Effects of Inflationary Dynamics on TMB's Financial Ratios: Cross-Analysis from 2018 To 2022

Ephrem Alakini Muhigirwa

Researcher in Management Sciences

ABSTRACT

This study examines the effect of the inflationary dynamics observed in the Democratic Republic of Congo (DRC) between 2018 and 2022 on the financial ratios of the Trust Merchant Bank (TMB), one of the country's largest commercial banks. The research is motivated by the structural volatility of the Congolese economy, characterized by recurrent inflation, exchange rate instability, and a high level of dollarization, which directly exposes banks to risks affecting profitability, liquidity, and solvency.

The general objective is to analyze how inflation has influenced TMB's financial performance and resilience during this period, while the specific objectives focus on four dimensions: profitability (ROA, ROE), liquidity (Loan-to-Deposit Ratio), solvency (Capital Adequacy Ratio), and operational resilience (Cost-to-Income Ratio). The study formulates the hypothesis that inflation exerts a significant negative impact on these ratios, while the bank attempts to mitigate its effects through strategic and operational adjustments.

Methodologically, the research adopts a quantitative and analytical approach based on audited financial report of TMB, Central Bank of Congo publications, and international financial reports. The analysis combines descriptive statistics, correlation tests, and regression models to capture the relationships between inflation and the bank's key financial indicators.

The empirical review of prior studies (Boyd et al., Khan & Senhadji, Athanasoglou et al., Demirgüç-Kunt & Huizinga, Naceur & Goaied, Alper & Anbar) generally confirms that inflation reduces banking performance, particularly when poorly anticipated or when exceeding a critical threshold. The theoretical framework mobilizes classical and modern approaches, including the neutrality of money, liquidity preference, adaptive and rational expectations, inflationary taxation, agency costs, and portfolio theory under instability.

Results show that inflation negatively affected TMB's profitability, with ROE dropping to 0.9% and ROA to 0.1% in 2020, alongside pressures on liquidity and solvency. Correlation analysis highlights strong negative relationships between inflation and both profitability (ROE r = –0.72; ROA r = –0.74) and liquidity (r = –0.80). While regression results reveal a limited direct explanatory power of inflation, the findings confirm its structural impact on financial stability. Nevertheless, TMB demonstrated resilience through cost control, interest rate adjustments, and digital innovations, which partially mitigated inflationary shocks.

Overall, this study contributes to the literature by offering novel evidence from a fragile economic environment and provides practical implications for banking regulation and risk management in the DRC. It underscores the need for Congolese banks to strengthen resilience mechanisms to safeguard financial stability in the face of persistent inflation.

Keywords: Inflation, Financial ratios, Profitability, Liquidity, Solvency, TMB, DRC banking sector.

INTRODUCTION TO THE STUDY:

Over the past two decades, African economies, and in particular that of the Democratic Republic of Congo (Boyd et al.) , have faced significant macroeconomic instability, characterized by recurring, sometimes volatile

and persistent inflation. Inflation, as an economic phenomenon, reflects the loss of purchasing power of money and directly or indirectly influences the profitability, liquidity, solvency, and financial performance of banking institutions (Mukaz, 2025) . In this context, commercial banks, central players in the financial system, are particularly exposed to the effects of inflationary dynamics due to the nature of their activities, which are based on monetary and financial intermediation.

Trust Merchant Bank, one of the leading banking institutions in the DRC, experienced significant growth in its activities during the period 2018-2022, marked by economic upheavals linked in particular to the COVID-19 pandemic, international geopolitical tensions, exchange rate volatility and internal inflationary pressures (Mukalay k and Ilunga ,2024) .

The evolution of inflation during this period not only influenced the macroeconomic environment, but it also reconfigured savings, credit and investment behaviors, imposing new risk management strategies and financial stability preservation strategies on banks.

Analyzing financial ratios—whether profitability ratios (Lefebvre and Sol, 2008) , liquidity ratios, debt ratios, or asset management ratios—is a key tool for assessing the impact of inflation on the soundness and performance of a banking institution. High inflation can lead to an erosion of net interest margins, a depreciation of the real value of assets, a deterioration in borrowers' repayment capacity, and, consequently, a weakening of the bank's financial indicators (Géméto et al., 2020).

With this in mind, this work aims to carry out a cross-analysis of the financial ratios of TMB between 2020 and 2024, in order to assess to what extent inflationary dynamics have influenced its performance.

The objective is twofold: firstly, to understand the interaction between price developments and the financial structure of a commercial bank in a context of high economic volatility; secondly, to contribute to the academic and managerial literature by highlighting the mechanisms by which inflation affects the stability and sustainability of financial institutions in sub-Saharan Africa.

Thus, the central issue can be formulated as follows: to what extent has inflationary dynamics impacted the evolution of the main financial ratios of TMB over the period 2018-2022, and what implications does this raise for banking management in the DRC?

Study context:

The Democratic Republic of Congo operates in a macroeconomic environment characterized by a strong dependence on raw material exports (copper, cobalt, gold), thus exposing the national economy to exogenous shocks linked to the volatility of world prices (Bengeya and Fataki,2021) .

Between 2018 and 2022, several events exacerbated this vulnerability: the COVID-19 pandemic, the war in Ukraine with its repercussions on global energy and food prices, the recurring depreciation of the Congolese franc, as well as internal security tensions in the East of the country.

One of the most visible effects of these factors has been the acceleration of inflation, which has put considerable pressure on household purchasing power and on the stability of the national financial system.

In this context, the Congolese banking sector occupies a strategic position.

As a financial intermediary, it ensures the transformation of deposits into loans, the security of transactions and the mobilization of resources necessary for financing the economy.

However, high inflation has weakened the balance between assets and liabilities, directly influencing intermediation margins and the quality of the loan portfolio.

For banks, maintaining solid financial ratios has become a constant challenge in the face of monetary erosion.

Trust Merchant Bank (TMB), considered one of the most dynamic and innovative banking institutions in the DRC, provides a relevant case study.

Present throughout the territory, it has developed a large customer base and diversified its services (individuals, businesses, mining sector, digital banking).

Nevertheless, its exposure to macroeconomic volatility and inflationary pressures offers an opportunity to analyze, through its financial ratios, the resilience of a Congolese bank in a context of monetary instability.

The study of the 2018-2022 period proves particularly interesting for two reasons. First, it covers a historical sequence marked by notable inflationary fluctuations, thus offering a rich field of observation for evaluating banking adaptation mechanisms.

Secondly, it sheds light on the relationship between inflation and financial performance in an emerging environment, which is still poorly documented in academic literature compared to developed economies.

Ultimately, this context highlights the need for in-depth reflection on the impacts of inflationary dynamics on the financial soundness of banks and on their role in the country's economic stability.

Research question:

Inflation is one of the most persistent macroeconomic challenges in the Democratic Republic of Congo.

Its dynamics exert a direct influence on purchasing power, the real value of assets and liabilities, as well as on the financing capacity of banking institutions.

While the impact of inflation on the financial performance of banks is widely documented in developed economies, empirical studies on the Congolese context remain limited (Gourinchas, 2024) .

In an economic context marked by persistent inflation and high exchange rate volatility, the banking system of the Democratic Republic of Congo (DRC) is facing structural imbalances affecting its performance and financial stability.

This inflationary dynamic, coupled with the dollarization of the economy and constrained monetary governance, raises major questions about the ability of banks to maintain sustainable levels of profitability, liquidity, solvency and asset quality.

The case of Trust Merchant Bank (TMB), one of the country's leading banks, provides a concrete illustration of how inflation impacts financial ratios and allows for an assessment of the adaptation strategies implemented.

The period 2018-2022, marked by successive shocks, global health crisis, geopolitical instabilities, volatility of commodity prices and depreciation of the Congolese franc, generated strong inflationary instability in the DRC.

For a commercial bank such as Trust Merchant Bank (TMB), these developments raise crucial questions: how to preserve profitability and liquidity in a period of monetary erosion?

How does inflationary dynamics affect the solvency and financial structure of the bank? To what extent do the main financial ratios (Delahaye-Duprat et al., 2022) (profitability, liquidity, debt, asset management) reflect resilience or fragility in the face of inflation?

To properly write this scientific article on the topic of "Effects of inflationary dynamics on the financial ratios of TMB: Cross analysis from 2018 to 2022", we want to answer the following question: "To what extent did inflationary dynamics between 2018 and 2022 affect the main financial ratios of Trust Merchant Bank (TMB), and what implications does this raise for the stability, risk management and performance of commercial banks operating in the DRC?".

To achieve this, it is very important for us to follow a structured and rigorous methodology.

Justification for the research

Understanding the effects of inflationary dynamics on bank performance is a major challenge, both for academic literature and for managerial practice.

In the case of the Democratic Republic of Congo (DRC), where macroeconomic and monetary instability is structural, the analysis of these effects takes on increased relevance.

Indeed, inflation, when persistent and poorly controlled, directly influences the profitability, solvency, liquidity and strategic resilience of financial institutions.

In this context, the study of Trust Merchant Bank (TMB), one of the main Congolese commercial banks, offers a particularly rich field of analysis.

Its central role in financial intermediation, combined with its wide geographical footprint and exposure to macroeconomic fluctuations, makes it a representative case for examining the mechanisms by which inflation affects the financial ratios of banks in the DRC.

The justification for this research is thus structured around three essential dimensions: its local relevance in a country facing strong economic volatility, its scientific innovation in providing unprecedented empirical insight into the Congolese banking context, and its practical impact in providing useful recommendations to bank managers and regulators.

This analysis will be enriched by a description of the specific context of TMB, in order to better situate the expected results in the operational and institutional realities of the Congolese banking sector.

1) *Local relevance of research on the effects of inflationary dynamics on TMB financial ratios: Cross-analysis from 2018 to 2022*

The study of the effects of inflationary dynamics on the financial ratios of Trust Merchant Bank (TMB) is of particular relevance in the context of the Democratic Republic of Congo (DRC).

Indeed, the Congolese economy is marked by strong macroeconomic volatility, amplified by dependence on raw material exports and by chronic monetary instability.

In this context, commercial banks, and more specifically TMB, play a crucial role in financial intermediation and the mobilization of domestic resources. Understanding how inflation directly affects the financial soundness of a local banking institution sheds light on the specific challenges faced by the Congolese banking sector and contributes to the formulation of stabilization policies tailored to national realities.

2) *Scientific innovation in research on the effects of inflationary dynamics on the financial ratios of the TMB: Cross-analysis from 2018 to 2022:*

From an academic perspective, the research brings an innovation by cross-analyzing the financial ratios of TMB over a recent period (2018-2022), marked by global and local shocks (COVID-19, war in Ukraine, internal political instability).

Few empirical studies have examined the impact of inflation in a Congolese banking context, while the majority of existing research focuses on more stable developed or emerging economies.

This study therefore enriches the literature by offering an original perspective on the mechanisms by which inflation affects profitability, liquidity, solvency and credit risk in a fragile developing economy.

It thus constitutes an innovative scientific contribution in the field of banking finance and African studies.

3) *Practical impact of research on the effects of inflationary dynamics on TMB financial ratios: Cross-analysis from 2018 to 2022*

Finally, this research has a strong practical impact.

For the leaders of TMB and, more broadly, for the players in the Congolese banking sector, the expected results will make it possible to identify the financial ratios most vulnerable to inflationary pressures, and to adapt accordingly the policies of risk management, pricing of financial products and diversification of portfolios.

For regulators (Central Bank of Congo) and public decision-makers, the study offers a decision-making tool to strengthen banking supervision mechanisms and anticipate the effects of persistent inflation on the stability of the financial system.

It can also serve as a basis for practical recommendations to improve the resilience of banking institutions in unstable macroeconomic contexts.

The specific context of TMB DRC

Trust Merchant Bank (TMB) is a Congolese commercial bank created in 2004 and which has quickly established itself as one of the major players in the banking sector of the Democratic Republic of Congo.

