AN ANALYSIS OF THE EFFECTS OF ECONOMIC GROWTH ON THE FINANCIAL PERFORMANCE OF NAMIBIAN LISTED COMPANIES

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ABSTRACT

The purpose of the study was to analyse the effects of economic growth on the financial performance of Namibian listed companies and examine if the underlying effects are sector-specific. The measure used to assess the financial performance of selected sectors as identified on the NSX was the Return on Equity (ROE). The ROE was then regressed against the macroeconomic variables, including the gross domestic product percentage change (GDP % change) and the inflation rate percentage change as measured by the Consumer Price Index (CPI % change) annual percentage changes. The estimation procedure was performed on secondary data across eleven firms for the periods 2010 to 2020. Additionally, the study was conducted across three identified sectors, the first being, Banks, Finance & Credit Services, the second, Food Retailers and Wholesalers and lastly, Household Goods and Personal Goods. The findings support the hypothesis that economic growth positively affects the ROE of various firms. However, this effect differs in terms of magnitude across various industries. In the Household goods sector and the Food Retailers and Wholesalers sector, the ROE is significantly influenced by the CPI percentage change, more so than the GDP percentage change. Finally, the Banking sector indicated that their ROE is more sensitive to changes in the GDP percentage change than the CPI percentage change. To enhance the financial performance of companies listed on the Namibian Stock Exchange, the study recommends that policymakers ensure the economy is geared toward a sustainable growth path.

Keywords: Return on Equity, Gross domestic product, Consumer Price Index, NSX, Macroeconomics, Namibia

JEL Classification: E44; C21, C22, G21, M41

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GDP	Gross Domestic Product
GDPWR	Gross Domestic Product for the Wholesalers and Retailers sector
GDPFS	Gross Domestic Product for the Financial Services sector
CPI	Consumer Price Index
ROE_HH	Return on Equity of Household Goods and personal goods
ROE_Banks	Return on Equity of Banks, Finance & Credit Services
ROE_Foods	Return on Equity of Food Retailers and Wholesalers
ROE_Firms	Aggregate Return on Equity of all selected sectors
GARCH	Generalised Autoregressive Conditional Heteroskedasticity
IFE	International Fisher Effect
NSX	Namibian Stock Exchange
JSE	Johannesburg Stock Exchange
PPP	Purchasing Power Parity
ADF	Augmented Dickey-Fuller unit root test
LLC	Levin-Lin-Chu unit root test
IPS	Im-Pesaran-Shin unit root test
UNAM	University of Namibia
BON	Bank of Namibia
NSA	Namibia Statistics Agency

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DEDICATION

I dedicate this thesis to my two children, who always had to have long days without mommy at home, and even when I didn't have time for you, you were so excited to meet me at home. Thank you for your joy and innocence.

DECLARATION

I, Elize Heyns, hereby declare that this study is my own work and is a true reflection of my research and that this work or any part thereof has not been submitted for a degree at any other institution.

Elize Heyns		25 October 2021
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Name of Student	**Signature**	**Date**

CHAPTER 1: INTRODUCTION

1.1 Background of the study

Macroeconomic indicators such as economic growth are hypothesised to affect the financial performance (Xu, Shu, & Broadstock, 2013). Firms play an essential role in enhancing countries' competitiveness, generating tax revenues, and employment creation. Moreover, a company's financial health impacts not only shareholders but internal and external stakeholders alike. The term stakeholder first "appeared in the management literature in an internal memorandum at the Stanford Research Institute, in 1963" (Freeman, 1984 p. 31) and is defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). Bryson (1995, p. 27) presents an alternative definition: "A stakeholder is defined as any person, group, or organization that can place a claim on an organization's attention, resources, or output or is affected by that output". Thus the profitability of a firm influences all stakeholders of that company.

The traditional model of a firm's value is related decisively to shareholders' value. It is argued that to enhance a firm's value, one needs to maximize shareholders' value (Lonkani, 2018). Recent developments in research have argued that assessing firms' value should not be based solely on shareholders but should include all stakeholders (Lonkani, 2018). In the traditional model of evaluating firm performance, the two most frequently used indicators are the Return on Assets (ROA) (Issah & Antwi, 2017; Saif & Datin, 2017; Singh, 2010) and Return on Equity (ROE) (Filip, 2015; Loto, 2016; Ndlovu & Alagidede, 2018). The study implemented ROE as a proxy for firm financial performance.

Since 2016 the Namibian economy has been undergoing a recession, showing a negative GDP percentage change of -0.3% in 2016, -0.3% in 2017, 0.7% change in 2018, and -1.1% change in 2019 (Bank of Namibia, 2019). In light of the above, the Namibian government needs to balance economic conditions by counteracting the current economic recession with short-term policy changes whilst managing policies that benefit the country's long-term economic growth. According to the African Development Bank (2020), the country's economic model has largely been based on mining natural resources with limited value addition. Specifically, the lack of industrialisation has limited the economy's capacity to create sustainable jobs (African Development Bank, 2020). Services, i.e. tertiary industries, remains the primary contributor towards Namibia's Gross Domestic Product (GDP) at 57.9% for 2020 (Bank of Namibia, 2020). In 2020, the Public administration and defence services contributed 11.6% and the education sector 10.9% towards Namibia's GDP (Bank of Namibia, 2020. Therefore, examining the effects of the current economic environment on the financial performance of listed companies becomes imperative to the company and the government as a whole.

