

# An Examination of the Extent to Which Systemic Risk Is Prevalent in the Zambian Banking Industry

Chresta C. Kaluba

Graduate School of Business, University of Zambia, Lusaka, Zambia  
Email: chresta.kaluba@gmail.com

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## Abstract

This study examines the prevalence of systemic risk in the Zambian banking sector from 2010 to 2020 using prudential data obtained from the Bank of Zambia. Through a comprehensive analysis of monthly performance indicators for all banks, including total assets, loans and advances, deposits, equity, and profits, the study identifies periods of negative market movements indicative of systemic risk events. Findings reveal distinct periods of negative fluctuations, notably observed during 2011 Q3 to 2012 Q1, 2013 Q1 to 2013 Q2, 2015 Q4 to 2016 Q2, and 2020 Q1 to 2020 Q3. These periods coincide with significant economic and political events in Zambia, such as the election of President Michael Sata, fiscal challenges, a drop in copper prices, and the impact of the COVID-19 pandemic. The study underscores the vulnerability of the Zambian banking sector to external shocks and emphasizes the importance of robust risk management frameworks and policy responses to enhance sector resilience.

## Keywords

Systemic Risk, Banking Sector, Zambia, Prudential Data, Market Movements, Financial Stability, Economic Shocks, Political Events, COVID-19 Pandemic, Risk Management

## 1. Introduction and Background

### 1.1. Background

The evolution of Zambia's banking sector since independence in 1964 has been marked by notable transformations. Initially dominated by foreign banks, primarily

servicing the credit needs of foreign and expatriate businesses, the sector witnessed significant changes following the government's policy of nationalization. [Beyani and Kasonde \(2009\)](#) outline this shift, highlighting the establishment of state-owned banks to enhance access to financial services for the local population. Furthermore, the entry of local private sector investors in 1984 marked a pivotal moment, with the subsequent liberalization of the banking sector in the 1990s heralding the emergence of local banks, thereby intensifying competition and expanding financial services across the nation.

[Simwanza and Awolusi \(2020\)](#) underscore the profound impact of economic liberalization in the early 1990s on Zambia's financial landscape, leading to a proliferation of both banks and non-bank financial institutions. This growth trajectory continued into the 2000s, with the banking sector experiencing steady expansion, as highlighted by [Haabazoka \(2012\)](#). Despite occasional setbacks such as the impact of the global financial crisis, total assets witnessed substantial growth, reflecting the sector's resilience and adaptability to evolving economic conditions. As of 2020, the banking sector boasted a total of 19 commercial banks, comprising both domestic and foreign-owned entities, further emphasizing its significance within the Zambian economy.

However, alongside this growth narrative, the sector grappled with challenges in recent years. High levels of non-performing loans, declining profitability, and liquidity issues underscored the complexity of navigating the contemporary economic landscape. These challenges, often attributed to a challenging macroeconomic environment and heightened competition, necessitated a nuanced understanding of systemic risk within Zambia's banking sector.

Historically, the sector encountered significant turbulence, exemplified by a series of bank failures in the 1990s. [Maimbo \(2001\)](#) provides insights into the underlying causes, ranging from internal mismanagement and fraudulent activities to external pressures such as political connections and negative publicity. The repercussions of these failures reverberated throughout the financial system, underscoring the imperative of robust regulatory oversight and prudent risk management practices.

Building upon these historical insights, [Brownbridge \(1998\)](#) elucidates the multifaceted nature of financial distress among local banks in Zambia. Moral hazard, insider lending, insufficient capitalization, and political connections emerge as key factors precipitating crises within the sector. Regulatory policies, therefore, assume paramount importance in bolstering prudential supervision and incentivizing prudent management practices among bank owners.

The historical trajectory of Zambia's banking sector underscores its centrality to the nation's economic landscape. While characterized by periods of robust growth, the sector's resilience has been tested by recurrent challenges and crises. Against this backdrop, this study endeavors to delve into the prevalence of systemic risk within Zambia's banking sector between 2010 and 2020, shedding light on the contemporary dynamics shaping financial stability and resilience in the face

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of evolving economic landscapes.

## 1.2. Problem Statement

The Zambian banking sector, like many others globally, is susceptible to systemic risks that can destabilize financial institutions and the broader economy. Despite the sector's critical role in supporting economic growth and stability, there has been limited empirical research focused on identifying and analyzing systemic risk events within Zambia's banking system. This gap in research is particularly concerning given the country's economic volatility and the sector's exposure to external shocks. The absence of comprehensive studies on systemic risk leaves policymakers and banking professionals without the necessary insights to develop effective risk management strategies and policy interventions. This study bridges this gap by providing an in-depth analysis of systemic risk prevalence in the Zambian banking sector over a decade, highlighting periods of significant risk and their correlation with economic and political events.

## 1.3. Objectives

- 1) To analyze monthly performance indicators for all banks in Zambia from 2010 to 2020, focusing on total assets, loans and advances, deposits, equity, and profits.
- 2) To identify and document periods of negative market movements within the Zambian banking sector indicative of systemic risk events.
- 3) To assess the vulnerability of the Zambian banking sector to external shocks and systemic risks.