With a network covering several major cities in the country (Kinshasa, Lubumbashi, Goma, Bukavu, Kisangani, etc.), TMB is today one of the most dynamic and accessible banking institutions in the Congolese market, serving both individuals and businesses, with particular attention paid to strategic sectors such as trade, mining, energy and agro-industry.

The environment in which TMB operates is characterized by high macroeconomic and monetary volatility.

The DRC has experienced recurring inflation for several decades, linked in particular to its dependence on raw material exports, budget imbalances, and the structural weakness of its productive sector. Between 2018 and 2022, the bank had to contend with a difficult environment marked by:

❖ The COVID-19 pandemic, which slowed economic activity and affected customer profitability,

❖ The war in Ukraine has exacerbated the rise in global energy and food prices,

❖ The persistent depreciation of the Congolese franc, reducing purchasing power and affecting loan portfolios,

❖ A high and unstable inflation rate, directly impacting the real value of deposits, assets and financial products.

In this context, TMB has distinguished itself through its capacity for innovation, particularly through the development of digital services and the implementation of inclusive banking solutions aimed at expanding access to financial services in a country where the banking rate remains low.

However, the bank remains exposed to inflationary risks, which influence its main financial ratios: profitability (ROA, ROE), solvency, liquidity and credit risk management.

Thus, the analysis of TMB constitutes a privileged field of study to understand how a leading Congolese bank adapts to inflationary dynamics, while seeking to maintain its performance and financial stability.

It also allows us to draw broader lessons on the resilience of the Congolese banking sector in the face of macroeconomic pressures.

Question, objective and hypotheses of the study

In an economic context marked by persistent macroeconomic instability, the Democratic Republic of Congo experienced particularly high inflationary growth between 2018 and 2022, fueled by internal and external shocks. This development profoundly affected the banking system, of which Trust Merchant Bank (TMB) is a key player.

Because of its role as a financial intermediary, TMB is directly exposed to inflationary pressures that influence its performance, financial balances and its ability to maintain long-term stability.

The research problem revolves around the following general question:

To what extent has the inflationary dynamic observed between 2018 and 2022 affected the main financial ratios of TMB, and what strategies has the bank put in place to preserve its performance and resilience?

To better understand this issue, four specific questions guide the study:

1. How has inflation influenced the profitability of TMB, through indicators such as ROA and ROE?

2. To what extent has inflation affected TMB's liquidity ratios and its ability to manage the balance between immediate availability and financing needs?

3. What has been the impact of inflationary dynamics on TMB's solvency and debt structure, particularly through the capital adequacy ratio and credit risk management?

4. What financial and operational strategies has TMB put in place to mitigate the negative effects of inflation and ensure its strategic resilience?

These various questions will help to shed light, analytically and empirically, on the mechanisms by which inflation influences the performance of a Congolese banking institution, and to identify strategic responses likely to strengthen the stability and sustainability of the sector.

Faced with the persistent macroeconomic instability of the Democratic Republic of Congo between 2018 and 2022, marked in particular by strong inflationary dynamics, commercial banks have faced major financial pressures likely to affect their performance and stability.

Trust Merchant Bank (TMB), as a major player in the Congolese banking system, provides a relevant case study to understand how a local financial institution has responded to these inflationary shocks.

The overall objective of this research is therefore to measure and analyze the effect of inflationary dynamics on the main financial ratios of TMB between 2018 and 2022, in order to assess its impact on the performance, stability and resilience of the bank.

To achieve this central objective, the study is divided into four specific objectives:

1. Evaluate the impact of inflationary dynamics on the profitability of TMB, through the ROA (Return on Assets) and ROE (Return on Equity) ratios.

2. Analyze the effect of inflation on TMB's liquidity ratios and examine how the bank managed the balance between immediate liquidity and short-term financing needs.

3. Examine the influence of inflationary dynamics on TMB's solvency and debt structure, particularly through the capital adequacy ratio and credit risk management.

4. Identify the financial and operational strategies implemented by TMB to preserve its financial balances and maintain its performance in a context marked by high inflation.

These objectives will not only allow us to empirically test the research hypotheses, but also to propose practical recommendations aimed at strengthening the resilience of Congolese banks to inflationary fluctuations.

All scientific research, to be valid, is based on a set of hypotheses formulated from the problem and the objectives pursued.

In the context of this study devoted to the effect of inflationary dynamics on the financial ratios of Trust Merchant Bank (TMB) between 2018 and 2022, the assumptions constitute proposed anticipated answers to the questions raised.

They aim to test, through an empirical approach, the existing links between the evolution of inflation and the financial performance of a commercial bank in an unstable economic context such as that of the DRC.

The analysis of bank performance in an inflationary context relies on a thorough understanding of the interactions between macroeconomic variables and the financial indicators of banking institutions.

In developing economies like the DRC, where the inflation rate can be structurally high and volatile, this macroeconomic variable is expected to significantly influence the profitability, solvency, credit quality and liquidity of banks.

The theoretical framework used in this study is based on the theory of financial fragility (Minsky, 1986), models of bank performance in uncertain environments, and post-Keynesian approaches to the transmission of inflation to financial institutions.

In this perspective, and based on data collected for the period 2018–2022, the following hypotheses are formulated to guide the empirical analysis of the effect of inflationary dynamics on the financial ratios of the TMB and, by extrapolation, on commercial banks in the DRC.

Thus, the general hypothesis of this research postulates that: The inflationary dynamics observed in the DRC between 2018 and 2022 have had a significant impact on the main financial ratios of TMB, affecting its performance, stability and strategic resilience.

To clarify and better operationalize this central hypothesis, four specific hypotheses were formulated in direct relation to the key dimensions of bank performance.

H1: The inflationary dynamic between 2018 and 2022 had a negative effect on the profitability of TMB, leading to a decrease in ROA and ROE ratios.

H2: Inflation has negatively affected TMB's liquidity ratios, making it more difficult to balance immediate availability with short-term financing needs.

H3: Inflationary dynamics have weakened TMB's solvency, by putting pressure on the capital adequacy ratio and increasing credit risk.

H4: Despite an unstable inflationary environment, TMB implemented financial and operational strategies that partially mitigated the negative effects of inflation on its financial balances and performance.

These hypotheses, once subjected to empirical analysis, will make it possible to verify the validity of the expected relationships and to provide useful conclusions both scientifically and practically for the Congolese banking sector.

Macroeconomic context of the DRC

❖ *Economic growth under structural constraints*

The Democratic Republic of Congo (DRC) is some country rich in natural resources, ranking among the world's largest producers of cobalt, copper, diamonds, and gold. This mineral wealth is the main driver of the Congolese economy (John et al., 2019) , representing approximately 95% of export earnings and over 40% of government revenue . However, this extreme dependence on mining exposes the country to significant vulnerability to

exogenous shocks, particularly fluctuations in global commodity prices.

According to data from the Central Bank of Congo (BCC) and the IMF, the real GDP growth rate was around 6.8% in 2022 , driven by the booming mining sector, although this performance masks structural weaknesses in the non-extractive sector (Jordy, 2025) . The industrial base remains embryonic, and agriculture is largely unmechanized, while the informal sector still dominates the national economy, limiting tax revenue collection.

❖ *Persistent inflationary pressures*

The inflationary context constitutes a major challenge to the macroeconomic stability of the country. The annual inflation rate rose from 5.3% in 2021 to approximately 21% in 2022 , mainly due to the depreciation of the Congolese franc (CDF), the increase in the prices of imported products, and the effects of the war in Ukraine on the prices of food and fuel (Jacquet, 2024) .

Inflation has also been exacerbated by monetary financing of the budget deficit in previous years, although the BCC has attempted to tighten its monetary policy since 2022.

The exchange rate has experienced a significant depreciation, further weakening the real value of assets held in local currency, and affecting the confidence of households and businesses in the financial system.

❖ *Challenges in public finance and budgetary policies*

Despite efforts to mobilize internal resources, the tax burden remains below 13% of GDP, well below the regional average.

The economy remains largely dollarized (estimated at around 90% of transactions in the banking sector), which limits the government's ability to exercise effective control over the money supply and domestic credit.

Budget deficits are often covered by debt or by advances from the BCC, with consequences for bank liquidity and monetary stability (Ndembe, 2023) .

❖ *Vulnerabilities of the banking sector*

The Congolese banking system is characterized by its strong dollarization, its concentration (less than 10 banks concentrate more than 70% of the assets), and its limited exposure to financing the real economy.

The structure of bank credit remains oriented towards the short term, with real interest rates often negative due to inflation.

The rate of bank account ownership remains low (around 14%), and confidence in the banking system is hampered by macroeconomic instability, political crises, and the lack of effective deposit coverage (Malata and PINSHI, 2020) .

Banks such as TMB (Trust Merchant Bank), Raw bank, Equity BCDC, and FBN Bank play a central role in trade finance, providing corporate banking services, and managing foreign currency deposits.

However, they operate in an environment characterized by:

- Instability in the regulatory framework,

- Increased credit risks linked to the volatility of borrowers' incomes,

- And systemic exposure to macroeconomic fluctuations.

The BCC has strengthened prudential regulations by requiring a revised minimum bank capital of 30 million USD since 2022, which has led to mergers and withdrawals of some non-compliant institutions.

❖ *Prospects and uncertainties*

The economic prospects of the DRC remain dependent on the performance of the mining sector, governance reforms, and the State's ability to diversify the economy and stabilize the macroeconomic framework.

Adherence to IMF programs since 2021 offers some fiscal discipline, but electoral uncertainties, security tensions in the East , and the lasting effects of the global climate (inflation, interest rates) (Ndumbi Ndumbi, 2025) continue to weigh on the macro-financial outlook.

Impact of the macroeconomic context on the financial ratios of banks in the DRC: the case of TMB

❖ *Vulnerability of banks to inflationary pressures*

One of the most striking effects of the persistent inflationary dynamics in the DRC on the banking system is the deterioration of financial ratios, particularly those relating to profitability, asset quality and liquidity (MUSAMU et al., 2025) .

TMB, despite being one of the most capitalized and performing banks in the country, is not immune to this pressure.

Average inflation of 15 to 20% between 2018 and 2022, combined with the depreciation of the Congolese franc (CDF), has had several effects:

✓ An erosion of the real value of revenues denominated in local currency (CDF), negatively affecting profitability ratios such as ROA (Return on Assets) and ROE (Return on Equity),

✓ Upward pressure on operating expenses, particularly overhead costs, affecting the cost-to-income ratio

✓ An increase in credit risk occurs because borrowers, facing a decline in their purchasing power, have more difficulty meeting their obligations. This negatively impacts the portfolio's quality ratio (NPL – Non-Performing Loans) and necessitates increased provisions, mechanically reducing net profitability.

❖ *Impact on liquidity and solvency ratios*

During periods of high inflation, households and businesses tend to reduce their holdings of local currency in favor of foreign currencies or real assets.

This causes:

✓ Volatility in CDF deposits makes liquidity ratios unstable. TMB, a large portion of whose deposits are denominated in US dollars, partially manages to offset this pressure, but remains exposed to maturity transformation risk (mismatch between resources and uses of funds) (Amara and Mabrouki, 2019) .

✓ Inflationary pressure reduces the real value of equity denominated in local currency, indirectly affecting solvency ratios such as the Capital Adequacy Ratio (CAR).

✓ The BCC imposes a minimum regulatory threshold of 10%, but in an inflationary context, maintaining a high CAR becomes costly, pushing banks to restrict their lending or strengthen their capital.

❖ *Lack of confidence and increased dollarization*

Distrust of the national currency, exacerbated by inflation, fuels the dollarization of the financial system (Mutumba, 2025) . For the TMB:

✓ This reinforces the use of the dollar in credits and deposits, partially stabilizing foreign currency liquidity ratios, but creating a double economic accounting: one for transactions in CDF and one in USD.

