy; (iv) regulation of all banking activities; (v) serving as the economic and financial advisor to the government.

The Central Bank of Congo is autonomous and operates independently in fulfilling its roles and responsibilities. It is accountable for: i. Overseeing all banking activities; ii. Producing banknotes and coins that are considered legal tender; iii. Establishing and implementing exchange policies; iv. Holding and managing the official foreign exchange reserves of the Republic; v. Contributing to the stability of the financial system; vi. Encouraging a secure, efficient, and robust national payment system; vii. Regulating money markets and promoting capital markets; viii. Collecting data and developing statistics; ix. Maintaining a registry for the centralization of information on bank loans and companies.

1.3.2. Real independence

This metric relies on the premise that a swift turnover in the head of the Federal Reserve is equivalent to a diminished degree of autonomy for the organization, as noted previously.

Table n° 2: Mandates of CBC Governors

No.	NAME	FIRST TERM	END OF MANDATE	NUMBER OF YEAR
1	CHARLES Paul-Marie	06-aug-51	06-Apr-54	3
2	MARTIN Hector-Jules	17-Jun-54	03-Oct-60	6
3	NDELE MBAMU Albert	24-Feb-61	15-sept-70	9
4	SAMBWA PIDA N'BAGUI Jules-Fontaine	15-sept-70	10-aug-77	7
5	BOFOSSA W'AMBEA NKOSO Charles	19-aug-77	06-mar-79	2
6	EMONY MONDANGA Jules- croy	06-mar-79	27-aug-80	1
7	SAMBWA PIDA N'BAGUI Jules-Fontaine	27-aug-80	12-Apr-85	5
8	PAY PAY WA SYAKASSIGHE Pierre	12-Apr-85	30-mar-91	6
9	NYEMBO SHABANI Jean- Gualbert	30-mar-91	02-Apr-93	2
10	BUHENDWA BWA MUSHABA Joseph	02-Apr-93	01-Feb-94	1
11	NDIANG KABUL Godefroid	01-Feb-94	25-Nov-94	1
12	DJAMBOLEKA LOMA Patrice	16-Jan-95	17-May-97	2
13	MASAGU MULONGO Jean- Claude	08-aug-97	14-May-13	16
14	MUTOMBO MWANA NYEMBO Deo	14-May-13	05-July 21	7
	KABEDI MALANGU Marie France	05 July 21	To present	2

Source: Authors, based on the historical retrospective of the CBC

The table above shows the leaders of the SRC from 1951 to the present and the length of service they provided. However, this study only focuses on the period from 1988 to 2018, which is the period analyzed in our analysis. It is important to note that the Governor of the Central Bank has a five-year term that can be renewed once, as stated in various laws, including: · Paragraph 1 of article 41 of the law of February 23, 1961 related to the National Bank of Congo; article 41 of Law-Law 67/264 of June 23, 1967 amending the law of February 23, 1961 establishing and organizing the National Bank of Congo; · Paragraph 1 of Article 41 of Decree-Law No. 93-002 of September 28, 1993 establishing and regulating the Bank of Zaire; Paragraph 2 of Article 21 of Law No. 005/2002 of May 7, 2002, concerning the creation, organization and operation of the Central Bank of Congo; and finally, · Paragraph 1 of Article 36 of Law 18/027 of December 13, 2018, which defines the structure and functions of the Central Bank of Congo.

1.4. Credibility

There is no single universal definition that defines the credibility of the central bank that applies to all countries. However, it is undeniable that trust is linked to trust. In simple terms, we can consider a trustworthy Central Bank as one that actors and financial traders trust. This confidence is linked to the effectiveness of monetary policy. Therefore the confidence of economic actors is a powerful tool for achieving the goal of financial stability. This means the belief of the private company, which determines its actions based on its expectations for future growth, in the ability of the power to achieve the objectives that have been announced before. The table below shows the economic situation in Congo by comparing two main factors: the total income and the inflation rate.

Table n°3: Evolution of the money supply in the DRC

Years	Money supply in the strict sense plus term deposit in billions of CDF (1)		Money supply in the strict sense plus term deposit in % (2)		Deviation in % (2)
	Targets	Achievements	Targets	Achievements	
2001	29,664	42,196	53.1	117.8	64.7
2002	54,863	59,265	34.8	40.5	5.7
2003	76,007	72,431	28.2	22.2	6
2004	93 104	117.44	28.6	62.1	33.5
2005	142.01	139,274	20.9	18.6	2.3
2006	168.05	212,424	20.7	52.5	31.8
2007	269.28	302 235	27	42.3	15.3
2008	339.29	392 484	26	58.5	32.5
2009	453.97	479,875	33.8	48.2	9.4
2010	636.92	706 164	40.3	30.1	10.2
2011	785.32	790 059	23.3	30.2	6.9
2012	932.96	883 844	18.8	12.3	6.5
2013	1,103,695	1,072,635	18.3	21.3	3
2014	1,257,109	1,181,584	13.9	11.3	2.6
2015	1,561,330	1,323,861	24.2	14.7	9.5
2016	1,564,123	1,674,998	8.7	27.6	18.9
2017	1,654,456	1,985,334	10.7	17.2	6.5
2018	2,034,020	2,395,5	15.8	20.7	4.9
2019	2,254,430	2,838,2	8.4	18.5	10.1
2020	3,010,234	3,638,7	25.8	51.6	25.8
2021	3,987,600	4,394,4	18.1	43.0	24.9
2022	4,198,522	4,987,345	8.8	13.3	5.5

Source: CBC, annual reports 2001-2022.