## 2. Literature Review

Systemic risk, characterized by the potential for widespread financial instability or collapse within an entire financial system, stands as a pivotal concern for policymakers, regulators, and stakeholders entrenched within Zambia's banking sector. According to [Kaufman and Scott \(2003\)](#), systemic risk refers to an event having effects on the entire banking, financial, or economic system, rather than just one or a few institutions.

Given the sector's pivotal role in the nation's economy, unravelling the prevalence and drivers of systemic risk assumes paramount importance. In this regard, this literature review endeavours to amalgamate existing research to scrutinize the manifestation of systemic risk within Zambia's banking landscape spanning the decade from 2010 to 2020.

The issue of risk in Zambia's banking sector has attracted attention from scholars reflecting broader concerns across Africa. Systemic risk, which refers to the possibility of an institution's failure leading to a collapse of the entire financial system is influenced by factors such as market connections, regulatory frameworks and risk management practices.

A study by [Bekale, Alagidede, and Odei-Mensah \(2023\)](#) delves into how the use

of derivatives impacts risk in banking systems, including those in Zambia. Their research suggests that the increased adoption of derivatives has raised risk by creating interconnected financial institutions vulnerable to market fluctuations. They point out that “the utilization of derivatives in Zambia’s banking industry has heightened interconnections and potential systemic risks” (Bekale, Alagidede, & Odei-Mensah, 2023).

Another study by Saidane, Sène, and Kanga (2021) further examines the role of banking interconnections in risk using a measure developed for the West African Economic and Monetary Union (WAEMU). While their focus is on WAEMU countries, their findings have implications for Zambia as they underscore that probabilities of default among pairs of banks indicate significant systemic risk stemming from banking interconnections. They mention that when banks have probabilities of default together it indicates a risk, to the overall financial system due to their interconnectedness (Saidane, Sène, & Kanga, 2021).

The impact of risk management practices on risk is investigated by Manu, Wen, Paintsil, Gyedu, and Akowuah (2020). Their analytical method using panel regression shows that effective risk management plays a role in reducing systemic risk and improving financial performance. They suggest that implementing risk management practices is vital for minimizing risk and boosting financial performance within Zambia’s banking industry (Manu et al., 2020).

Mpofu and Nikolaidou (2018) study credit risk as a factor influencing risk. They focus on the banking sector in Sub-Saharan Africa, including Zambia. Find that credit risk has an impact on systemic risk levels. The researchers emphasize that credit risk is a determinant of risks in Zambia’s banking sector (Mpofu & Nikolaidou, 2018).

Brownbridge (1998) provides insights into the background of risks, in Zambia by examining instances of financial troubles faced by local banks across various African nations including Zambia. Brownbridge talks about how financial difficulties can result in risks for the system highlighting the importance of regulations and effective risk management. He points out that the challenges faced by banks due to regulatory frameworks and inadequate risk management practices illustrate the systemic risks involved.

In summary, the presence of risks in Zambia’s banking sector is influenced by factors such as the use of derivatives interconnectedness among banks’ risk management methods and credit risks. These studies collectively emphasize the significance of frameworks and effective risk management practices, in managing systemic risks and maintaining stability in Zambia’s financial sector.

### 3. Methodology

#### 3.1. Research Design

This study employs a quantitative research design to examine the prevalence of systemic risk in Zambia’s banking sector between January 2010 and December 2020. The research design involves the analysis of prudential data obtained from

the Bank of Zambia, encompassing monthly performance metrics, including income statements and balance sheets, for all banks operating within Zambia during the specified period.

### 3.2. Data Collection and Sampling

The study sample comprised all commercial banks operating in Zambia from January 2010 to December 2020. January 2010 was selected as the starting point because several banks commenced operations in 2009. In 2006, there were 13 commercial banks in Zambia. By 2008, six additional subsidiaries of foreign banks had been registered, increasing the total to 19 commercial banks by the end of 2012.

**Table 1** shows an overview of the financial information obtained.

**Table 1.** Bank data used.

Bank	Data Available from	Data Available to	Number of Observations
1	November 2011	December 2020	110
2	January 2010	December 2020	132
3	January 2010	December 2020	132
4	January 2010	December 2020	132
5	January 2010	December 2020	132
6	No data Available	No data Available	
7	January 2010	December 2020	132
8	January 2010	December 2020	132
9	January 2010	December 2020	132
10	No data Available	No data Available	
11	June 2010	December 2020	127
12	January 2010	December 2020	132
13	No data Available	No data Available	
14	January 2010	December 2020	132
15	January 2010	December 2020	132
16	January 2010	December 2020	132
17	January 2010	December 2020	132
18	January 2010	December 2020	132
19	January 2010	December 2020	132
20	April 2019	December 2020	21

Data source: Author.

### 3.3. Variables

The key variables of interest for this study are shown in the tables below. **Table 2** shows the financial ratios used in the analysis and **Table 3** shows the key financial variables considered.