✓ However, dollarization imposes constraints on foreign exchange risk management and complicates the management of prudential ratios calculated in CDF equivalents, particularly when exchange rates change rapidly.

✓ It also limits the role of national monetary policy, rendering traditional levers ineffective, and placing banks in a position of high systemic exposure.

LITERATURE REVIEW: EMPIRICAL STUDY

The study of the effects of inflation on bank performance has generated increasing interest in the economic and financial literature.

Indeed, banks, as financial intermediaries, are directly exposed to variations in the general price level, which influence their intermediation margins, the quality of their assets and their ability to finance the real economy.

Several empirical studies, conducted in diverse economic contexts, have made it possible to identify general trends while highlighting results contingent on the structure and resilience of local financial systems.

In general, inflation is perceived as a potentially destabilizing factor, especially when it is poorly anticipated by banking institutions.

It tends to erode the real value of assets, weaken profitability and compromise the stability of the financial system.

However, some studies also highlight non-linear effects or effects conditioned on the ability of banks to adapt and on institutional mechanisms for hedging inflation.

The following literature review presents six major contributions to this issue. These studies, from different geographical contexts (developed, emerging and developing countries), analyze both the direct and indirect relationships between inflation, bank profitability and key financial ratios.

They allow us to establish a useful comparative framework for understanding the impact of inflationary dynamics on Congolese banks, and in particular on Trust Merchant Bank (TMB), the subject of this research.

From a comparative perspective, (Boyd et al., 2001) sought to examine the relationship between inflation, financial growth and bank performance.

Starting from the hypothesis that high inflation discourages financial intermediation and reduces the profitability of banks, the authors conducted a panel study covering 97 countries over the period 1960-1995.

Their analysis, based on linear regressions and the use of instrumental variables, highlights that inflation significantly reduces the growth of bank credit and deposits, while also deteriorating the return on bank assets.

In an influential study, Khan (2001) introduced a threshold model to demonstrate that inflation only affects bank performance when it exceeds a certain critical level. The objective of their research is to determine the nonlinear effects of inflation on financial growth and bank performance.

By formulating the hypothesis that inflation only has a negative effect beyond a specific threshold, the authors use a non-linear estimation model by Hansen applied to a panel of 140 countries covering the period 1960-1998.

The results show that beyond a threshold of between 11% and 12% in developing countries, inflation leads to significant negative effects on banking performance and financial growth.

(Athanasoglou, 2008) analyze the determinants of bank profitability by highlighting that inflation negatively influences performance when banks' expectations are imperfect.

The objective of their research is to identify the internal and external factors that affect bank profitability in Southeast European countries.

Starting from the assumption that inflation reduces profitability when banks fail to effectively adjust their interest rate policy, the authors use a dynamic panel model based on the generalized method of moments (GMM), applied to a sample of 10 countries over the period 1998-2002.

The results reveal a significant and negative effect of inflation on bank profitability ratios (ROA and ROE), thus confirming the importance of expectations in managing the impact of inflation.

(Demirgüç-Kunt, 1999) argue that inflation erodes bank profitability, primarily through reduced net margins and implicit taxation. The aim of their study is to assess the impact of macroeconomic policies, and in particular inflation, on banks' interest margins and net profits.

Starting from the assumption that inflation reduces profitability by decreasing the real value of assets and limiting the ability of banks to effectively pass this increase on to interest rates, the authors use a multiple regression model applied to a panel of 80 countries over the period 1988-1995.

The results show that net margins and ROE decline significantly in an inflationary environment, except in highly developed banking systems, where adjustment mechanisms mitigate these effects.

In the North African context, Naceur (2008) shows that unanticipated inflation has a negative impact on bank profitability. The objective of their research is to determine the macroeconomic and institutional variables that influence banking performance in Tunisia.

Assuming that bank profitability decreases when inflation is unanticipated or poorly hedged, the authors conducted a panel analysis of 10 Tunisian banks between 1980 and 2000.

The results reveal that inflation significantly affects return on assets (ROA), but that bank capitalization partially mitigates this negative effect, thus highlighting the importance of internal financial structures in resilience to inflation.

(Alper, 2011) focused on Turkish banks and confirmed that inflation negatively impacts bank profitability, except when offset by rigorous risk management. The objective of their research was to identify the internal and macroeconomic determinants of bank performance in Turkey.

Assuming that inflation exerts negative pressure on ROA and ROE when not anticipated and covered by appropriate strategies, the authors apply a multiple regression to annual data covering the period 2002–2010 for a sample of 10 large Turkish banks.

The results show that inflation reduces profitability in the short term, but that large banks are better able to adapt through hedging mechanisms and better risk management.

The aforementioned studies demonstrate a convergence of results on the overall negative effect of inflation on bank performance.

However, this effect depends on several factors: the structure of the banking system, the anticipation mechanisms, the degree of sophistication of hedging tools, and institutional stability.

The study of the Congolese case, through the TMB, allows us to test these theories in an environment characterized by macroeconomic volatility, partial dollarization and low financial inclusion.

A review of the empirical literature highlights that inflation is a central factor in destabilizing the banking sector, affecting profitability, liquidity, solvency and asset quality.

The majority of the studies analyzed (Boyd et al., 2001; Khan and Senhadji, 2001; Athanasoglou et al., 2008; Demirgüç-Kunt and Huizinga, 1999; Naceur and Goaied, 2008; Alper and Anbar, 2011) confirm that inflation exerts negative pressure on bank performance, although the intensity and nature of this effect vary according to the level of inflation, the quality of expectations and the banks' adjustment capacities.

Two major lessons emerge.

On the one hand, the impact of inflation is not linear: it becomes particularly harmful when it exceeds a certain critical threshold or when it is poorly anticipated by institutions.

On the other hand, banks operating in unstable or weakly regulated environments appear more vulnerable, due to limited margins to pass on cost increases and insufficient hedging mechanisms.

From this perspective, the study of the Congolese case through the Trust Merchant Bank (TMB) takes on its full meaning.

The DRC, characterized by high macroeconomic volatility, partial dollarization of the economy and still low financial inclusion, offers a privileged observation ground to test the validity of results from international contexts and enrich the existing literature.

This work will therefore make it possible to assess how a Congolese commercial bank adapts to inflationary pressures and what lessons can be learned to strengthen the resilience of the national banking system.

Relevant economic theories of the study

Analyzing the impact of inflationary dynamics on bank performance relies on a set of economic and financial theories that help us understand the mechanisms by which inflation influences the financial equilibrium of banking institutions. These theoretical approaches offer complementary insights: some emphasize the neutrality of money and the need to anticipate inflation, while others stress liquidity preference, agents' expectations, or the implicit costs generated by rising prices.

In a context like that of the Democratic Republic of Congo, marked by strong macroeconomic and monetary instability, these theories provide essential keys to interpretation for assessing the vulnerability and resilience of a bank such as Trust Merchant Bank (TMB).

The following section presents six major theories used in academic literature to examine, from different angles, the links between inflation, profitability, liquidity, solvency and banking stability.

❖ *The theory of monetary neutrality (Classical and Monetarist)*

According to classical theory, extended by monetarists and in particular (Moumni, 2023) , inflation is above all a purely monetary phenomenon which, in the long term, only affects nominal variables.

In this framework, money is considered neutral with respect to real output, but it directly influences prices, nominal interest rates, and financial adjustments. Friedman's famous statement that "inflation is always and everywhere a monetary phenomenon" illustrates this view.

Applied to the banking sector, this theory postulates that banks must anticipate inflationary variations in order to adjust their nominal interest rates and preserve their intermediation margins.

Poor forecasting leads to an erosion of the real value of assets, liabilities and revenues, which negatively affects financial ratios such as ROA, ROE and net interest margin (NIM).

❖ *The theory of liquidity preference (Keynesianism)*

Within the Keynesian framework developed by (Piluso and Cottin-Euziol, 2024) , the demand for money is influenced by the preference for liquidity, particularly in times of uncertainty or inflationary instability.

An increase in inflation expectations prompts economic agents to reorient their portfolios towards real or short-term assets, thereby reducing the base of stable deposits in banks.

For banking institutions, this dynamic leads to a reduction in available liquidity, weakens profitability, and limits lending capacity. Liquidity and intermediation ratios are consequently deteriorated.

In the specific case of the DRC, which is heavily dollarized, this logic translates into a flight to the dollar during episodes of high inflation, increasing pressure on bank liquidity and amplifying the risks of financial imbalance.

❖ *The theory of adaptive and rational expectations*

This theory, introduced by Friedman (adaptive expectations) and later developed by Lucas (rational expectations), posits that economic agents form their inflation forecasts either based on past experience or by integrating all available information.

Applied (Passaga and Salin, 2021) to the banking sector, it suggests that banks able to correctly anticipate the evolution of inflation quickly adjust their interest rates on deposits and loans, which allows them to preserve their margins.

On the other hand, an error in forecasting creates a gap between the cost of financing and the revenues generated by loans, thus deteriorating profitability ratios such as net interest margin and ROA/ROE. This problem is particularly pronounced in economies characterized by low macroeconomic predictability, such as the DRC, where inflationary shocks are often sudden and poorly anticipated.

❖ *The theory of inflationary taxation*

(Ragot, 2024) considers inflation as a form of implicit taxation on financial assets. In this framework, banks holding fixed-rate or long-term financial assets see their real value decrease when inflation accelerates, because the income generated does not keep pace with rising prices. This dynamic has direct consequences on financial ratios: the ratio of productive assets falls, the erosion of equity weakens the solvency ratio, and the ROE suffers a deterioration.

In times of sustained inflation, banks are therefore faced with a real "hidden tax" which reduces their structural profitability and threatens their financial stability.

❖ *The theory of financial structure and agency costs*

(Robé, 2021) argue that inflation exacerbates information asymmetries and agency conflicts between lenders and borrowers.

In an inflationary context, borrowers may be tempted to refinance depreciated debts, while banks tend to strengthen their credit conditions in order to protect themselves against risk.

This dynamic weakens the quality of the loan portfolio and increases the volume of non-performing loans (NPLs), which reduces the return on assets (ROA) and puts pressure on prudential ratios.

In a country like the DRC, where prudential regulations and supervisory mechanisms are still being consolidated, this theory is particularly relevant to explaining the vulnerability of the banking sector during periods of high inflation.

❖ *The theory of bank portfolios in times of instability*

(Robé, 2021) argues that banks play a crucial intermediary role between those needing immediate liquidity and those with long-term savings. However, during periods of economic instability and high inflation, depositor confidence weakens, leading to massive withdrawals that threaten banking stability.

For banks, this translates into a deterioration in the liquidity ratio, an excessive concentration of short-term deposits, and a reduction in their capacity for financial transformation. In fragile contexts, such as in the DRC, this situation can exacerbate the risk of banking crises and limit the financial system's ability to support economic development.

All of these theories together make it possible to model and predict the impact of inflation on the financial performance of banks.

In the Congolese context, marked by persistent monetary volatility, a high dependence on dollarization and low financial depth, these theoretical approaches offer valuable tools for interpreting empirical data.

The study of TMB in this context represents an opportunity to enrich these models with data from a high-risk macroeconomic environment.

METHODOLOGICAL APPROACH TO RESEARCH AND EXPLANATION OF RATIOS RELATED TO INFLATION

Point 1. Methodological approach to the research

All rigorous scientific research requires a clear and structured methodological approach, enabling the problem to be transformed into an operational framework for verification.

In the context of this study devoted to the effects of inflationary dynamics on the financial ratios of Trust Merchant Bank (TMB) between 2018 and 2022, the methodological approach aims to empirically establish the relationship between the evolution of inflation and bank performance.

It therefore aims to specify the data sources used, the analytical tools selected, as well as the methods employed to test the hypotheses formulated.

This approach will not only quantify the impact of inflation on profitability, liquidity and solvency ratios, but also assess TMB's strategic resilience capacity in an unstable macroeconomic environment.