The following chart illustrates the progression of the projected and factual monetary resources in the Democratic Republic of Congo. Overall, there exists a disparity between the aims and the outcomes. Upon examining the progression of the total monetary supply, there is a marked difference between the goals and achievements within the initial decade, with the outcomes surpassing the objectives, barring the third year. This fluctuating pattern continued throughout the subsequent years. The Central Bank's interventions contributed to the augmentation of the circulating money quantity, which could partially account for this situation.

Table n°10: Evolution of the inflation rate in the DRC

Years	Inflation rate (%)		
	Targets	Achievements	**Gap**
2002	15	15.80	0.80
2003	8	4.40	3.60
2004	6	9.20	3.20
2005	12	21.30	9.30
2006	15	18.20	3.20
2007	12	9.96	2.04
2008	24	27.60	3.60
2009	49	53.40	4.40
2010	10	9.80	0.20
2011	17	15.40	1.60
2012	10	2.72	7.28
2013	4	1.07	2.93
2014	4	1.00	3
2015	4	0.82	3.18
2016	4.20	25.3	21.10
2017	7	54.70	47.70
2018	7.2	47.4	40.2
2019	4.6	7	2.4
2020	19.86	26.62	6.76
2021	5.3	13.1	7.8
2022	4.70	6.16	1.46

Source: CBC, annual reports 2001-2022.

Looking at this presentation, it is clear that the inflation rate is not consistent with the expected results. In the first year, it is seen that almost what is required, while the next six years, starting from 2022, saw the situation where it was expected. However, from 2010 to 2015, results were below target, a reversal of this trend followed. The apparent difference between the forecast and the results of this presentation makes it possible to examine the SRC's claims in terms of financial policy. Therefore, it is possible to determine that the SRC is not credible since it does

not respect the principles regarding the financial policy objectives that it has set for itself. However, it implements financial policies based on the principle of announcing future trends and objectives, not on rationality. The CBC's unreliability is also offset by data on money transfers, which represent the central objective of monetary policy. During the period under review, the DRC's financial authorities did not respect its own consumers.

2. ANALYZE THE EMPIRICAL INDEPENDENCE OF THE CENTRAL BANK OF CONGO

According to the current policy, the main objective of the CBC's monetary policy is to ensure that stable prices promote sustainable and sustainable economic growth, while keeping prices stable. sales and unemployment are low. In order to achieve this objective, the will of the Congolese must be supported by a strong commitment using economic methods. According to Wim Duisenberg, a central bank that acts independently of short-term political considerations is the best to implement monetary policies that lead to price stability in the medium term, ultimately profiting taking into account the overall economic and social welfare considerations. This section will cover three parts: defining the economic assessment process, showing the expected signs of changes in the model and the underlying data, and analyzing and explaining the results obtained.

2.1. Choice, presentation of variables and study data

2.1.1. Description of variables

Variables	Abbreviation	Dataset	Coverage	Authors
Consumer Price Index	IPC	the National Institute of Statistics (NIS)	1980-2022	**Mbuyi&Kojack, 2021**
Exchange rate	**TXCH**	Central Bank of Congo (CBC)	1980-2022	**Lonzo, Mananasi, Ntal, &Eleo, 2023**).
Nominal Policy Interest Rate (TD)	INTEREST	Central Bank of Congo (CBC)	1980-2022	(**GuillaumontJeanneney, 2006**).
Gross Domestic Product (GDP)	GDP	World Development Indicator	1980-2022	(**Oumari&Toufik, 2022**).
Money supply	M2	World Development Indicator	1980-2022	(**Ombeni& Diop, 2020**).
Governor Turnover Rate	**(TOR)**	Autors, Central Bank of Congo (CBC)	1980-2022	(**Artus, 1995**).

As a component of this investigation, we procured turnover rate data for CBC executives from past records. This metric is suitable for analyzing CBI through time series or panel data.

2.2. Findings and interpretation

Analyzing the characteristics of descriptive data makes it possible to determine the general condition of any change over a long period of time, based on small changes. The turnover rate of governors of the central bank of the DRC (TOR) achieved an annual average of 0.22 between 1980 and 2018, reaching a maximum of 1 in 1993 and 1994, a period characterized by political instability that led to the appointment and dismissal of governors application. . Standard values for GDP, DEFL, TXCH were found to be higher (1.12e 10%, 4310.59% and 462.61%), followed by those of CPI, INTEREST and M2 (53, 7%, 50.64% and 11.24%). , of GDP. (0.2%) and TOR (0.22%). The gross domestic product (GDP) is US$15.7 billion per year. A small standard deviation value usually indicates that the data series is close to this point, while a large standard deviation value generally indicates that the data is not structured (see Table 5). The graph shown above shows the relationship between the independence of the Central Bank of Congo (TOR), the inflation rate, the exchange rate (TXCH) and the gross domestic product (GDP). In addition, it shows a close relationship between TOR and money supply (M2) and interest rate (INTEREST). (See Table 6).