**Table 2.** Financial ratios.

<i>Financial Ratios</i>
Growth in Deposits
Growth in Loans and Advances
Change in Shareholder Equity
Liquid Assets/Total Assets
Borrowed Funds/Total Assets
Loans/Deposits
Change in Total Assets
Change in Risk-Weighted Assets
Equity/Assets
Change in PBT

**Table 3.** Financial variables.

<i>Financial Variables</i>
Total Assets
Loans and Advances
Total Deposits
Total Equity
Pre- and Post-Tax Profits

### 3.4. Data Analysis

The analysis proceeds in several stages to identify periods of systemic risk and examine potential shocks affecting the entire banking sector. The following steps outline the analytical approach:

1) **Descriptive Analysis:** Initially, descriptive statistics are computed to summarize the central tendencies and variability of key performance indicators across the banking sector for the entire study period. This analysis provides insights into the overall trends and variations in bank performance over time.

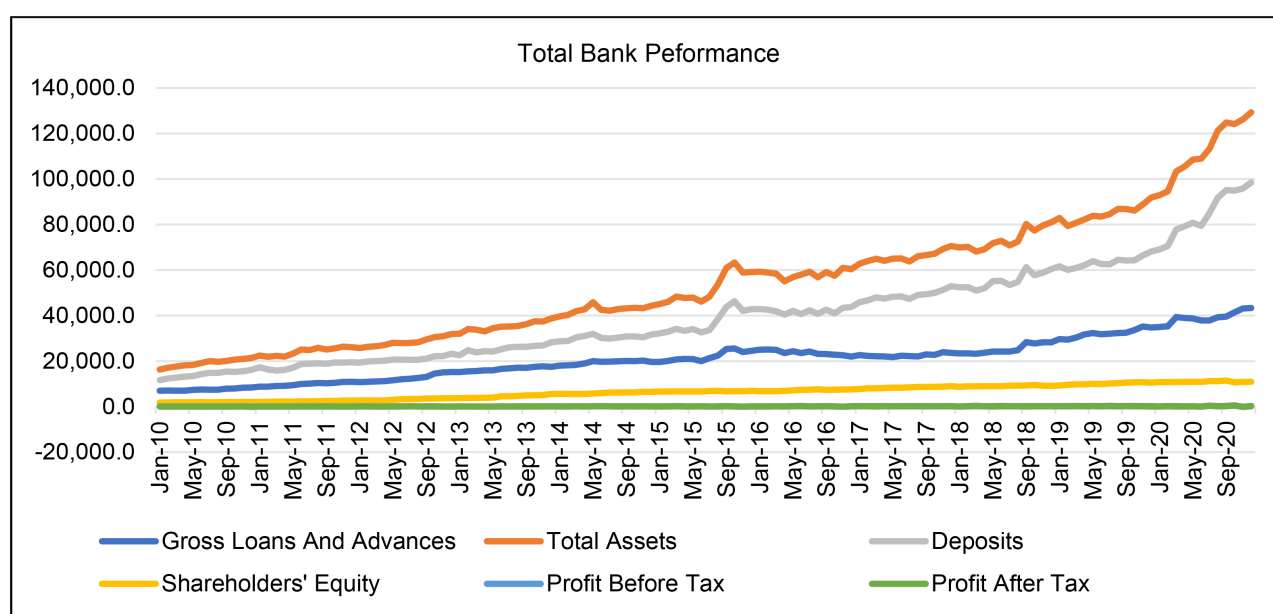
2) **Time-Series Analysis:** Time-series analysis techniques, such as trend analysis and seasonal decomposition, are employed to identify patterns and cyclical movements in bank performance indicators. This analysis helps detect any systematic

changes or anomalies occurring within the dataset.

3) Identification of Systemic Risk Episodes: Based on the correlation analysis and systemic risk assessment, periods characterized by simultaneous negative movements in bank performances and elevated systemic risk indicators are identified as systemic risk episodes. These episodes are further examined to discern potential triggers or shocks contributing to systemic risk in Zambia's banking sector.

#### 4. Findings and Discussion of Findings

As shown in **Figure 1**, total assets in the Zambian banking sector steadily increased from approximately ZMW 16.3 billion in January 2010 to ZMW 129.3 billion in December 2020. This growth in assets was consistent over the decade, though some fluctuations were observed during certain periods.



Pre-tax profits fluctuated over the period, with some variability observed from year to year. Despite these fluctuations, there was an overall increasing trend. Pre-tax profits ranged from positive to negative values, indicating periods of both profitability and losses within the sector.