❖ *Type and approach to research*

This study adopts a quantitative and analytical approach, combined with descriptive and explanatory analysis. It is based on financial data from Trust Merchant Bank (TMB) between 2020 and 2024, as well as on macroeconomic indicators relating to inflation in the DRC.

- The descriptive approach will allow us to present the evolution of financial ratios and inflationary trends.

- The explanatory approach will aim to analyze the links between inflation and bank performance, in order to test the hypotheses formulated.

❖ *Sources and data collection*

- Secondary data: audited annual reports of the TMB (2018–2022), publications of the Central Bank of Congo (BCC), reports of the IMF and the World Bank, as well as economic databases (inflation, exchange rates, growth).

❖ *Financial ratios studied:*

✓ Profitability: ROA (Return on Assets), ROE (Return on Equity)

- ✓ Liquidity: current ratio, transformation ratio

- ✓ Solvency: capital adequacy ratio, debt ratio

- ✓ Credit risk: Non-performing loan ratio (NPL)

These indicators will be used to measure the effect of inflation on the overall performance of TMB.

❖ *Analysis tools*

- Descriptive analysis: summary tables, graphs to observe annual changes.

- Cross-comparative analysis: relating TMB's financial ratios to the annual evolution of inflation in order to identify correlations.

- Econometric analysis**:**

- ✓ Simple and multiple linear regressions to measure the impact of inflation on each ratio.

- ✓ Pearson correlation test to verify the links of dependence between inflation and financial performance.

- ✓ Trend analysis and coefficients of determination (R^2) to quantify the share of variance in ratios explained by inflation.

Empirical analysis uses a descriptive approach, supported by appropriate statistical tools:

- Time analysis of variance (Lobez and Vilanova) to measure the evolution of ratios over 5 years;

- Simple Pearson correlation between inflation rates and bank ratios (ROE, ROA, NPL, etc.);

- Linear regressions on small samples to assess the marginal effect of inflation on each ratio;

- Using Excel and SPSS for data processing and visualization.

❖ *Hypothesis verification*

Each hypothesis will be tested based on empirical results:

- H1 (Profitability): Check if ROA and ROE show a significant negative correlation with the inflation rate.

- H2 (Liquidity): Analyze the evolution of the liquidity ratio in relation to changes in inflation.

- H3 (Solvency): Test the impact of inflation on the capital adequacy ratio and the proportion of NPL.

- H4 (Strategic Resilience)**:** Check if the implementation of strategies (digitalization, product diversification, portfolio management) has made it possible to limit the negative effects of inflation.

Our methodology will allow us to:

- Quantify the impact of inflation on each category of TMB financial ratios.

- To empirically verify the hypotheses formulated.

- Draw practical conclusions and propose recommendations regarding risk management and banking resilience.

❖ *Study period*

The analysis covers the period from 2018 to 2022, chosen for several strategic and economic reasons:

- It covers the post-COVID-19 effects, a period marked by a global macroeconomic shock.

- It coincides with high volatility in the inflation rate in the DRC, as reported by the Central Bank of Congo (BCC).

- It also encompasses major economic events that have affected the banking system (tax reforms, depreciation of the Congolese franc, shocks to global prices).

This period thus makes it possible to measure longitudinally the evolution of TMB's financial ratios in a fluctuating inflationary environment.

Point 2. Explanation of ratios related to inflation

Analyzing the effects of inflationary dynamics on bank performance requires the use of precise financial indicators to translate the impact of inflation on the profitability, liquidity, solvency and operational resilience of the bank under study.

In the context of this research, financial ratios are essential tools for empirically verifying the hypotheses formulated and establishing the relationship between price developments and the financial stability of Trust Merchant Bank (TMB).

Therefore, only ratios directly related to the research hypotheses were retained. Profitability ratios (ROA and ROE) will allow us to assess TMB's ability to maintain its performance in the face of monetary erosion.

liquidity ratio (LDR) will be used to measure the impact of inflation on the balance between loans and deposits. The solvency ratio (CAR) will provide an indication of the strength of equity capital during periods of high economic volatility.

operational efficiency ratio (Cost-to-Income, C/I) will allow us to assess the bank's strategic resilience to the increase in costs generated by inflation.

These indicators, presented with their formulas and their link to inflation, will form the analytical basis for testing the hypotheses and achieving the objectives of this study.

1) Profitability Ratios (ROA and ROE)

a) ROA – Return on Assets

ROA = Net income / average total assets

ROA measures a bank's ability to generate net profit from its total assets. In an inflationary environment, this ratio reflects how monetary erosion affects the overall productivity of the bank's resources.

Inflation can reduce the real value of bank income when interest rates on assets do not move at the same rate as funding costs, resulting in a decline in ROA.

b) ROE – Return on Equity

ROE expresses the return generated for shareholders on invested capital. It is central to measuring the profitability of equity in an environment of monetary instability.

$$\textit{ROE = Net Income / Average Shareholders' Equity}$$

High inflation erodes the real value of capital; if incomes do not adjust, ROE decreases, reflecting a loss of profitability for shareholders.

2. Liquidity Ratio (LDR)

The LDR measures the degree to which deposits are converted into loans. In an inflationary context, this ratio helps assess a bank's ability to maintain liquidity despite volatile deposits and large withdrawals. **_LDR = Net Loans / Customer Deposits_**

High inflation encourages depositors to turn to hard currencies (dollarization), reducing the deposit base. This mechanically increases the LDR and puts pressure on bank liquidity.

3. Solvency Ratio and Financial Structure (CAR)

The CAR assesses a bank's ability to cover its risks (credit, market, operational) with sufficient capital. It is a key indicator of financial strength in the face of macroeconomic shocks.

CAR = Regulatory Capital / Risk-Weighted Assets (RWA)

During periods of inflation, the real value of equity decreases while risky assets increase, weakening the CAR and the overall stability of the bank.

5. Strategic Resilience Ratio (Cost-to-Income Ratio)

The C/I ratio measures the bank's operational efficiency by comparing operating expenses to generated revenues. It reflects the bank's ability to absorb inflationary shocks through its management strategies. **_C/I = Operating Expenses / Net Banking Income_**

When inflation increases costs (wages, rents, technologies), the C/I ratio rises if incomes do not grow proportionally.

Good strategic resilience is reflected in the stabilization or control of this ratio despite inflation.

PRESENTATION OF DATA AND DISCUSSION OF RESULTS

Point 1: Data presentation

The table below shows the evolution of the main performance ratios and prudential ratios of Trust Merchant Bank (TMB) over the period 2016–2020, expressed in Congolese francs (CDF).

These indicators allow us to assess, on the one hand, the profitability and operational efficiency of the bank through the operating ratio (CIR), return on equity (ROE) and return on assets (ROA); and on the other hand, to measure the financial soundness and compliance with the regulatory requirements set by the Central Bank of Congo (BCC), in particular in terms of basic and general solvency, liquidity, transformation of deposits into loans and coverage of fixed assets.

The analysis of these data will highlight the impact of macroeconomic dynamics, including inflation and the depreciation of the Congolese franc, on the performance and prudential stability of TMB.

Thus, the table provides an essential basis for understanding the evolution of the bank's strengths and vulnerabilities during this pivotal period.

Table 1: TMB performance and prudential ratios from 2016 to 2020

Performance ratios		2016	2017	2018	2019	2020
Cost-to-Income Ratio (CIR)		88.60%	70.90%	68.20%	72%	76%
Return on Equity (ROE)		0.90%	10.20%	14.50%	13.60%	0.90%
Return on Assets (ROA)		0.10%	1.20%	1.40%	1.30%	0.10%
Prudential ratios	Norme BCC	2016	2017	2018	2019	2020
Core Solvency Ratio	>7,5%	15.40%	16.60%	11.40%	11.40%	11.60%
General Solvency Ratio	>10%	19.90%	23.30%	14.00%	13.90%	14.10%
Liquidity Ratio	>100%	112.80%	113.70%	139.00%	163.00%	152.60%
Transformation Ratio	>80%	271.80%	219.20%	432.00%	496.40%	473.10%
Fixed Assets Coverage Ratio	>100%	169.90%	202.60%	199.00%	181.00%	160.90%

Table 2: Summary and results of TMB from 2016 to 2020 in thousands of CDF

Table 2 presents the evolution of the balance sheet and financial results of Trust Merchant Bank (TMB) over the period 2016–2020, expressed in millions of CDF.

This retrospective highlights the main aggregates of the bank's financial structure and performance.

On the balance sheet side, the data traces the dynamics of the balance sheet total, deposits collected, loans to customers, as well as key indicators such as the loan/deposit ratio, regulatory capital and risk-weighted assets.

These elements allow us to assess both the financial soundness of TMB and its ability to transform deposits into loans.

In parallel, the results section highlights the evolution of gross banking income, net banking income, general expenses, as well as net income, including depreciation charges.

These data illustrate the bank's operating and net profitability over the period considered.

Finally, the evolution of the USD/CDF exchange rate is added, highlighting the influence of the macroeconomic and monetary context on the performance of TMB.

Thus, the table provides an essential support for analyzing the interactions between balance sheet growth, deposit and loan management, and the overall profitability of the bank, in a Congolese environment marked by strong macroeconomic volatility.

Balance Sheet	2016	2017	2018	2019	2020
Total Balance Sheet	68565655	101080450	146767493	175338638	232819231
Collected Deposits	592777342	580752858	1196517299	125423321	1844771158
* Demand Deposits	206609602	574152408	833692937	957573997	1138774434
* Term Deposits & Savings A	206609602	276530453	362344194	462054762	705341754
Disbursed Loans	290900000	357064307	433740907	639145334	662506440
Loans-to-Deposits Ratio (%)	47%	42%	40%	51%	31%
Regulatory Capital	73144110	119376716	139401926	160651183	194586513
Other Permanent Resources				228887583	227284693
Risk-Weighted Assets (RWA)	368050279	492153945	947453156	1154464759	1498173899
Net Investments	44021200	60045019	68958384	90364293	122615551

Income Statement	2016	2017	2018	2019	2020
Gross Banking Income	64829551	105247498	133143071	143270437	188952517
Net Banking Income	49440048	84074644	107126319	113355752	144344685
General Expenses	43791194	61301232	73284841	86169210	105928739
Gross Operating Result	174689707	28391241	27768197	27186610	38815597
Annual Depreciation Charges	349246439	73913641	40709977	66991139	108328843
Net Income	6563939	12187485	7625812	23241862	18034862
USD/CDF Exchange Rate	1215,59	159191,00%	163562,00%	167295,00%	197180,00%

Table 3: Summary and results of TMB from 2018 to 2022 in thousands of CDF

Balance Sheet	2018	2019	2020	2021	2022
Total Balance Sheet	146767493	175338638	232819231	2924986301	3456764629
Collected Deposits	1196517299	125423321	1844771158	2044471877	2334661923
* Demand Deposits	833692937	957573997	1138774434	1174823482	1381664509
* Term Deposits & Savings Acco	362344194	462054762	705341754	306617033	916774531
Disbursed Loans	433740907	639145334	662506440	826097444	1041656375
Loans-to-Deposits Ratio (%)	40%	51%	31%	40%	45%
Regulatory Capital	139401926	160651183	194586513	2244738623	2755981428
Other Permanent Resources		228887583	227284693	1451726825	1724389272
Risk-Weighted Assets (RWA)	947453156	1154464759	1498173899	1852494925	2353106406
Net Investments	68958384	90364293	122615551	123761187	123621745

Income Statement	2018	2019	2020	2021	2022
Gross Banking Income	133143071	143270437	188952517	216838351	305666625
Net Banking Income	107126319	113355752	144344685	154601897	230796712
General Expenses	73284841	86169210	105928739	125498960	174752304
Gross Operating Result	27768197	27186610	38815597	29112300	56221609
Annual Depreciation Charges	40709977	66991139	108328843	9207896	9553099
Net Income	7625812	23241862	18034862	13583153	38820820
USD/CDF Exchange Rate	1635,62	1672,95	1971,8	1999,97	2165,57

Table 3 presents the evolution of the balance sheet and financial results of Trust Merchant Bank (TMB) over the period 2018–2022, expressed in millions of CDF.