Table n° 5: Descriptive static elements

Variable	Obs	Mean	Std. Dev.	Min	Max
tor	39	.2179487	.2241907	.0625	1
ipc	39	43.67819	53.70168	4.11e-12	141.3597
txch	39	354.5716	462.6109	9.33e-12	1622.524
m2	39	10.76784	11.24239	2.857408	72.37224
defl	39	1028.463	4310.594	-1.155898	26765.86
interest	39	46.01415	50.64941	2	238
gdp	39	1.57e+10	1.13e+10	4.71e+09	4.72e+10

Table n°6: Correlation matrix with significance threshold

	tor	ipc	txch	m2	interest	defl	gdp
tor	1.0000						
ipc	-0.3766*	1.0000					
txch	-0.3378*	0.9708*	1.0000				
m2	0.2799	-0.0582	-0.0440	1.0000			
interest	0.3337*	-0.3769*	-0.3613*	-0.1068	1.0000		
defl	0.6426*	-0.1937	-0.1835	-0.0148	0.3805*	1.0000	
gdp	-0.2126	0.9007*	0.9096*	0.0714	-0.3951*	-0.1780	1.0000

*: significance level of 5%

To check whether the random walk assumption is present in information about long-term variables, the ADF unit root test is used. Therefore, according to Table 7, the test results show that all variables are significantly different. Therefore, the rest of the variables, namely Ln

(TOR), Ln (IPC), Ln (Txch), Ln (M2) and Ln (INTEREST), follow an unstable stochastic process. random and moving. Therefore these variables are stabilized due to the first order. Ln variable (GDP) is not stable by the process and drift, it is made stable by using the process of change of the process following different first steps. This stability of all the variables allows the use of the VAR(p) model, since they all have McKinnon critical values less than 1%, 5% and 10%.

Table n°7: Unit Root Test

Variables	Augmented dickey fuller test						Decision
	At level				At First difference		
	Trend	Constant	ADF stat	Note	ADF stat	Note	
TOR	ns	s	-1.703	Not Stationary	-6.106***	Stationary	I(1)
IPC	ns	s	0.360	Not Stationary	-2.986**	Stationary	I(1)
TXCH	ns	s	0.223	Not Stationary	-2.969**	Stationary	I(1)
M2	ns	s	-3.102	Not Stationary	-8.682***	Stationary	I(1)
INTEREST	ns	s	-3.021	Not Stationary	-6.106***	Stationary	I(1)
GDP	s	s	-2.573	Not Stationary	-6.106***	Stationary	I(1)

Legend: s: significant, ns: not significant, ***, **, *: 1%, 5% and 10% denote level of significance I(.): order integration

The VAR model estimation process involves choosing the appropriate length of time for the model equation. Different choices of delay lengths can lead to different types of novelty, which can affect different decay and stimulus response functions. To determine the optimal lag length, the AKAIKE and SCHWARTZ criteria are used for lags from 1 to h. The length of compensation that minimizes these criteria is chosen. For the sake of parsimony, this study set the VAR method to 1 by referring to the SBIC criterion of lag that minimizes the information criterion, rather than the AKAIKE (AIC) and SCHWARZ (SC) criteria that minimizes the criterion and regression of four. . In addition, a VAR with a positive lag of one year is easier to understand economically than a VAR with a large lag. Therefore, the VAR method (1) is chosen.

Table n°8: Determination of the optimal offset

```
Selection-order criteria
Sample:  1985 - 2018                      Number of obs      =        34

 lag |    LL      LR      df    p     FPE      AIC      HQIC      SBIC

  0  | -80.8227                         6.7e-06  5.10722  5.19908   5.37658
  1  | -14.8229    132     36  0.000   1.2e-06  3.34252  3.98553   5.22803*
  2  |  34.3616  98.369   36  0.000   6.7e-07  2.56697  3.76113   6.06862
  3  |  89.3607    110     36  0.000   4.1e-07  1.44937  3.19468   6.56717
  4  |  171.632  164.54*   36  0.000   1.3e-07* -1.27246*  1.024*   5.46148

Endogenous:  d_ln_gdp d_ln_ipc d_ln_txch d_ln_interest d_ln_m2 tor
 Exogenous:   _cons
```

AIC: Akaike Information Criterion ; HQIC: Hannan Queen Information Criterion SBIC: Bayesian Schwartz Information Criterion

2.4. Econometric estimation method

To evaluate the influence of autonomy on other macroeconomic factors, this investigation employed the VAR (Vector Auto Regressive) model. This model is utilized to scrutinize the repercussions of economic policies in general and monetary policies in particular on variables, primarily through two techniques:

- ❖ The examination of impulse response functions, which enables the assessment of the impact of a disturbance on the variables and the comprehension of the response times of each variable to a disturbance on the other variables;

- ❖ The dissection of the prediction error variance of each variable by the other variables in the model. This methodology is advantageous for determining the correlations between various variables.