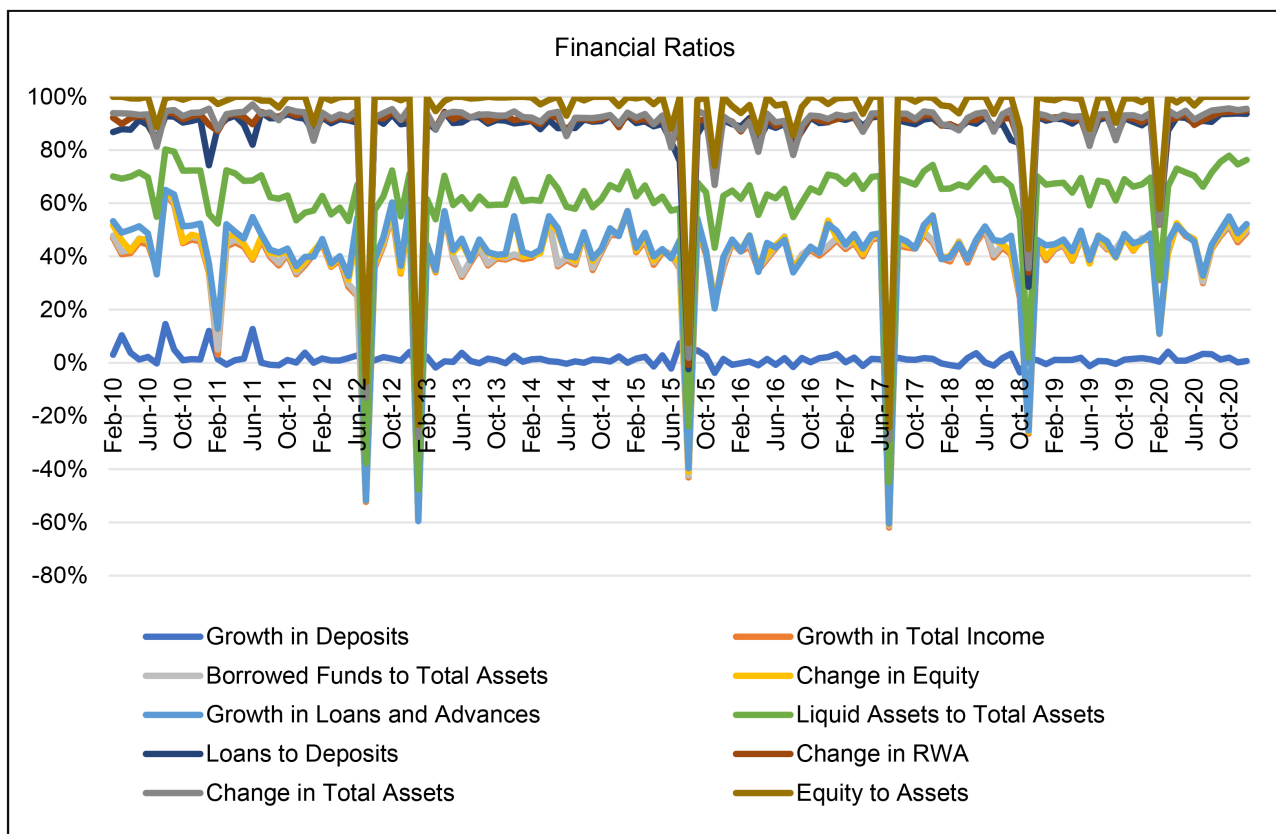
Post-tax profits generally followed a similar trend to pre-tax profits, reflecting the sector’s overall financial performance after accounting for taxes.

Overall, the banking sector in Zambia demonstrated resilience and growth over the 10-year period, with consistent increases in key financial metrics such as total assets, loans and advances, deposits, and equity. Despite some fluctuations in profitability, the sector exhibited a positive trajectory, indicating its importance and stability within the Zambian economy.

### 4.1. Key Ratio Analysis of Market Average Data

#### 4.1.1. Overall Market Analysis

**Figure 2**, which includes key financial ratios from 2010 to 2020, offers insights into how the sector has evolved over time.



Data source: Author’s calculations.

**Figure 2.** Key financial ratio performance over review period.

Growth in deposits, total income, loans and advances, as well as changes in equity and total assets, are fundamental indicators of a bank’s health and performance. Meanwhile, metrics like borrowed funds to total assets, liquid assets to total assets,

loans to deposits ratio, and equity to assets ratio provide further context regarding risk management, liquidity, and solvency.

From January 2010 to July 2012, there was generally positive growth across most key ratios, indicating a period of stability and expansion in the Zambian banking sector. However, signs of strain began to emerge from July 2012 to December 2012, as indicated by fluctuations in growth rates and shifts in certain ratios such as borrowed funds to total assets and liquid assets to total assets.

The most notable period of shock to the industry occurred from January 2013 to December 2013. During this time, there were significant negative growth rates in several key metrics, including deposits, total income, and equity, coupled with sharp increases in borrowed funds to total assets and changes in risk-weighted assets. These trends suggest a systemic issue affecting the entire sector, possibly stemming from broader economic challenges or regulatory changes.

Despite some recovery in 2014, with positive growth seen in most indicators, the sector continued to face challenges, as evidenced by fluctuations in various ratios and slower growth rates compared to previous years. These challenges persisted into 2015 and 2016, with intermittent periods of growth and decline, reflecting ongoing volatility and uncertainty in the operating environment.