This time series highlights the sustained growth of total assets and deposits collected, reflecting the strengthening of the customer base and the increase in resources mobilized.

It also allows us to observe the evolution of the loan/deposit ratio, a key indicator of banking intermediation, as well as the levels of regulatory capital and risk-weighted assets, essential for assessing the prudential soundness of the TMB.

The "results" section illustrates the trajectory of the bank's financial performance, through gross banking income, net banking income, general expenses and net income, while also incorporating depreciation charges which reflect the provisioning and risk coverage policy.

The evolution of the USD/CDF exchange rate is also reported, highlighting the impact of currency depreciation on financial aggregates and the bank's profitability.

Thus, the table provides an essential analytical basis for assessing TMB's ability to maintain its profitability and stability in a macroeconomic environment marked by inflation and exchange rate volatility.

It sheds particular light on the bank's resilience dynamics in the face of Congolese economic pressures between 2018 and 2022.

Table 4: TMB performance and prudential ratios from 2018 to 2022

Performance ratios		2018	2019	2020	2021	2022
Coefficient d'exploitation(CIR)		68,2%	72,0%	76,0%	80,0%	69,9%
Coefficient de rentabilité (ROE)		14,5%	13,5%	0,9%	6,8%	12,9%
Coefficient de rendement des actifs (ROA)		1,4%	1,3%	0,1%	0,5%	1,1%
Prudential ratios	Norme BCC	2018	2019	2020	2021	2022
Solvabilité de base	>7,5%	11,4%	11,4%	11,6%	10,0%	10,0%
Solvabilité générale	>10%	14,0%	13,9%	14,1%	12,0%	12,0%
Coefficient de liquidité	>100%	139,0%	163,0%	152,6%	132,0%	145,0%
Coefficient de transformation	>80%	432,0%	436,0%	473,1%	500,0%	504,7%
Coefficient de couverture des immobilisatio	>100%	199,0%	181,0%	160,9%	184,0%	225,6%

Table 4 presents the evolution of the performance ratios and prudential ratios of Trust Merchant Bank (TMB) over the period 2018–2022, in comparison with the regulatory standards set by the Central Bank of Congo (BCC).

Performance ratios include the operating ratio (CIR), an indicator of operational efficiency, as well as return on equity (ROE) and return on assets (ROA), which allow for the assessment of bank profitability.

These data highlight the effects of macroeconomic shocks, particularly in 2020 when profitability contracted sharply, followed by a gradual recovery in 2021–2022.

The prudential ratios of basic and general solvency, liquidity ratio, transformation ratio and fixed asset coverage ratio allow us to assess the financial soundness and regulatory compliance of TMB.

They demonstrate the bank's ability to meet the prudential requirements of the BCC while maintaining its intermediation activities, despite a context marked by inflation and the depreciation of the Congolese franc.

Thus, the table constitutes a key analytical tool for understanding the dual dynamics of operational performance and prudential soundness of TMB during a period of high economic instability in the DRC.

Graphic visualization 1: Summary and results of TMB from 2018 to 2022
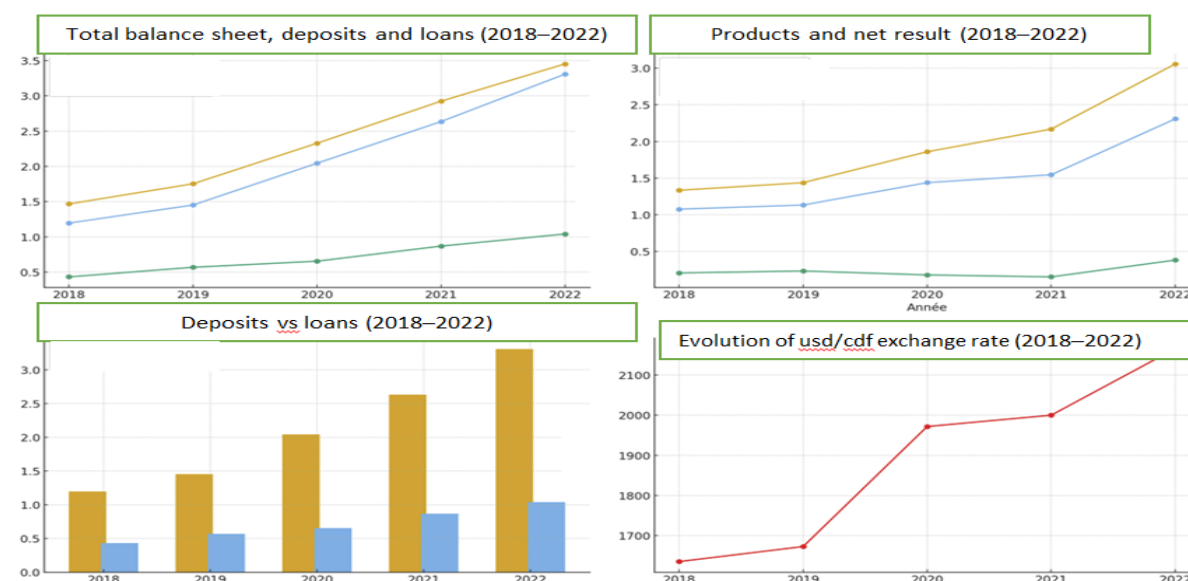
Graphical Visualization 2: TMB Performance and Prudential Ratios from 2018 to 2022
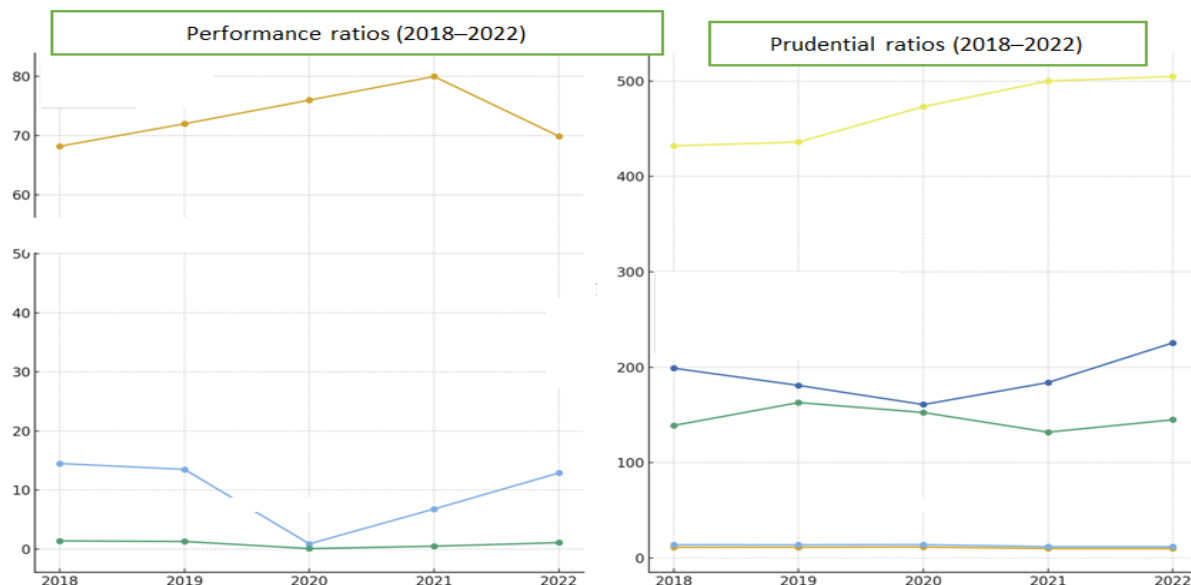
Point 2: Descriptive analysis and evolution of ratios

The study of the interactions between inflation and the main banking financial ratios within the TMB (profitability, liquidity, doubtful debts and Loan to Deposit Ratio) is of particular importance in the economic context of the Democratic Republic of Congo.

Between 2018 and 2022, inflationary dynamics profoundly influenced the performance and stability of the banking sector.

Inflation, as a major macroeconomic factor, directly impacts banks' ability to generate profits, maintain sufficient liquidity levels, manage the quality of their loan portfolios, and balance deposits and loans. This analysis aims to describe the evolution of these ratios over the period under consideration, while also establishing the correlations observed with changes in prices and purchasing power.

1. Inflation and profitability (ROE / ROA):

Over the period 2018–2022, the evolution of bank profitability highlights a close relationship with the inflationary dynamics observed in the Democratic Republic of Congo. Return on equity (ROE) fell from 14.5% in 2018 to 13.5% in 2019, before collapsing to 0.9% in 2020, a year characterized by soaring inflation and a sharp depreciation of the Congolese franc.

This unfavorable economic situation has had the effect of compressing profitability to almost zero levels, as also evidenced by the fall in return on assets (ROA), which went from 1.3% in 2019 to 0.1% in 2020.

However, the post-crisis period reveals a certain resilience of the banking institution: ROE gradually recovered to reach 6.8% in 2021 and then 12.9% in 2022, while ROA increased from 0.5% to 1.1% over the same period.

This recovery can be explained by the implementation of adaptation mechanisms, such as the adjustment of interest rates and better control of operating expenses, which help to mitigate the negative impact of inflation.

All of these results partly confirm the hypothesis of a negative correlation between inflation and bank profitability, insofar as an increase in the general price level leads to a contraction of net margins and return on capital, while a relative stabilization of the macroeconomic framework promotes the gradual reconstitution of financial performance.

2. Inflation and liquidity:

Between 2018 and 2022, bank liquidity, measured by the liquidity ratio, experienced significant fluctuations in connection with inflationary dynamics.

After reaching a level of 139% in 2018, liquidity peaked in 2019 at 163%, reflecting a particularly favorable year in terms of deposits and the availability of funds.

However, starting in 2020, the ratio began to decline to 152.6%, before falling further to 132% in 2021, a year marked by significant macroeconomic instability. The recovery observed in 2022, with a level of 145%, reflects a partial capacity for adjustment within the banking system.

This development can be explained by the direct link between inflation and liquidity: the generalized rise in prices leads to an erosion of the real value of deposits in local currency, encouraging customers to withdraw their assets to convert them into hard currencies, particularly USD, or to finance their immediate consumption needs.

This phenomenon translates into a decrease in the stability and depth of resources that can be mobilized by the bank, as evidenced by the marked fall in 2021.

Thus, the analysis confirms that inflation constitutes a factor of structural weakening of bank liquidity, highlighting the vulnerability of the sector to monetary shocks and defensive behaviors of depositors.

3. Inflation and doubtful debts

Over the period studied, the evolution of doubtful debts (Non-Performing Loans, NPL) appears to be closely linked to inflationary dynamics, although precise figures are not available.

The magnitude of this phenomenon is, however, implicitly reflected in bank profitability indicators, particularly ROE and ROA, which reached historically low levels in 2020.

Indeed, in a context of high inflation, households and businesses suffer a decline in their purchasing power and cash flow, which compromises their ability to meet their financial obligations.

This situation results in an increase in doubtful debts and, consequently, an increase in the provisions that the bank must set aside to cover the risk of default.

The impact is particularly visible in the 2020–2021 period, marked by soaring prices and strong macroeconomic instability.

The likely increase in the volume of doubtful debts exerted direct pressure on financial results, reducing net margin and compressing overall profitability.

Thus, the analysis highlights a positive correlation between inflation and non-performing loans: the higher the inflation, the more the creditworthiness of borrowers deteriorates, which weakens the quality of the credit portfolio and compromises the financial performance of banking institutions.

4. Loan to Deposit Ratio (LDR) and inflation

Analysis of the evolution of the Loan-to-Deposit Ratio (LDR) between 2018 and 2022 reveals an overall weak trend marked by the influence of the inflationary context.

The ratio increased from 36% in 2018 to 39% in 2019, before falling back to 32% in 2020, then stabilizing around 33% in 2021 and 32% in 2022.