The VAR methodology depends on variables that are derived from the progression of the data itself. These variables are arranged in a vector that is autoregressive and of a particular order, thereby placing them in a relational framework. The VAR model is particularly useful for impact and causality analysis due to the stochastic nature of its various components. All variables in the model are endogenous, and the errors of each equation are correlated.

2.6. ESTIMATING THE VAR (1) EQUATIONS

Similar to most financial institutions, the primary objective of the CBC is to uphold price stability. In order to accomplish this, the Central Bank intervenes in the level of global liquidity to regulate the progress of inflation. Nevertheless, recent analysis of inflation proposes that supply shocks (output, investment, etc.) have a dominant effect, which raises doubts about the role of supported bankers in determining prices. To evaluate the autonomy of the Central Bank of Congo and the assertion of its monetary policy in the presence of actual shocks, it is vital to examine the impact of the governor rotation index (TOR) on inflation and the exchange rate (TXCH) in the DRC.

Based on the outcomes of the VAR(1) modeling (Appendix 16), the following conclusions are drawn:

Table n°10: Results of the estimation of the first equation

$$Dln(IPC)_t = \beta_1 Dln(GDP)_{t-1} + \beta_2 Dln(IPC)_{t-1} + \beta_3 Dln(TCH)_{t-1} + \beta_4 Dln(M2)_{t-1} + \beta_5 Dln(INTER)_{t-1} + \beta_6 TOR_{t-1} \quad \text{.............. (1)}$$

Variables indépendantes → / Variables dépendantes ↓	$D.\ln(gdp)_{t-1}$	$d.\ln(IPC)_{t-1}$	$d.\ln(txch)_{t-1}$	$d.\ln(m2)_{t-1}$	$d.\ln(inter)_{t-1}$	$d.\ln(tor)_{t-1}$
$D.Ln(ipc)$	0.0355 [0.09]	2.343775 [4.10]***	−1.7983 [−3.37]**	0.1324 [-2.29]**	0.1550 [1.28]	1.4459 [1.69]*

R²=0.73   Chi-sq=100.3121   RMSE=.702903   n=37

FPE = 5.84e-06 prob-chi2= 0.0000   LM-stat=3.9367 prob-chi2=0.9155

LM-stat=2.4139 prob-chi2=0.9831

Source: Authors, based on Stata software estimates.

Since the consumer price index (CPI) is an autoregressive vector, it affects the exchange rate over time; a change of 1% in the CPI results in a change of 151.60% in the lagged endogenous variable exchange rate by one quarter, according to the model shown in Table 10 (located in Appendix 16).

Table n°11: Results of the estimation of the second equation

$$Dln(TCH)_t = \beta_1 Dln(GDP)_{t-1} + \beta_2 Dln(IPC)_{t-1} + \beta_3 Dln(TCH)_{t-1} + \beta_4 Dln(M2)_{t-1} + \beta_5 Dln(INTER)_{t-1} + \beta_6 TOR_{t-1} \quad\ldots\ldots\ldots\ldots (2)$$

Variables indépendantes → / Variables dépendantes ↓	D.ln(gdp)$_{t-1}$	d.ln(IPC)$_{t-1}$	d.ln(txch)$_{t-1}$	d.ln(m2)$_{t-1}$	d.ln(inter)$_{t-1}$	d.ln(tor)$_{t-1}$
D.Ln(txch)	0.4419 [1.01]	1.8935 [3.12]***	−1.4237 [−2.52]**	0.2621 [1.25]	0.2163 [1.68]*	2.0906 [2.30]**

R²=0.72   Chi-sq=95.96029   RMSE=0.74577   n=37

Chi-sq=95.96029   prob-chi2= 0.0157   LM-stat=3.9367 prob-chi2=0.9155

LM-stat=2.4139 prob-chi2=0.9831

Source: Authors, based on Stata software estimates.

In the VAR model (1) shown in Table 11 (Appendix 16), it was established that the negative variable rate plays an important role in explaining the current rate of change at time t. This means that TCH is an autoregressive vector affecting time. A change of 1% in the exchange rate causes a dramatic effect on the endogenous TCH change, with a delay of one year, up to 14.24%. As far as the inflation rate is concerned, it has a positive effect on the expected exchange rate. An increase of 1 point in inflation results in an increase in the exchange rate by 18.94%. Similarly, investment delayed by one year has a positive effect on inflation at time t. A 1% increase in investment results in an increase of 1.32%.In the case of TOR that are deferred for one year, they have a positive impact on inflation at a rate of 10%. A 1 percent increase in TOR results in an increase of 1.45%.