In 2017, the sector experienced a brief respite with relatively stable growth rates and improved performance across key ratios. However, this was short-lived, as evidenced by another period of strain from January 2018 to June 2018, characterized by negative growth in deposits and total income, as well as a decline in equity.

From July 2018 onwards, there was a gradual recovery in the sector, marked by positive growth rates and improved stability. Despite occasional setbacks, such as the downturn observed in October 2018, the sector showed resilience and adaptability, eventually rebounding and ending the decade on a positive note in terms of overall performance.

Finally, in 2020, challenges were again visible in the market with key matrices again showing negative movements indicative of a decline in the performance of the sector.

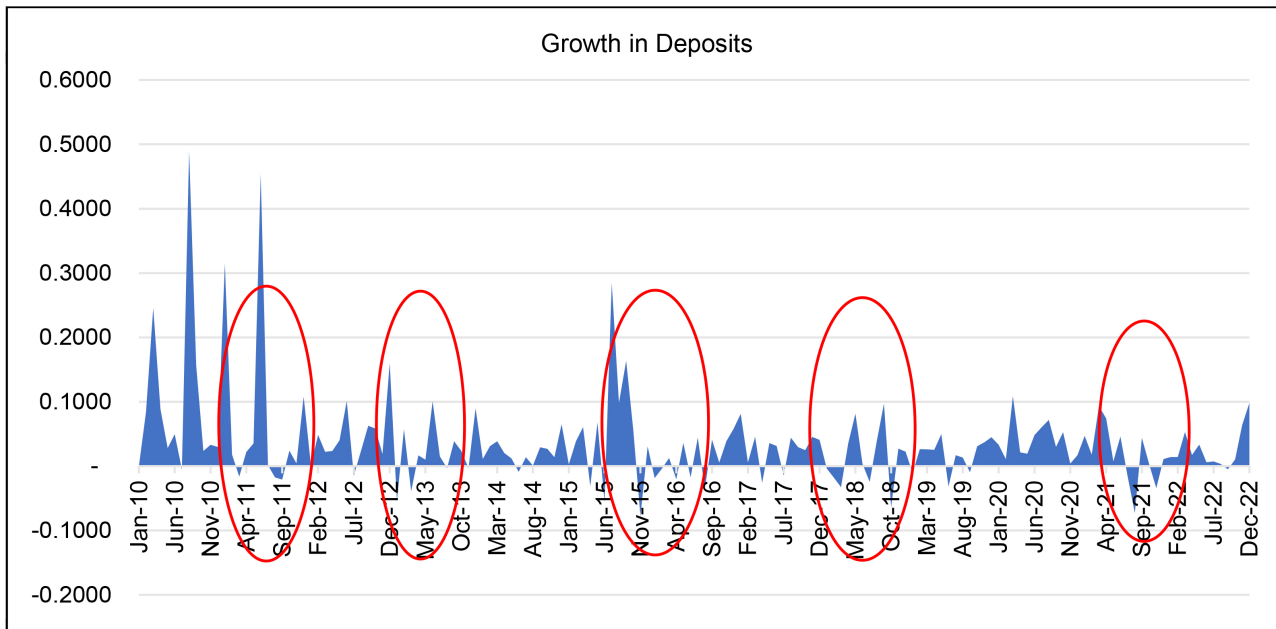
Overall, the past decade has been a tumultuous period for the Zambian banking sector, marked by periods of growth, strain, and recovery. While challenges remain, including economic volatility and regulatory changes, the sector has demonstrated resilience and the ability to weather storms, positioning it for potential future growth and stability. However, continued monitoring and adaptation to changing market conditions will be essential for sustained success in the years to come.

#### 4.1.2. Individual Parameter Analysis

**Figure 3** shows that growth in deposits has generally been on the increase in the review period although at a declining rate. 5 periods were identified where growth in deposits was negative, having dropped relatively quickly.