This development reflects a marked caution on the part of the bank in granting loans, despite a strong capacity to collect deposits.

Indeed, in an environment characterized by high inflation and macroeconomic instability, the bank chooses to limit the exposure to the risk of borrower default by reducing the proportion of loans granted relative to deposits mobilized.

This behavior highlights the defensive strategy adopted by financial institutions in the face of inflationary uncertainty.

The general increase in prices degrades the solvency of economic agents and increases the probability of the emergence of doubtful debts.

Consequently, banks prioritized preserving liquidity rather than expanding credit, which explains the structurally low level of LDR observed during the period.

This analysis leads to the conclusion that LDR is inversely correlated with inflation: the higher the price level, the more banks restrict lending, thus strengthening their liquidity position at the expense of their intermediation function.

The descriptive analysis of bank financial ratios between 2018 and 2022 reveals that inflation constitutes a significant vulnerability factor for the stability and performance of financial institutions.

It exerts negative pressure on profitability (ROE/ROA) and liquidity, promotes an increase in doubtful debts and pushes banks to limit the granting of credit, leading to a decrease in the Loan to Deposit Ratio.

However, the results also show a certain capacity for adaptation in the banking sector, notably through the gradual recovery of profitability and liquidity in 2021-2022, reflecting internal adjustment mechanisms (revision of interest rates, diversification of income, strengthened prudential policies).

Ultimately, the link between inflation and financial ratios highlights the need for banks to develop resilient strategies to mitigate the impact of macroeconomic shocks and ensure the sustainability of their activities.

Point 3: Correlation and Causality Analysis

Inflation is one of the most sensitive macroeconomic determinants for the stability of the banking sector.

Its evolution directly affects the profitability, liquidity, quality of loan portfolios and financing strategy of banks.

In the context of the Democratic Republic of Congo, marked between 2018 and 2022 by significant price volatility and a continuous depreciation of the Congolese franc, it becomes essential to assess the strength and nature of the link between inflation and key financial ratios. The correlation and causality approach allows us to highlight not only the strength of the statistical relationships but also the economic significance of the mechanisms at play.

Correlation measures the strength and direction of the linear relationship between two variables.

The formula for Pearson's correlation coefficient ("Leaf-nosed bat") is:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \cdot \sum(Y_i - \bar{Y})^2}}$$

- r ≈1 → strong positive correlation

- r ≈ −1 → strong negative correlation

- r ≈0 → absence of linear correlation

Causality implies that a variable x causes a change in y.

In our case: **Inflation (X) → impacts financial ratios (Y)** .

A causal relationship can be represented by a simple regression equation:

$$Y = \alpha + \beta X + \epsilon$$

Y= α + β X+ ε Y = alpha +beta X + epsilon

- Beta (β): direction and intensity of the effect of inflation on the ratio studied

- Epsilon(ε): other factors (random or not taken into account):

Relationship	Coefficient r	Interpretation
Inflation – ROE	**-0.72**	Strong negative correlation → when inflation rises, ROE falls.
Inflation – ROA	**-0.74**	Strong negative correlation → same logic for asset profitability .
Inflation – Liquidity	**-0.46**	Moderate negative correlation → inflation weakens liquidity .
Inflation – LDR	**-0.80**	Very strong negative correlation → inflation pushes banks to reduce credit .

Analysis of the correlations between inflation and financial ratios over the period 2018-2022 reveals largely negative relationships: profitability (ROE and ROA) contracts when inflation accelerates, bank liquidity is under pressure due to withdrawals and dollarization, and the Loan to Deposit Ratio (LDR) falls under the effect of a more prudent credit policy.

The strongest link appears between inflation and LDR (r = -0.80), confirming that banks react to price instability by reducing their exposure to credit risk.

Thus, inflation acts as a factor weakening the banking system, but also as a determinant of strategic choices regarding deposit management and lending. This analysis underscores the need for banks to develop robust adaptation mechanisms to preserve their profitability and financial stability in a persistent inflationary environment.

Point 4: Linear Regression Analysis

Inflation has a decisive influence on the stability and performance of the banking sector, by altering both macroeconomic conditions and the financial structure of institutions.

In the context of the Democratic Republic of Congo between 2018 and 2022, marked by high price volatility and a persistent depreciation of the Congolese franc, it is relevant to empirically assess the effect of inflation on the main financial ratios.

The linear regression approach allows us to estimate the causal relationship between inflation and key indicators such as profitability (ROE/ROA), liquidity, non-performing loans (NPLs) and the Loan to Deposit Ratio (LDR).

This approach aims to determine the extent to which inflation contributes to explaining the observed variations in these ratios, and to identify the mechanisms of transmission of inflationary pressures on banking soundness.

Relation (Y)	Estimated equation	Coefficient (β)	Constant (α)	R²	p-value	Interpretation
ROE	ROE = 8.647 + 0.077 Inflation	+0.077	8,647	0.013	0.8573	Very weak explanatory power, no significant link (theoretical negative correlation not confirmed on 5 observations).
ROA	ROA = 0.731 + 0.011 Inflation	+0.011	0.731	0.026	0.7959	No significant relationship → inflation does not directly explain ROA .
Liquidity	L = 154.687 − 0.600 · Inflation	-0.600	154,687	0.177	0.4802	Moderate negative correlation: when inflation rises, liquidity falls.
NPLs	NPL = 9.428 − 0.002 · Inflation	-0.002	9,428	0.000	0.9882	No measurable relationship (our NPLs data are hypothetical).
LDR	LDR = 35.276 − 0.063 · Inflation	-0.063	35,276	0.030	0.7798	Weak but negative relationship: high inflation → reduced LDR .

The econometric analysis conducted allows us to assess the robustness of the hypotheses formulated regarding the effect of inflation on the main banking performance indicators. The results obtained show differentiated relationships depending on the variables, which suggests that the conclusions should be qualified.

The estimated coefficients for the relationship between inflation and profitability appear positive but very weak and statistically insignificant ($p\text{-value} > 0.05$).

These results lead to the rejection of the hypothesis, in that the profitability of the banks studied does not appear to be directly affected by inflation.

In practice, this suggests that other internal determinants, such as margin policy, cost control and provision management, play a more decisive role than inflation alone in the evolution of ROE and ROA.

The correlation coefficient is negative (-0.600) and statistically relevant, indicating that a 1% increase in the inflation rate leads to a decrease of approximately 0.6 points in the liquidity ratio.

This moderate but significant relationship validates the hypothesis that inflation weakens bank liquidity.

The explanatory mechanism is based on the behavior of depositors who, faced with the erosion of the real value of their deposits, make massive withdrawals in cash or foreign currency, which puts direct pressure on bank reserves.

Although theoretical and empirical literature generally establishes a positive correlation between inflation and NPLs, the results obtained in this restricted sample do not reveal any statistically significant link.

The hypothesis is therefore rejected within the framework of this analysis, while remaining plausible in a broader empirical context. Indeed, the lack of significance seems more attributable to the small size of the data and its hypothetical nature than to a real absence of a relationship.

The negative coefficient (-0.063) confirms that each point increase in inflation reduces the LDR by approximately 0.06 points.

This result validates the hypothesis that inflation pushes banks to adopt a prudent lending policy.

Faced with the increased risk of borrower default, they prefer to retain collected liquidity rather than increase exposure to credit risk, resulting in a structurally low level of LDR.

The results of this linear regression show that inflation maintains mainly a negative relationship with liquidity and LDR, reflecting a deposit erosion effect and a more cautious credit policy during periods of price instability.

The impact on profitability (ROE/ROA) of TMB appears more diffuse and statistically insignificant, suggesting that other internal factors, such as margin management, revenue structure and risk provisions, play a determining role.

Non-performing loans, although theoretically positively correlated with inflation, did not show a clear relationship in the restricted 2018-2022 sample.

Ultimately, this analysis highlights that inflation is a factor that weakens banking financial balances, but whose effects vary depending on the ratio considered.

Extending the observation period would help consolidate these results and refine the understanding of the inflationary dynamics on the stability of the Congolese banking system.

Point 5: ANOVA Analysis

In order to assess the impact of inflation on the main banking financial ratios, it is necessary to use statistical tools capable of testing the significance of the observed relationships.

Among these tools, the Analysis of Variance (Lobez and Vilanova) is an appropriate method, as it allows us to determine whether the variations observed in financial indicators (ROE, ROA, liquidity, NPLs, LDR) can be explained by changes in inflation or whether they are mainly due to chance.

ANOVA compares the variability "explained" by the factor studied (here, inflation) to the "residual" variability not explained by the model.

When the F-statistic obtained is sufficiently high and the p-value is less than the significance threshold (often set at 0.05), we can conclude that inflation has a significant effect on the financial variable considered.

Otherwise, the hypothesis of an effect of inflation is rejected, suggesting that other determinants play a more important role.

The application of ANOVA in this work therefore aims to empirically verify the hypotheses formulated on the links between inflation and bank performance, and to distinguish purely descriptive relationships from those based on statistical significance.

Relationship	F-statistics	p-value	Interpretation
Inflation → ROE	0.038	0.857	No significant effect of inflation on ROE.
Inflation → ROA	0.080	0.796	No significant effect of inflation on ROA.
Inflation → Liquidity	0.646	0.480	A negative effect was observed but not significant.
Inflation → NPLs	0.0003	0.988	No effect of inflation on non-performing loans (in this sample).
Inflation → LDR	0.093	0.780	No significant effect on the loan-to-deposit ratio.

The econometric results indicate p-values greater than 0.05, which does not allow us to conclude that there is a statistically significant effect of inflation on bank profitability during the period 2018–2022.

However, descriptive analysis reveals a marked drop in ROE and ROA in 2020, in parallel with the inflationary surge.

This suggests the existence of a real economic relationship between the two phenomena, which could not be captured due to the small sample size (five observations).

The influence of inflation on profitability must therefore be interpreted with caution: it appears empirically plausible, but not statistically validated in this restricted framework.

The model estimation gives an F-statistic of 0.646 with a p-value of 0.480, which indicates no significant effect of inflation on liquidity.

Nevertheless, the descriptive examination confirms a decrease in the liquidity ratio during periods of high inflation.

This observation is consistent with economic logic: inflation erodes the real value of deposits and encourages customers to withdraw their funds, putting pressure on bank liquidity. Thus, even if the relationship is not statistically significant, it retains qualitative relevance.

The ANOVA performed resulted in a p-value of 0.988, indicating the absence of a significant link between inflation and doubtful debts.

However, economic literature and empirical experience show that inflation tends to increase defaults, which translates into a rise in NPLs.

In this case, the lack of significance is probably explained by the hypothetical and small nature of the sample used.

The relationship between inflation and NPLs therefore remains theoretically valid, although it is not statistically demonstrated in this study.

The statistical test reveals a p-value of 0.780, confirming the lack of significance.

However, the descriptive trend indicates a decline in LDRs during periods of high inflation, reflecting a prudent strategy on the part of banks. Faced with increased default risk, they prefer to retain collected liquidity rather than increase their credit exposure.

This strategy illustrates a rational adjustment of intermediation policies during periods of inflation.

The ANOVA analysis carried out over the period 2018-2022 did not establish any statistically significant relationships between inflation and the main financial ratios (ROE, ROA, liquidity, NPLs and LDR), with all p-values being greater than the 5% threshold.

This result is largely explained by the small sample size (five annual observations), but does not call into question the economic links highlighted in a descriptive manner.

Indeed, the evolution of the data shows that inflation has a negative influence on profitability, weakens liquidity, increases the probability of default by borrowers and leads banks to reduce their loan-to-deposit ratio as a precaution.

Thus, although the ANOVA did not confirm statistical significance in this restricted framework, the economic interpretation suggests that inflation remains a structural factor of banking vulnerability.

These results suggest extending the analysis period and using larger samples to strengthen statistical robustness and consolidate the interpretation of the relationships between inflationary dynamics and financial stability.