Table n°12: Results of the estimation of the third equation

$$TOR_t = \beta_1 Dln(GDP)_{t-1} + \beta_2 Dln(IPC)_{t-1} + \beta_3 Dln(TCH)_{t-1} + \beta_4 Dln(M2)_{t-1} + \beta_5 Dln(INTER)_{t-1} + \beta_6 TOR_{t-1} \quad\ldots\ldots\ldots\ldots (3)$$

Variables indépendantes → / Variables dépendantes ↓	D.ln(gdp)$_{t-1}$	d.ln(IPC)$_{t-1}$	d.ln(txch)$_{t-1}$	d.ln(m2)$_{t-1}$	d.ln(inter)$_{t-1}$	ln(tor)$_{t-1}$
tor	−0.041 [0.00]	0.1898 [1.61]*	−0.16122 [−2.47]**	0.07397 [1.81]**	0.0153 [0.61]	0.63388 [3.59]**

R²=0.65   Chi-sq=70.18065   RMSE=0.144982   n=37

Chi-sq=71.16   prob-chi2= 0.0157   LM-stat=3.9367 prob-chi2=0.9155

The model presented in Table 12 shows that the consumer price index of the past period is an important determinant of the change rate of SRC governors. This rate of change affects both the individual and the individual. A 1% change in volatility results in an impact of 0.63% on TOR that is volatile, with a one-year lag. Similarly, exchange rate fluctuations have a negative impact on the turnover of CBC governors. A 1% shock to the exchange rate results in a 0.16% drop in TOR.

Also, past investment has a significant effect on TOR. An increase of 1% in investment results in a shock of 0.07% in TOR. Finally, inflation in the past has a positive effect on TOR. A 1% increase in the inflation rate causes a shock of 0.19% in TOR.

2.5. Granger Causality Analysis
In GRANGER's (1969) theory, when one variable X affects another variable Y, past information about X leads to more accurate predictions of Y compared to past information about Y alone. This shows that the historical data of X makes the prediction of Y better than the historical data of Y itself. According to the causal study presented in the intervention, the results are as follows:

• Consumer Price Index (CPI) measured by inflation Ln (CPI) leads to economic growth Ln (GDP) at the threshold of 1% according to the Granger test. • Economic growth Ln (GDP) is driven by the exchange rate Ln (TXCH) at a threshold of 1% according to the Granger test. • Investment Ln(M2) leads to economic growth Ln(GDP) at the 5% threshold according to the Granger test. • Economic growth Ln (GDP) results from the independence of the Central Bank Ln (TOR) at the threshold of 1% according to the Granger test. • The exchange rate Ln(TXCH) leads to the inflation Ln(CPI) at the threshold of 1% according to the Granger test. • The price stability Ln(IPC) is independent of the Central Bank Ln(TOR) at a threshold of 1% according to the Granger test. • The stability of the exchange rate Ln (TXCH) results from the stability of the price Ln (IPC) at a threshold of 10% according to the Granger test. • Price stability Ln (CPI) is of real interest rate Ln (INTEREST) at the threshold of 1% according to the Granger test. • The stability of the exchange rate Ln (IPC) from the independence of the Central Bank Ln (TOR) at a threshold of 5% according to the Granger test. • Independence of the Central Bank Ln (TOR) leads to the stability of the money supply Ln(M2) at the threshold of 10.

Figure 1. Granger causal relationship
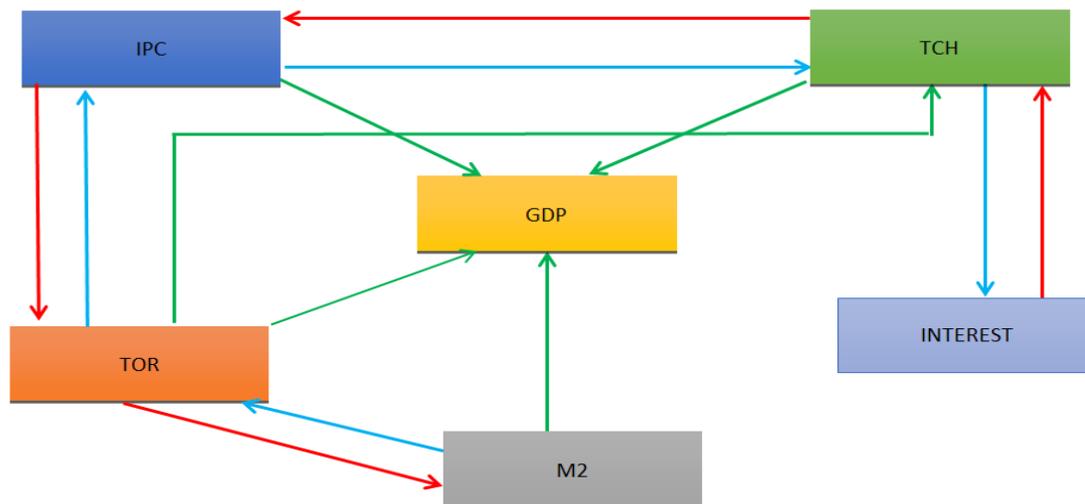
Source : L'auteur sur base du test de causalité de GRANGER.

This graph shows a positive relationship between the turnover rate of the central bank governor and the effectiveness of the CBI. Basically, this allows the Central Bank to achieve its objectives effectively. However, the Governor Rotation Index (TOR) has no meaningful impact on central bank credit. In simple terms, this subscription does not affect the stability of financial instruments, especially the law of investment in the DRC, due to the persistence of dollarization.