1.2 Statement of the problem

The Namibian economy has shown major fluctuations in economic growth over the past years and has been characterised by negative growth since 2016 (Bank of Namibia, 2019). Considering the current economic environment, the challenge faced by entities in Namibia is to remain operational for the foreseeable future and, at best profitable. In addition, the goal of maximising shareholders' wealth is constrained by the underlying macroeconomic environment. Thus, examining the effects of economic growth on NSX listed firms becomes vital. Namibia is unique in that it is a developing

country that has tightened its belt and curbed spending, even before the Coronavirus pandemic, due to the economic recession and spending that was 'unsustainably high' (Ministry of Finance, 2019, p.7). Prior studies have looked at developed countries such as Greece (Notta and Vlachvei, 2014), Americas (Cenesizoglu and Ibrushi, 2020), Europe and Asia (Alfadli & Rjoub, 2020), as well as some developing countries (Mirza & Hashem, 2014; Aljbiri, 2013; Gul, Irshad, & Zaman, 2011; Rahman, Yousaf, Tabassum, 2020). A significant volume of prior studies has focused solely on one sector. Most studies were conducted specifically either on the Banking Industry or the Insurance Industry (Alfadli & Rjoub, 2020; Bilal, Saeed, Gull & Akram, 2013; Doyran, 2013; Filip, 2015; Issah & Antwi, 2017; Karabulut & Şen, 2018; Loto, 2016; Nuhiu, Hoti & Bektashi, 2017; Petria, Capraru & Ihnatov, 2015; Shifotoka, 2014; Singh, 2010; Tan & Floros, 2012) with some exceptions on the Food Sector (Bhutta & Hasan, 2013), the Manufacturing Sector (Egbunike & Okerekeoti, 2018) or Retailers (Dewi, Soei & Surjoko, 2019). Very few studies looked at the impact of macroeconomic factors on firm profitability across various sectors or regions (Mohd & Siddiqui, 2020). Further, the studies on the Namibian market have focused on stock market performance rather than firm profitability. Also, the covered period ranges from 2000 to 2011 (Shifotoka, 2014) and 1996 to 2016 (Phillipus, 2019). Currently, no study has been done in Namibia looking at the effects of economic growth on the financial performance of Namibian-listed companies in the domestic market. Neither have local studies been conducted on these variables over the past five years. Therefore, this study bridges the current literature gap.

1.3 Research objectives

The study's main objective is to investigate the effects of economic growth on the financial performance of Namibian-listed companies. The specific intents are;

- To examine the effects of economic growth on the financial performance of listed companies;
- To analyse the effects of sectoral economic growth on the sectoral financial performance of listed companies.
- To offer policy suggestions based on the findings of the study.

1.4 The hypothesis of the study

H_{0a} – Economic growth does not affect the financial performance of listed companies

H_{1a} – Economic growth affects the financial performance of listed companies

H_{0b} – The effects of economic growth on financial performance is not sector-specific

H_{1b} – The effects of economic growth on financial performance is sector-specific

1.5 Significance of the study

The underlying macroeconomic environment generally regulates firms' operational and strategic decisions (Oxelheim & Wihlborg, 2008). Thus, financial performance is often linked to stability in the macroeconomy. Unfortunately, in a general economic downturn, companies may experience conditions such as erosion of market value, liquidity concerns and increasing inventory levels, to name only a few (Deloitte, 2020). Thus the financial performance of companies plays a vital role in contributing to the

government's revenue. Since the Namibian economy is in a recession, compounded by the COVID-19 pandemic, economists, potential investors, and relevant stakeholders are interested in how companies have performed and adapted to remain profitable and at least operational. Therefore, the study assesses the effects of economic growth on listed companies' financial performance, quantifying the effect on the current financial welfare of listed domestic companies.

Consequently, this study provides insight into the current financial condition of listed companies. Moreover, the study complements the body of literature on the relationship of economic growth on the financial performance of listed companies. Lastly, it will provide useful findings, aiding policymakers to ensure the economy is steered toward sustainable growth.

1.6 Limitation of the study

The study is limited to entities listed on the Namibian Stock Exchange (NSX). Therefore, the research may not be generalisable to any other situation not within the Namibian context. Furthermore, as significant reliance was placed on secondary data, its validity could limit the study's findings. On the contrary, this is mitigated by the fact that this data was obtained from credible and reputable institutions.

1.7 Delimitation of the study

The study excludes companies without audited financial statements, and internationally listed companies as the domestic GDP percentage change does not

significantly influence the consolidated figures of internationally listed companies as most of these have extensive operations in other countries. Thus, the study focuses on those listed companies primarily listed on the NSX or those listed on the NSX and JSE. The study focuses on three main sectors, Financial Services Supersector, which focuses on Banks, Finance and credit services; secondly the Food Retailers and Wholesalers and lastly the Household Goods and personal goods sector. Furthermore, the study observes periods from 2010 to 2020 as the last five years of this data is when the economic recession becomes relevant to the study (Bank of Namibia, 2019).