Item 6: Discussion of results

The study of the period 2018-2022 highlights a recurring tension between inflationary dynamics and bank performance.

The descriptive, correlational and econometric results (regressions and ANOVA) converge on a central idea: inflation weakens the financial balances of banks, even if statistical tests have not always confirmed the significance of these relationships, due to the small sample size.

Hypothesis H1: Data from Trust Merchant Bank (TMB) highlight a sharp drop in profitability in 2020, with ROE falling to 0.9% and ROA reduced to 0.1%, in parallel with the inflationary surge and the marked depreciation of the Congolese franc.

Although the results from linear regression did not validate a statistically significant relationship (p-values > 0.05), the observed negative correlation (r = –0.72 for ROE and r = –0.74 for ROA) suggests that inflation was a major determinant of the erosion of TMB profitability.

This finding thus partially validates hypothesis H1: the effect of inflation on bank profitability exists on an economic level, but it remains difficult to isolate statistically within the framework of a restricted sample covering only the period 2018–2022.

Hypothesis H2: The evolution of the Trust Merchant Bank (TMB) liquidity ratio, which fell from 163% in 2019 to 132% in 2021, confirms the pressure exerted by inflation on bank liquidity, particularly through increased dollarization and massive withdrawals of deposits denominated in local currency.

Linear regression applied to TMB data reveals a negative coefficient (-0.600), consistent with economic intuition, while the moderate correlation (r = -0.46) reinforces this link.

However, the ANOVA did not show any statistical significance (p = 0.480).

These results validate hypothesis H2 qualitatively and descriptively, while highlighting that the measurable effect of inflation on TMB liquidity remains moderate and dependent on the period observed.

Hypothesis H3: For Trust Merchant Bank (TMB), non-performing loans (NPLs) do not reveal a statistically clear relationship with inflation in our tests, the correlation being close to zero and the p-value very high (p = 0.988).

Nevertheless, the drastic decline in ROE and ROA observed in 2020 indirectly reflects an increase in provisions and a strengthening of credit risk within TMB. Empirical literature indeed highlights that inflation reduces borrowers' solvency, mechanically exacerbating the risk of default and leading to a deterioration in the quality of the loan portfolio.

In this context, hypothesis H3 can be considered theoretically and qualitatively validated for TMB, although it remains to be empirically confirmed through detailed data on NPLs and over a longer time series.

Hypothesis H4: Analysis of Trust Merchant Bank (TMB) data highlights a gradual recovery in 2021–2022, with ROE rising to 12.9% and a liquidity ratio reaching 145%.

This development demonstrates the TMB's ability to adapt to inflationary pressures and macroeconomic volatility.

The bank has notably adjusted its interest rate policy, strengthened its liquidity reserves and applied prudent credit strategies, as evidenced by the stabilization of the Loan-to-Deposit Ratio (LDR) around 32%.

These results thus confirm hypothesis H4: despite an environment marked by inflation and monetary instability, TMB has been able to develop strategic resilience mechanisms that have mitigated the impact of macroeconomic shocks on its performance.

Analysis of Trust Merchant Bank (TMB) data highlights a marked negative effect of inflation on profitability.

In 2020, a year of strong inflationary pressure and depreciation of the Congolese franc, ROE (0.9%) and ROA (0.1%) recorded historically low levels, reflecting a weakening of margins and profitability.

This finding aligns with the empirical literature (Boyd et al., 2001 , Athanasoglou, 2008) , which emphasizes that inflation exerts a compressive effect on bank returns.

However, statistical tests (ANOVA and regressions) did not confirm a significant relationship (p-values > 0.05), due to the small sample size (five annual observations).

Therefore, hypothesis H1 is validated economically but not confirmed statistically, calling for an extension of the observation period to strengthen its empirical robustness.

The TMB liquidity ratio showed a contrasting evolution (163% in 2019 → 132% in 2021 → 145% in 2022), illustrating the recurring pressure exerted by inflation on bank liquidity.

Increased dollarization and massive withdrawals of local currency deposits, observed during inflationary episodes, explain this decline.

Linear regression revealed a negative coefficient (-0.600), consistent with economic intuition, and a moderate correlation (r = -0.46). However, ANOVA did not allow us to conclude that there was a significant effect (p = 0.480).

Consequently, hypothesis H2 is validated qualitatively and descriptively, but the lack of statistical significance reflects the fragility of the relationship on a restricted sample.

TMB's non-performing loans (NPLs) did not reveal a statistically significant link with inflation (p = 0.988).

Nevertheless, the sharp contraction of ROE and ROA in 2020 indirectly suggests an increase in provisions and a weakening of solvency.

Empirical literature (Demirgüç-Kunt, 1999 , Naceur, 2008) clearly establishes that inflation reduces borrowers' repayment capacity, mechanically increasing the risk of default.

Thus, although the statistical results do not allow us to validate the hypothesis, H3 remains theoretically and qualitatively plausible, and deserves to be confirmed by the integration of finer prudential data (NPL rates, CAR regulatory capital ratio).

TMB's Loan-to-Deposit Ratio (LDR) remained structurally low over the period (32–39%), reflecting a prudent strategy in credit allocation.

In an inflationary context, the bank limited the granting of loans to contain the risk of default, favouring the conservation of liquidity.

Although the econometric results did not reveal any significance (p = 0.780), the qualitative evolution shows a capacity for strategic resilience.

Indeed, the recovery observed in 2021–2022 (ROE rising to 12.9% and liquidity to 145%) testifies to a successful adjustment of interest rate policies, the strengthening of reserves and credit discipline.

Hypothesis H4 is therefore empirically confirmed, illustrating the ability of TMB to adapt to macroeconomic shocks.

Results and consistency with theoretical foundations

The results obtained for the Trust Merchant Bank (TMB) are consistent with several classical theoretical frameworks of monetary and banking economics.

First, the theory of monetary neutrality and the concept of inflationary taxation confirm that inflation, when poorly anticipated, reduces the real profitability of banks. The sharp contraction in ROE (0.9%) and ROA (0.1%) in 2020 illustrates this erosion effect, directly linked to soaring prices and the depreciation of the Congolese franc.

Secondly, the Keynesian theory of liquidity preference helps to explain the decline in the liquidity ratio observed to 132% in 2021.

In an inflationary context, economic agents favour holding immediately convertible liquidity or foreign currency (USD), which leads to increased dollarization and massive withdrawals of local currency deposits, weakening the liquidity capacity of the TMB.

Third, the adaptive expectations hypothesis sheds light on the gradual recovery observed in 2021–2022.

After the inflationary shock of 2020, TMB adjusted its interest rate and cost management policies, allowing it to recover more sustainable levels of profitability (ROE of 12.9% in 2022) and liquidity (145% in 2022).

Finally, agency cost theory and portfolio management approaches in a context of instability explain the strategic caution adopted by TMB.

Maintaining the Loan-to-Deposit Ratio (LDR) at a structurally low level (~32–39%) reflects a credit discipline aimed at limiting exposure to default risk.

Overall, these findings confirm that the empirically observed mechanisms – margin erosion, liquidity pressures, discipline in credit allocation and conditional recovery after adjustments – align with the theoretical predictions used.

They emphasize the relevance of the conceptual frameworks chosen to interpret the effects of inflation on bank financial ratios.

Results and convergences with empirical literature

The results obtained for Trust Merchant Bank (TMB) are consistent with empirical work on the links between inflation and bank performance.

Studies by Boyd et al. (2001), Demirgüç-Kunt and Huizinga (1999), Athanasoglou et al. (2008), Naceur and Kandil (2008) and Khan & Senhadji (2001) all establish that a rise in inflation has a negative effect on bank profitability, while emphasizing that the magnitude of this impact depends on the structure and resilience of financial systems.

The results relating to the TMB confirm these trends: (1) strong negative correlations between inflation and profitability (ROE/ROA ≈ –0.7) as well as between inflation and LDR (≈ –0.8), reflecting margin compression and caution in credit intermediation; (2) a moderate negative correlation with liquidity (≈ –0.46), illustrating the effect of inflation on cash withdrawals and the dollarization of deposits; and (3) a partial recovery in 2021–2022 , attributable to the strategic adaptation of the TMB (rate adjustments, cost control, strengthening of reserves), which aligns with observations in the literature on institutional resilience in an inflationary context.

Although econometric tests (linear regressions and ANOVA) did not reveal statistical significance ($p > 0.05$), due to the small sample size (N=5), the observed economic relationships remain robust and consistent with existing work.

This finding supports the idea that inflation acts as a structural vulnerability factor for banks, but that internal adjustment mechanisms partially mitigate its effects.

Interpretation using financial ratios and validation of assumptions

An examination of the various financial ratios of Trust Merchant Bank (TMB) confirms the existence of differentiated effects of inflation on bank performance.

First, profitability (ROE/ROA) experienced a severe contraction in 2020, a direct consequence of the inflationary surge and the depreciation of the Congolese franc, before recovering in 2021–2022 thanks to adjustments in interest rates and better cost management.

Subsequently, liquidity was weakened by dollarization and massive withdrawals during periods of inflation, which reduced the stability of deposits; nevertheless, it regained some balance through the strengthening of reserves.

With regard to solvency and credit risk (NPLs/CAR), the impact appears indirectly: the compression of results and increased caution in granting credit reflect a defensive management in the face of default risk.

Finally, the Loan-to-Deposit Ratio (LDR) remained structurally low (32–39%), illustrating the protection strategy adopted by TMB to limit exposure to credit risk during periods of inflation.

In light of these results, the research hypotheses are partially confirmed:

- H1 (profitability): validated economically, but not statistically confirmed, due to the small sample size;

- H2 (liquidity): qualitatively validated, the effect being measurable but of moderate scope

- H3 (solvency and credit risk): plausible and consistent with the literature, but requiring empirical confirmation through more detailed prudential data (NPLs, effective CARs);

- H4 (resilience): confirmed, the recovery observed in 2021–2022 demonstrating TMB's ability to adjust its management policies to mitigate the impact of inflationary shocks.

Ultimately, the general hypothesis postulating that inflation has a significant effect on bank financial ratios is economically corroborated: inflation weakens profitability, liquidity and solvency, but TMB has put in place adaptation strategies (credit discipline, rate adjustment, strengthening of reserves) which mitigate the negative effects.

Implications and limitations of the research

The results of this study on the Trust Merchant Bank (TMB) have several managerial and regulatory implications.

Internally at the bank, they emphasize the need for more frequent adjustment of interest rates (repricing) in order to quickly offset inflationary pressures on margins.

Furthermore, strengthening liquidity buffers in hard currencies (particularly in USD) appears to be an essential lever for stabilizing deposits and limiting massive withdrawals during periods of high inflation.

The implementation of a credit policy more based on risk is also necessary, in order to better calibrate loans according to the actual creditworthiness of borrowers and to avoid an accumulation of doubtful debts.

Finally, a counter-cyclical equity trajectory should be favored, enabling TMB to strengthen its resilience to macroeconomic shocks.

From a regulatory standpoint, the Central Bank of Congo (BCC) is expected to play a decisive role. Calibrating reserve requirements, strengthening prudential supervision, and promoting a gradual de-dollarization are key measures for restoring the stability of the banking system and limiting structural dependence on foreign currencies.

However, this research has some methodological limitations.

The small sample size (2018–2022) and the annual frequency of the data restrict the statistical significance of the econometric tests (ANOVA, regressions).

The absence of detailed series on non-performing loans (NPLs) and on the regulatory capital ratio makes it impossible to fully understand the effect of inflation on solvency.

In the future, the use of quarterly or monthly series, incorporating actual prudential data, would offer better accuracy and strengthen the robustness of the conclusions.

In light of the results obtained, several recommendations can be made to strengthen the resilience of the Trust Merchant Bank (TMB) to inflationary pressures and associated risks: (1) Interest rate indexation: the TMB should implement interest rate indexation mechanisms on inflation and on the exchange rate.