2.6. Decomposition of variance

Based on the results of the variance analysis, it shows that the variance of the LnGDP forecast error is mostly affected on average by its own innovation (33.95%) and by the exchange rate shock (36.31%) but also by the shock n 'because of trade. openness (19.75%). LnGDP does not respond well to differences in GFCF, public spending and the rate of growth of income. The significant contribution of the exchange rate to the opening of trade for economic growth is justified by the exclusion of the Congolese economy which is characterized by the export of goods and the import of valuable products. Obviously, a reduction in the CDF or the use of a dynamic exchange rate makes exports cheaper, leading to an increase in the demand for exports and, by extension, economic performance. and the other. However, in the case of the DRC, the decline in national income is a brake on economic growth.

These results support the statement of Lonzo et al. (2023) and Kabamba et al. (2022) in their study on the Democratic Republic of Congo, that the high level of external economic dependence in developing countries makes the preference for exchange rates detrimental to economic growth.

Conclusion

The main objective of this study, entitled "The impact of independence and credit of the Central Bank of Congo on price stability in the DRC", is to determine whether the Central Bank of Congo has succeeded in achieving its objectives the point of maintaining a. stable general price

level. . The main question of the study is whether the independence and recovery of the Central Bank of Congo will make it possible to achieve this goal. To determine the independence and failure of the Central Bank, the study analyzed the effect of the rotation of the governor (TOR) on inflation and the exchange rate (TXCH) in the DRC. Descriptive statistics and economic models use the VAR (Vector Auto Regressive) model to estimate variables, thus simplifying their interpretation in terms of psychology.

The results of the study presented in one part presented research ideas and technical advice to be given to DRC financial policy makers and the government of the Republic.

The constitution guarantees the autonomy of the CBC, which is consistent with the concept of work. However, the powers of the governor may not match those of the executive branch. The Cukierman Index, which measures central bank independence, has been below 0.50 from 1961 to 2018, with an average of 0.33. From 1988 to 2018, the index is 0.37 and from 2002 to 2018, 0.11. This shows that the legal independence of the CBC is weak and that the transitional provisions are intended to regulate the relationship between the central bank and the government. In terms of general price stability and debt, the SRC may not be a consensus. The CBC's small departure from the practice of monetary policy is evident in the wide gap between inflation rates and monetary policy targets and achievements.

Finally, it is reasonable to say that the CBC lacks credibility as it fails to meet its financial policy objectives. However, the CBC follows a principle-based financial policy, which involves predicting future trends and targets to be achieved. The lack of credibility of the CBC is evident from the data related to the central objective of the financial policy, while the financial authorities of the DRC do not respect its expenditure at the time of its birth. Although the champion of the Congo and the CBC have made great efforts to strengthen their confidence in decision-making. However, some persistent gray areas and the opacity of certain situations do not create full confidence in the market. Although CBC managed to reduce the inflation rate to 1% in 2013, it will remain unchecked. Although it achieved the legal target, the inflation rate fell from 135% in 2001 to 0.82% in 2015, and reached 7.2% in 2018. The new objective of CBC is to maintain an average inflation rate. consumption of 4%. It is very important that the company communicates frequently, clearly and honestly, explaining its past, present and future decisions, as well as any justification error that prevents him from meeting his standards, to make the market obey him. Since the economy does not always change to achieve the long-term values of the CBC, it is acceptable for the company to take short-term psychological measures to guide the economy to achieve its governance.

Bibliography

Aglietta, M. (1992). L'indépendance des banques centrales/Leçons pour la banque centrale européenne. *Revue d'économie financière*, (22), 37-56. https://www.jstor.org/stable/42903016

Aglietta , M. (2000). *Macroeconomics financial* . Editorial AbyaYala.

Artus, P. (1995). Effets internes et internationaux de l'indépendance des Banques centrales. *Revue Économique*, *46*(3), 857–867. https://doi.org/10.2307/3502431

Artus, P., &Virard, M. P. (2016). *La folie des banques centrales: pourquoi la prochaine crise sera pire*. Fayard.

Artus, P., &Wyplosz, C. (2002). *La Banque centrale européenne*. Documentation française. https://www.cae-eco.fr/staticfiles/pdf/038.pdf

Backus, D., &Driffill, J. (1985). Inflation and reputation. *The American Economic Review*, *75*(3), 530-538. https://www.jstor.org/stable/1814819

Bagehot, W. (1915). Lombard Street: A Description of the Money Market, reprinted 1978 by Arno Press.

Bagella, M., &Becchetti, L. (1995). *Inflation, Central Bank Independence, Labour and Financial Governance: Some evidence from OECD Countries*. Universitàdeglistudi'TorVergata'.

Central Bank of the Congo. (2003-2016). monetary policy framework. Kinshasa.

European Central Bank. (2016). *archives on economic and monetary union.*

Bank of France. (1998). Monetary policy in the age of the global capital market .

Barro, R. J., & Gordon, D. B. (1983). Rules, discretion and reputation in a model of monetary policy. *Journal of monetary economics*, *12*(1), 101-121. https://www.sciencedirect.com/science/article/pii/030439328390051X

Barro, R. J. (1986). Reputation in a model of monetary policy with incomplete information. *Journal of Monetary Economics*, *17*(1), 3-20. https://www.sciencedirect.com/science/article/pii/0304393286900036.