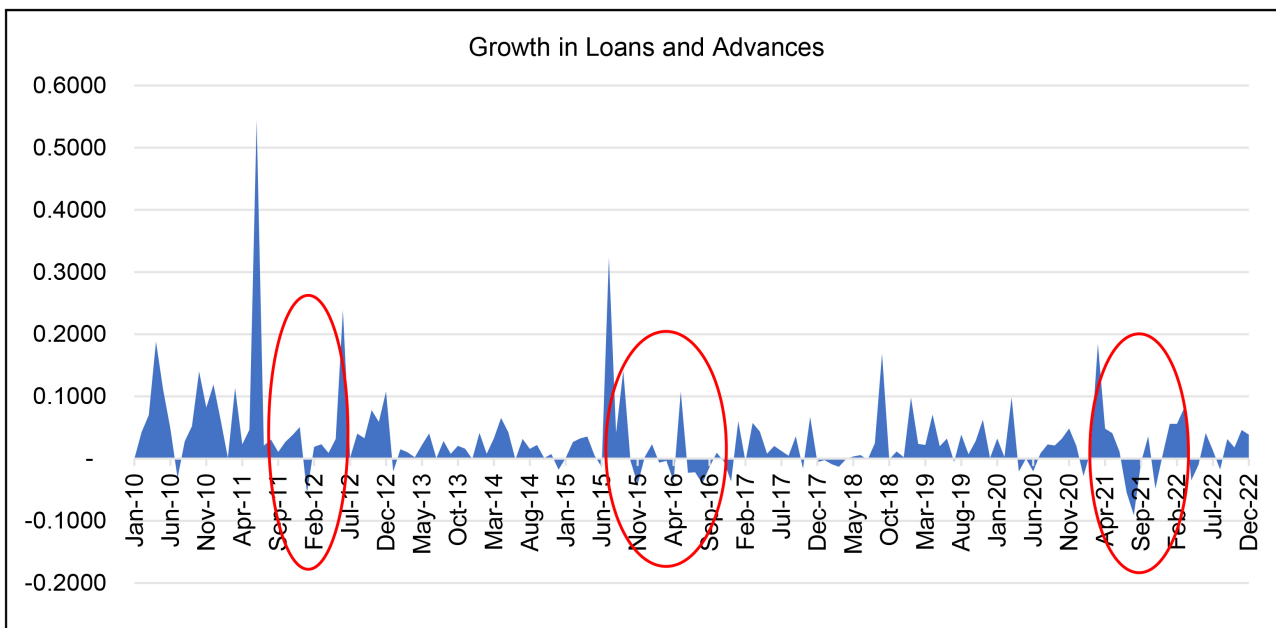
As shown in **Figure 4**, growth in loans and advances has generally been on the increase in the review period although at a declining rate. 3 periods were identified

where growth in loans and advances was negative, having dropped relatively quickly.



Data source: Author's calculations.

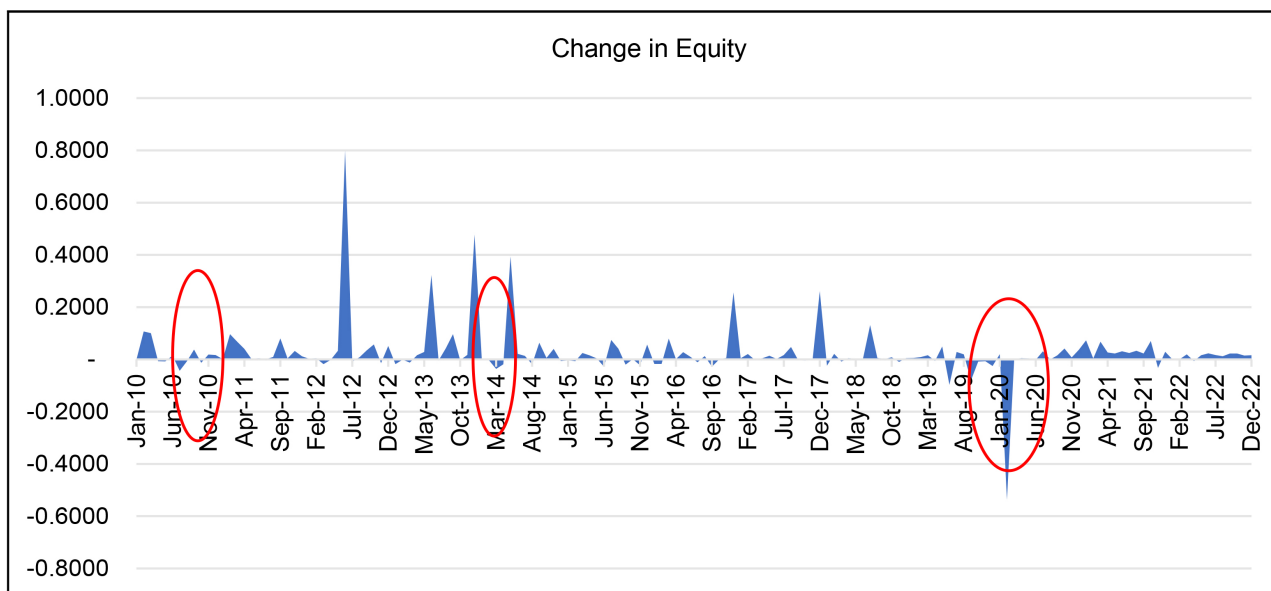
**Figure 3.** Market average growth in deposits over review period.



Data source: Author's calculations.