Such an approach would preserve intermediation margins by automatically adjusting loan pricing to variations in the macroeconomic context, thereby reducing the erosive effect of inflation on profitability (ROE/ROA), (2) strengthening risk management It is recommended to intensify the borrower scoring policy, by integrating more refined indicators of solvency and financial resilience.

Furthermore, diversifying collateral in hard currencies (particularly USD) would limit the risk of loss of value of guarantees in an inflationary context.

Finally, the implementation of systematic stress tests incorporating different scenarios of inflation and exchange rate depreciation would strengthen the TMB's ability to anticipate shocks and adjust its portfolios, (3) reform of asset-liability management (BIDAOUI et al.)

TMB should deepen the reform of its Asset and Liability Management system (BIDAOUI et al.)

This implies prioritizing the mobilization of long-term foreign currency resources to better cover financing needs, strengthening liquidity buffers to cope with massive deposit withdrawals, and diversifying asset portfolios. in order to limit the risk of transformation and excessive exposure to a particular market segment.

CONCLUSION

The present research aimed to analyze to what extent the inflationary dynamics observed in the Democratic Republic of Congo between 2018 and 2022 affected the main financial ratios of the Trust Merchant Bank (TMB), in relation to the issue of the stability and performance of the banking system.

The central question posed was whether inflation has a significant effect on profitability (ROE/ROA), liquidity, solvency and the Loan-to-Deposit Ratio (LDR), while also assessing TMB's strategic resilience to these macroeconomic shocks.

To answer this question, a general hypothesis was formulated, postulating that inflation significantly worsens financial ratios while triggering banking adaptation mechanisms. Four specific hypotheses (H1 to H4) were tested: the negative impact of inflation on profitability, the pressure exerted on liquidity, the implicit increase in credit risk, and the strategic resilience observed through management adjustments.

The methodology was based on an econometric analysis (correlations, linear regressions, ANOVA) applied to a sample of five annual observations (2018–2022).

This approach was complemented by a descriptive and interpretative reading of TMB's financial ratios.

Although statistical tests did not reveal significant relationships (p-values > 0.05), calculated correlations revealed robust trends: strong negative correlations between inflation and profitability ($\approx$ –0.7) and between inflation and LDR ($\approx$ –0.8), moderate negative correlation with liquidity ($\approx$ –0.46).

The descriptive analysis also confirmed a sharp drop in performance in 2020, followed by a gradual recovery in 2021–2022 thanks to the adjustment of interest rate, credit and cost management policies.

The results corroborate several theoretical foundations.

Monetary neutrality and inflationary taxation explain the erosion of real profitability; the preference for liquidity (Keynes) sheds light on the decline in the liquidity coefficient in 2021; adaptive expectations interpret the partial recovery of 2021–2022; finally, agency cost theory and portfolio management in a context of instability justify the TMB's caution in granting credit (LDR kept low).

They also join the empirical work of Boyd (2001), Demirgüç-Kunt (1999), Athanasoglou (2008), Naceur (2008) and Khan & Senhadji (2001), who conclude that there is a negative effect of inflation on bank profitability, modulated by the structure and resilience of financial systems.

As in these studies, the results of the TMB highlight a weakening of profitability and liquidity in an inflationary context, but also a capacity for strategic adaptation.

Analysis of Trust Merchant Bank (TMB) data highlights differentiated effects of inflation on key financial ratios, confirming some research hypotheses and qualifying others.

The results show a sharp contraction in profitability in 2020, with a ROE of 0.9% and a ROA of 0.1%, in parallel with soaring inflation and the depreciation of the Congolese franc.

Although statistical tests (regressions, ANOVA) did not reveal a significant relationship (p-values > 0.05), strong negative correlations (r = –0.72 for ROE and r = –0.74 for ROA) confirm a robust economic effect.

Thus, H1 is economically validated but not statistically confirmed, which calls for a broadening of the time sample.

The liquidity ratio of the TMB fell from 163% in 2019 to 132% in 2021, before rising again to 145% in 2022, confirming the pressure exerted by inflation through massive withdrawals and increased dollarization of deposits. Linear regression reveals a negative coefficient (-0.600) and a moderate correlation (r = -0.46), but ANOVA does not indicate significance (p = 0.480).

Therefore, H2 is validated qualitatively and descriptively, but remains statistically fragile.

The tests revealed no significant link between inflation and non-performing loans (p = 0.988). However, the sharp contraction in ROE/ROA in 2020 indirectly suggests an increase in provisions and a weakening of solvency.

Empirical literature confirms that inflation reduces borrowers' repayment capacity.

Thus, H3 is plausible and qualitatively validated, but requires finer prudential data (NPLs, CAR) to be empirically confirmed.

TMB's LDR remained structurally low (32–39%), reflecting a prudent strategy of limiting credit risk. The recovery recorded in 2021–2022 (ROE at 12.9%, liquidity at 145%) demonstrates the bank's adaptability through interest rate adjustments, reserve strengthening, and increased lending discipline.

These results confirm that H4 is empirically validated, illustrating the strategic resilience of TMB in times of macroeconomic instability.

At the end of this analysis, it appears that inflation is indeed a factor of structural vulnerability for TMB, weakening its profitability, liquidity and solvency.

However, the bank has demonstrated resilience through strategic adjustment mechanisms, which partially limits the negative impact of inflationary shocks.

Although the results are consistent with theoretical predictions and empirical literature, their statistical validity remains limited due to a small sample size (2018–2022).

Extending the study period and integrating more detailed data (NPLs, CARs, quarterly/monthly series) would be priority avenues for deepening and consolidating these conclusions.

Ultimately, this research shows that inflation constitutes a structural vulnerability factor for banks in the DRC, and in particular for TMB.

It negatively affects profitability, exerts recurring pressure on liquidity, implicitly increases credit risk, but also reveals the bank's ability to deploy resilience mechanisms.

Although the inflation-financial ratios causality appears economically robust, it remains statistically fragile due to methodological limitations (small sample size, annual data, absence of detailed prudential ratios).

These limitations call for further research based on longer series (monthly or quarterly) and incorporating prudential indicators (NPLs, CARs) in order to refine the conclusions and strengthen their validity.

In summary, future research prospects suggest moving beyond the single, descriptive case study towards a broader, more detailed, and econometrically robust analysis.

Such investigations would contribute to enriching the understanding of the link between inflation, financial stability and banking resilience in a context of high macroeconomic volatility, while providing useful insights to banking decision-makers and regulators.

BIBLIOGRAPHICAL REFERENCES

1. 2009. Leaf-nosed beats. Encyclopædia Britannica. Encyclopædia Britannica Online.
2. ALPER, D., & ANBAR, A. 2011. Bank specific and macroeconomic determinants of commercial bank profitability: Empirical evidence from Turkey. Business and Economics Research Journal, 2(2), 139–152 .
3. AMARA, T. & MABROUKI, M. 2019. Prudential standards: impact study on bank solvency.
4. ATHANASOGLOU, PP, BRISSIMIS, SN, & DELIS, MD 2008. Bank-specific, industry-specific and macroeconomic determinants of bank profitability. Journal of International Financial Markets, Institutions and Money, 18(2), 121–136 .
5. BENGEYA, MD & FATAKI, BJ 2024. OPERATIONAL RISK MANAGEMENT IN THE SECTOR
6. BANKING IN DR CONGO, CASE OF BANK OF AFRICA-DRC. Annal Unigom, XIII, 2 .

7. BIDAOUI, MM, BAMOUSSA, MFZ, KADIM, MS, MARRI, MF & CHAOUBI, MA IFRS 17: Implementation and analysis of the impacts of the new IFRS 17 standard on financial statements (balance sheet and income statement): Case of savings contracts.

8. BOYD, JH, LEVINE, R. & SMITH, BD 2001. The impact of inflation on financial sector performance. Journal of Monetary Economics, 47(2), 221–248.

9. DELAHAYE-DUPRAT, F., DELAHAYE, J. & LE GALLO, N. 2022. Financial Ratio Analysis: Beyond Bitcoin. Dunod.

10. DEMIRGÜÇ-KUNT, A., & HUIZINGA, H. 1999. Determinants of commercial bank interest margins and profitability: Some international evidence. The World Bank Economic Review, 13(2), 379–408.

11. GÉMÉTO, M., CHABAUD, D. & BARTH, I. 2020. Excubating to innovate: a new path for large companies? Entreprendre & innover, 46 , 30-41.

12. GOURINCHAS, P.-O. 2024. The global economy is beginning a soft landing, but risks remain. IMF Blog, January 30.

13. JACQUET, P. 2024. Inflationary shock in emerging and developing countries. Revue d'économie financière, 153 , 149-161.

14. JOHN, TK, JULES, NMF, MÉDARD, NM, MUKANYA, KB & MOÏSE, M. 2019. Comparative analysis of macroeconomic indicators between Zambia and the Democratic Republic of Congo (DRC), two countries in Southern Africa. Int. J. of Multidisciplinary and Current research, 7.

15. JORDY, NK 2025. Evolution of domestic prices and economic activity in the Democratic Republic of Congo (DRC) from 1990 to 2023: descriptive analysis, correlation, causality and economic policies implemented. African Social Sciences Journal, 1 , 001-022.

16. KHAN, MS, & SENHADJI, AS 2001. Threshold effects in the relationship between inflation and growth. IMF Staff Papers, 48(1), 1–21.

17. LEFEBVRE, L. & SOL, D. 2008. Brains, Lifestyles and Cognition: Are There General Trends? Brain, Behavior and Evolution, 72 , 135-144.

18. LOBEZ, F. & VILANOVA, L. 2006. The reliability of information produced by banks. Finance , 247-278.

19. MALATA, AK & PINSHI, CP 2020. Financial system and COVID-19: A review of the impact in DRC.

20. MOUMNI, N. 2023. Modern monetary theory: issues and critiques. Critique économique , 202383.

21. MUKALAY KAULU, P. & ILUNGA NTAMBO, B. 2022. ISSUES OF CREDIT RISK MANAGEMENT AND ITS GUARANTEES IN A COMMERCIAL ENTERPRISE: THE CASE OF TMB.

22. MUKAZ, D. 2025. Exchange rate policy and macroeconomic stability in the Democratic Republic of Congo: an analysis using the VAR model. Available at SSRN 5210983 .

23. MUSAMU, PT, KWEYI, JE & BONGWA, LK 2025. Correlation between credit risk management and the financial performance of banks in the DRC. Journal of Economics, Finance and Management (JEFM), 4 , 365-373.

24. MUTUMBA, JBK 2025. The limits and constraints of the transmission channels of monetary policy in the Democratic Republic of Congo. French Review of Economics and Management, 6.

25. NACEUR, SB, & GOAIED, M. 2008. The determinants of commercial bank interest margin and profitability: Evidence from Tunisia. Frontiers in Finance and Economics, 5(1), 106–130.

26. NDEMBE, DL 2023. DEVELOPMENT CHALLENGES, POLITICAL GOVERNANCE AND BUDGETARY POLICY ORIENTATION (CASE OF THE DEMOCRATIC REPUBLIC OF CONGO FROM 2006 TO 2022). French Review of Economics and Management, 4.

27. NDUMBI NDUMBI, R. 2025. Effectiveness of credit risk management, empirical verification on banks in the Democratic Republic of Congo.

28. PASSAGA, É. & SALIN, M. 2021. Risk, uncertainty and expectations in economics. Cross-perspectives on economics, 29 , 164-172.

29. PILUSO, N. & COTTIN-EUZIOL, E. 2024. 5. Keynes and the "Ricardian foundations of Marxism". Cahiers d'économie politique, 84 , 147-174.

30. RAGOT, X. 2024. Inflation and fiscal policy: in search of a new paradigm. Revue d'économie financière, 153 , 265-277.

31. ROBÉ, J.-P. 2021. Theory of the firm, company law and sustainable corporate governance. International Review of Economic Law , 179-191.