Bassoni, M., &Cartapanis, A. (1995). Autonomie des banques centrales et performances macro-économiques Un réexamen, *Revue économique*, 415-432. https://www.jstor.org/stable/3502197

Benston, G. J., & Kaufman, G. G. (1988). *Risk and solvency regulation of depository institutions: Past policies and current options* (No. 88-1). Federal Reserve Bank of Chicago. https://ideas.repec.org/p/fip/fedhsm/88-1.html

Bernanke, B. S., & Blinder, A. S. (1988). Credit, money, and aggregate demand. https://www.nber.org/papers/w2534.

Bernanke, B. S., & Blinder, A. S. (1992). VThe Federal Funds Rate and the Channels of Monetary TransmissionVThe American Economic Review.

Blinder, A. S. (2000). Central-bank credibility: Why do we care? how do we build it?. *American economic review*, *90*(5), 1421-1431. https://pubs.aeaweb.org/doi/pdf/10.1257/aer.90.5.1421.

Bougi, G., & Hamdi, H. (2007). *La crédibilité de la banque centrale face aux défis de la monnaie électronique* (No. 56). Aix-Marseille Université, CERGAM.

Bourbonnnais, R. (2018), *Econometrics, Courses and correctedexercises*, Dunond , Paris 5thedition

Bradford DL.J. (2001), *The ECB's Battle Against Central Banks* , Project Syndicate

Bullard, J. (2013). The global battle for central bank independence. *NABE Roundtable , " Federal Reserve Independence in the Aftermath of the Financial Crisis: Should We Be Worried"*.

Cukierman, A., Web, S. B., &Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. *The world bank economic review*, *6*(3), 353-398. https://academic.oup.com/wber/article-abstract/6/3/353/1638299

Cukierman, A., & Webb, S. B. (1995). Political influence on the central bank: International evidence. *The World Bank Economic Review*, *9*(3), 397-423. https://academic.oup.com/wber/article-abstract/9/3/397/1666820

Cukierman, A. (1996). *Targeting Monetary aggregates and inflation in Europe* (No. 9632). Foerder Institute of Economic Research, Tel-Aviv University. https://pure.uvt.nl/ws/portalfiles/portal/523951/32.pdf

Cukierman, A. (1992). Central bank strategy, credibility, and independance: Theory and evidence. *Journal des Économistes et des Études Humaines*, *3*(4), 581-590. https://www.degruyter.com/document/doi/10.1515/jeeh-1992-0410/html

Fischer, S. (1995). Central-bank independence revisited. *The American Economic Review*, *85*(2), 201-206. https://www.jstor.org/stable/2117919

Debelle, G., & Fischer, S. (1994). How independent should a central bank be?. In *Conference Series;[Proceedings]* (Vol. 38, pp. 195-225). Federal Reserve Bank of Boston.https://ideas.repec.org/a/fip/fedbcp/y1994p195-225n38.html.

Dépelteau, F. (2000). La démarche d'une recherche en sciences sociales. *Bruxelles, de Boeck*.

Dévoluy, M. (1999). La BCE: être crédible pour ne pas faillir. *Bulletin de l'Observatoire des politiques économiques en Europe*, *1*(1), 8-10.https://opee.unistra.fr/La-BCE-etre-credible-pour-ne-pas

Drumetz, F., Pfister, C., Sahuc, J. G., & Pfister, C. (2015). *Politique monétaire*. Brussels: De Boeck. https://www.furet.com/media/pdf/feuilletage/9/7/8/2/8/0/4/1/9782804190231.pdf

Erbert G. and HagemanmH. (1998), " Credibility: measurement and impact. Central banking experience and European perspective ", in ARESTISP, SAWYER MC, Political economy of central banking, MC.

Faust, J., &Svensson, L. E. (2001). Transparency and credibility: Monetary policy with unobservable goals. *International Economic Review*, *42*(2), 369-397. https://onlinelibrary.wiley.com/doi/abs/10.1111/1468-2354.00114

FeiertagO. (2005), Measuring money, central banks and construction of the monetary authority (19th - 20th century) , Albin Michel History Library, Paris.

Flandreau, M. (2007). Pillars of Globalization: A history of monetary policy targets, 1797-1997. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1135490

FlouzatO, (1999) " The concept of Central Bank ", in Bulletin de la Banque de France , October.

Giuseppe, D. (2008), " Transparency, responsibility and legitimacy of the European Central Bank ", in Bulletin de l'OPEE, n° 18 , University of Strasbourg (BETA).

Goodhart, C. (1989). The conduct of monetary policy. *The Economic Journal*, *99*(396), 293-346. https://academic.oup.com/ej/article-abstract/99/396/293/5188263

Granger, C. W. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: journal of the Econometric Society*, 424-438. https://www.jstor.org/stable/1912791

Greene, W. H. (2003). *Econometric analysis*. Pearson Education India.