**Figure 4.** Market average growth in loans and advances during review period.

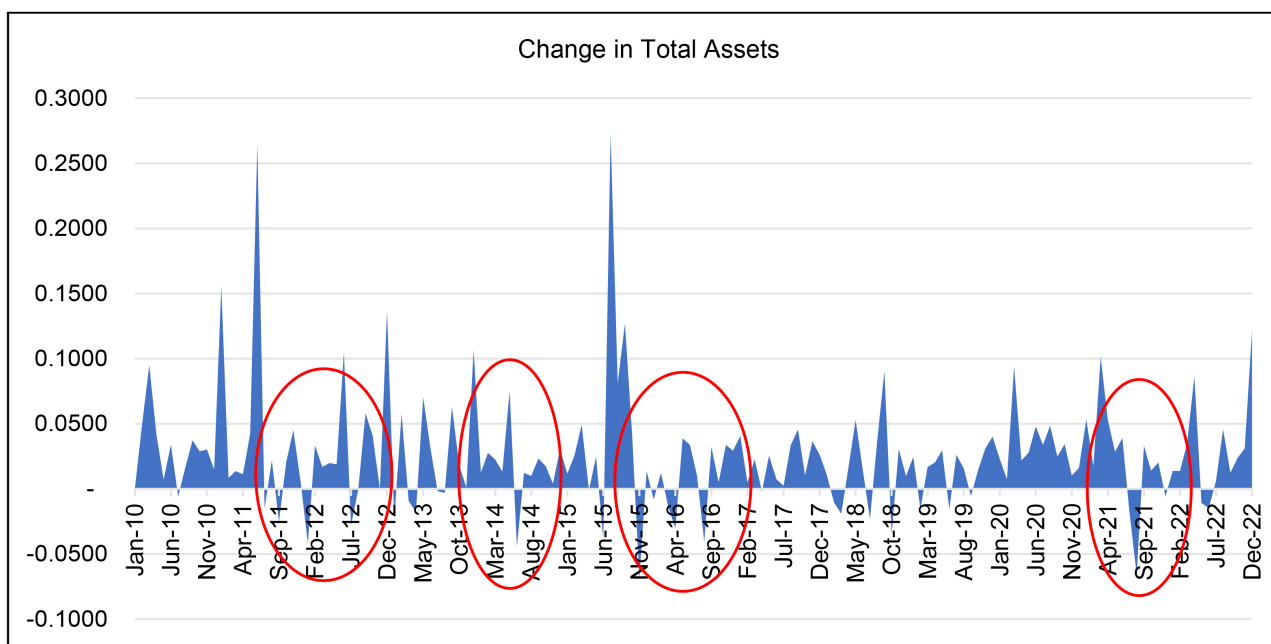
**Figure 5** shows that changes in equity have generally been positive in the review period although also at a declining rate. 3 periods were identified where growth in deposits was negative, having dropped relatively quickly.



Data source: Author's calculations.

**Figure 5.** Market average change in equity during review period.

**Figure 6** shows that changes in total assets have generally been positive in the review period although also at a declining rate. 4 periods were identified where change in total assets was negative, having dropped relatively quickly.

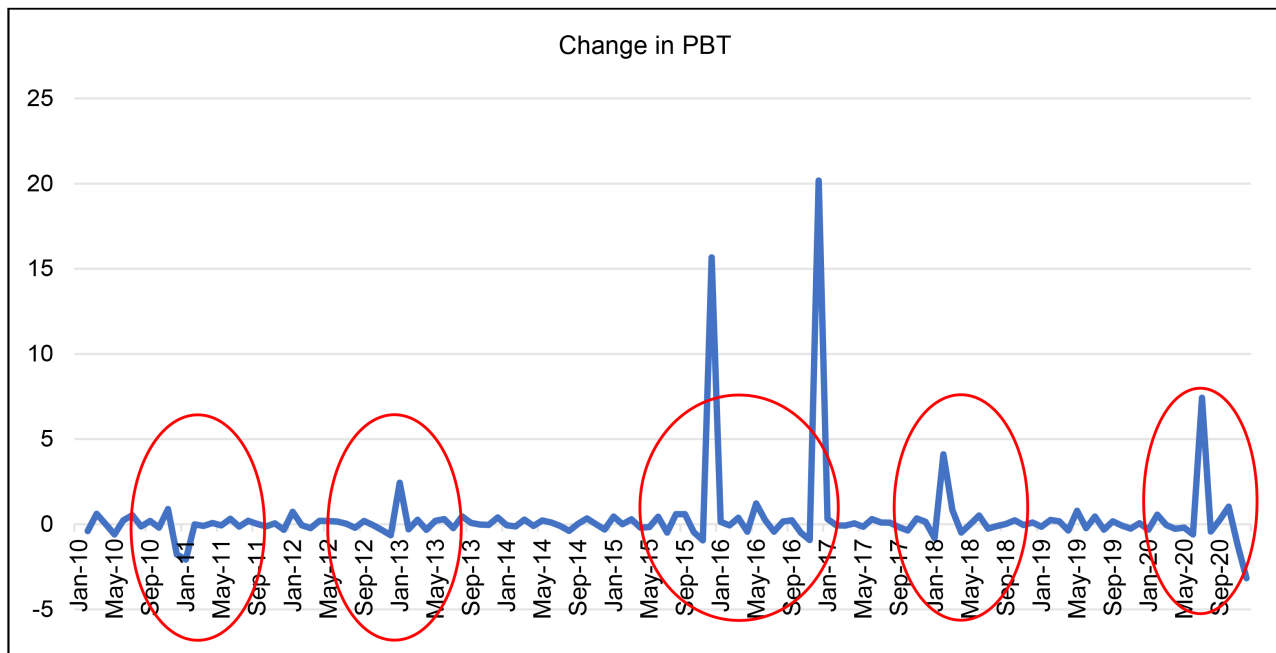


Data source: Author's calculations.

**Figure 6.** Market average change in total assets during review period.

As can be seen in **Figure 7**, change in profits was generally flat throughout the review period but there were times of significant volatility, particularly in 2015 and

2016. Significantly though, 5 periods were identified where the change of profits suddenly changed in the negative.



Data source: Author's calculations.

**Figure 7.** Market average change in profit before tax during review period.

## 4.2. Results of Analysis of Market Averages

Based on the market average movements as shown above, it can be estimated that there were sudden negative movements in market parameters in the following periods:

- 2011 Q3 to 2012 Q1
- 2013Q1 to 2013 Q2
- 2015 Q4 to 2016 Q2
- 2020 Q1 to 2020 Q3

Review of the current events in these periods shows that these periods correspond to significant events in Zambia that could have served as industry shocks prompting negative movements across the Banking sector.

The following are some significant events in Zambia during the specified periods that could have had an impact on the banking sector:

### 2011 Q3 to 2012 Q1:

In 2011, Zambia elected President Michael Sata in September. His populist policies, brash manner and somewhat dictatorial disposition prompted a wait-and-see approach for potential investors which resulted in reduced flows and economic activity shortly following his election.

### 2013 Q1 to 2013 Q2:

In early 2013, Zambia experienced a decline in its economic growth rate due to a slowdown in the mining sector, which led to a decrease in foreign exchange

earnings and a depreciation of the Zambian kwacha. This negatively affected the performance of banks, as they faced challenges in accessing foreign exchange and managing their foreign currency exposures.

The Bank of Zambia raised interest rates in early 2013 to curb inflation. This increase in interest rates made it more expensive for banks to borrow money, which in turn led to higher lending rates for businesses and individuals. This also negatively impacted bank performance, as it reduced the demand for loans and increased the cost of funding for banks.

#### **2015 Q4 to 2016 Q2:**

In 2015, Zambia experienced a significant drop in copper prices, which is a key export for the country. This drop in commodity prices led to reduced government revenue and foreign exchange earnings, which could have impacted the banking sector through changes in liquidity and credit conditions.

#### **2020 Q1 to 2020 Q3:**

In 2020, Zambia faced economic challenges exacerbated by the COVID-19 pandemic. The pandemic led to disruptions in global trade, reduced economic activity, and financial market volatility, which could have affected the banking sector's operations, asset quality, and profitability. This was exacerbated by the failure of the Government to keep up with interest payments on the Eurobond.

### **4.3. Summary of Findings**

The study found that all the variables considered demonstrated overall growth during the review period. Total assets increased from ZMW 16.3 billion in January 2010 to ZMW 129.3 billion in December 2020, while loans and advances rose from ZMW 6.97 billion to ZMW 124.2 billion, and deposits grew from ZMW 11.63 billion to ZMW 126.2 billion. Shareholders' equity also increased from ZMW 1.76 billion to ZMW 139.2 billion. Pre-tax and post-tax profits fluctuated but showed an overall increasing trend.

The steady overall growth observed during the period made it relatively clear when the sector experienced turbulent periods. Significant negative market movements were observed during 2011 Q3 to 2012 Q1, 2013 Q1 to 2013 Q2, 2015 Q4 to 2016 Q2, and 2020 Q1 to 2020 Q3. These periods coincided with major economic and political events, such as the election of President Michael Sata, fiscal challenges, a drop in copper prices, and the COVID-19 pandemic. These findings highlight the sector's vulnerability to external shocks and the need for robust risk management frameworks.

## **5. Conclusion**

In conclusion, the analysis conducted on the Zambian banking sector data spanning from 2010 to 2020 reveals discernible periods characterized by negative fluctuations, potentially indicating systemic risk events. These fluctuations appear to be closely aligned with pivotal economic and political occurrences within Zambia, implying a correlation between external shocks and adverse trends observed across

the banking sector.

The election of President Michael Sata in 2011 precipitated a period of uncertainty due to his adoption of populist policies, which, in turn, deterred investors and led to a reduction in overall economic activity. In 2013, the economy experienced a slowdown exacerbated by constraints in the supply of foreign exchange, significantly impacting the banking sector's performance. Furthermore, the substantial decline in copper prices in 2015 resulted in diminished government revenue and foreign exchange earnings, subsequently influencing liquidity and credit conditions within the banking sector. Lastly, the economic turmoil stemming from the COVID-19 pandemic in 2020, compounded by the government's inability to meet Eurobond interest payments, exacerbated financial market volatility and presented formidable challenges to the banking sector.

The evident and tangible repercussions of these events on the sector's performance, as well as on the profitability and growth trajectories of individual banks, underscore the prevalence of systemic risk within the Zambian banking sector. The recognition of significant events in Zambia as systemic shocks that reverberate across all banks underscores the imperative for industry stakeholders, regulators, and policymakers to proactively monitor and manage systemic risks to ensure the stability and resilience of the banking sector.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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