Grilli, V., Masciandaro, D., &Tabellini, G. (1991). Political and monetary institutions and public financial policies in the industrial countries. *Economicpolicy*, *6*(13), 341-392. https://academic.oup.com/economicpolicy/article-abstract/6/13/341/2392405

Guillaumont Jeanneney*, S. (2006). L'indépendance de la Banque Centrale des Etats de l'Afrique de l'Ouest: une réforme souhaitable?. *Revue d'économie du développement*, (1), 45-077.

Hadjer, O. H. (2017). *Performance de la banque centrale et efficacité de la politique monétaire en Algérie 1990-2014* (Doctoral dissertation, Université d'Oran). https://www.univ-oran2.dz/images/these_memoires/FSC/Doctorat/TDSCF-32/OULD%20HENNIA%20Hadjer.pdf

Hetzel, R. L. (1990). Central banks' independence in historical perspective: A review essay. *Journal of Monetary Economics*, *25*(1), 165-176. https://www.sciencedirect.com/science/article/pii/0304393290900537

Jácome, L. I. (2001). Legal central bank independence and inflation in Latin America during the 1990s. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=880883

Kintambu, M. (2004), Econometrics, 2nd edition, PUK MbanzaNgungu.

LabyeA. (2015), " Money and financial globalisation: Credibility of the Central Bank and sustainability of fiscal policy, Financial Economics Association ", in Revue d'économie financière.

Lonzo, G. L., Mananasi, E. M., Ntal, J. P. O., &Eleo Jr, A. (2023). Fundamentals and Misalignment of the Real Effective Exchange Rate in the Democratic Republic of Congo. *Modern Economy*, *14*(4), 427-454.https://doi.org/10.4236/me.2023.144025

Marwan, N.M (2003), Research on the criteria of a modern Central Bank, comparative study between the Banque du Liban, the Banque de France and the European Central Bank, General Library of Law and Jurisprudence, Library of Private Law, Paris.

Mbuyi, A. K., &Kojack, K. T. (2021). Impact du Policy mix sur la stabilité du niveau général des prix en République Démocratique du Congo (RDC).

Michel, A. (1982), " Genesis of central banks and legitimacy of money ", in Annales ESC.

Mishkin F. (2013). *Currency, banking and financial markets* , Pearson France, Montreuil.

Ombeni, C.O & Diop, I.T (2020), Impact de la libéralisation financière sur le rôle du système financier dans l'économie congolaise.

Oumari, L., & Toufik, E. L. (2022). Les instruments de la politique monétaire et la stabilité des prix. *International Journal of Accounting, Finance, Auditing, Management and Economics*, *3*(3-2), 349-363.

Perrier, P., &Amano , R. (2000). Credibility and monetary policy. *Bank of Canada Review* , 13-20.

Patat, JP. (1992a). " *Content and criteria of the independence of Central Banks"*

Patat, JP. (1992b). Some remarks on the question of the independence of the Central Bank

Patat, JP. (2003). *The Being of Central Banks, Economy and Innovation* .

Patat, JP. (1945). *banks of issue and the State.*

Persson, T., &Tabellini, G. E. (1993). Designing institutions for monetary stability, in Carnegie&Rochester Conference Series on Public Policy.

Trichet,J.C.(2004). *EU Enlargement: challenges and opportunities*. https://archive.transatlanticrelations.org/wp-content/uploads/2005/09/New-Frontiers_Chapter-8.pdf

Van der Cruijsen, C. A., Eijffinger, S. C., &Hoogduin, L. H. (2010). Optimal central bank transparency. *Journal of International Money and Finance*, *29*(8), 1482-1507.

Walnut, C. (1992). On the Status and Independence of Central Banks. *Financial Economics Review* , (22), 13-18.

Walsh, C. E. (1995). Optimal contracts for central bankers. *The American Economic Review*, 150-167. https://www.jstor.org/stable/2118001

Werrebrouck, J. C. (2012). *Banques centrales: indépendance ou soumission?*. Y. Michel.

Zineb, N (2018). L'impact de la libéralisation financière sur la croissance économique: Approche empirique appliquée au cas de l'Algérie

Annex n•4: List of Governors of the CBC and calculation of the TOR

Number	Nouns	Period	Duration/ year	TOR	TOR AVERAGE
1	ALBERT NDELE	1961-1970	9	0.11	
2	JULES FONTAINE SAMBWA	1970-1977	7	0.14	
3	CHARLES BOFOSA WAMBEA NKOSO	1977-1979	2	0.50	
4	JULES CROY EMOY MONDANGA	1979-1981	3	0.33	
5	JULES FONTAINE SAMBWA	1981-1985	4	0.25	
6	PIERRE PAY-PAY WA SYAKASIGHE	1985-1991	6	0.17	
7	NYEMBO SHABANI JEANS	1991-1993	2	0.50	
8	JOSEPH BUHENDWA BWA MUSHASA	1993-1994	1	1.00	0.32
9	GODEFROID NDIANG KABUL	1994-1997	3	0.33	
10	JEAN CLAUDE MASAGU MULONGO	1997-2013	16	0.06	
11	DEO. MUTOMBO MWANA NYEMBO	2013-2021	7	0.14	
12	KABEDI MALANGU Marie France	2021- to day	2		

Source: Authors, data collected on the basis of the historical retrospective of the CBC.