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter deliberates the theoretical foundation and relevant empirical studies. Section 2.2 discusses the theoretical foundation which forms the foundation for examining the effect of economic growth on the financial performance of Namibian listed companies. Section 2.3 provides an overview of the empirical literature. Lastly, the chapter is concluded in section 2.4.

2.2. Theoretical Literature

2.2.1. Determinants of Firm Performance regarding the Industry Structure

Structure-conduct-performance theory

The structure–conduct–performance (SCP) theory was first introduced in 1933 by Edward Chamberlin and Joan Robinson and further developed by Joe S. Bain. The theory states that market structure would determine firm conduct, ultimately determining firm performance (Chamberlin, 1933; Robinson, 1933). This theory assumes a cause and effect in the chain of events starting from structure conduct through to profitability.

The competitive structure within the industry can drive the firm structure, e.g., the number and size of firms in an industry, the cost structure, e.g., economies of scale or fixed- or variable cost structure, and the demand structure, e.g., the frequency of sales and the power or size of customers. The conduct component of the paradigm encompasses how firms respond to their current structure or position in the market.

This entails improving their market shares, such as adjusting their pricing strategy, researching and developing new products, or innovating service delivery. The performance part of the theory entails the firm's profitability, evidenced by its financial metrics, such as Return on Equity (ROE), total shareholder returns, or economic profits and its growth recorded (StrategicToolkits, n.d.).

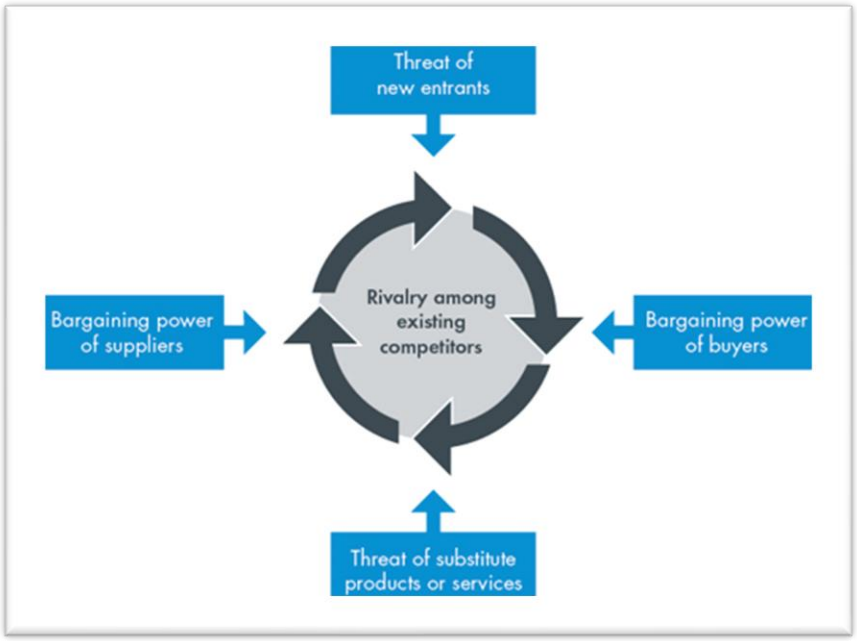
Furthermore, it was believed that high-profit levels in the industry showed that firms in that industry possessed monopoly power (Ndlovu & Alagidede, 2018). Empirical research found that the relationship between market structure and firm profitability was generally positive, although not necessarily very strong (Slade, 2004).

Porter's five forces

Porter's five forces theory is a model developed by Michael Porter in 1979, which determines the competitive intensity and thus the 'attractiveness' of an industry in terms of its profitability. An 'unattractive' industry is where the pull of the five forces reduces overall profitability (Porter, 1979). Porter refers to these five forces as a company's microenvironment that affects its ability to serve its customers and profit. Porter's five forces theory was based on the foundations of the structure–conduct–performance (SCP) theory and developed in response to the then-popular SWOT analysis as he found this framework to be lacking in rigour and being ad hoc (Porter, Argyres & McGahan, 2002).

The five forces are graphically represented as follows:

Figure 1: Porter's Five Forces



Management Accountant (CGMA) (2013). Title: Porter's Five Forces of Competitive Position Analysis. CGMA®.*https://www.cgma.org/resources/tools/essential-tools/porters-five-forces.html*.

2.2.2. Economic Theories

Keynesian economics

Keynesian economics derived its name, theories, and principles from British economist John Maynard Keynes (1883–1946) and is considered the originator of modern macroeconomics (Jahan, Mahmud, & Papageorgiou, 2014). His most renowned paper, The General Theory of Employment, Interest, and Money, was published in 1936 (Jahan, Mahmud, & Papageorgiou, 2014). The Keynesian theory advocates that in a recession, the government can intervene by using spending to help stimulate aggregate demand and real GDP output, thus enabling a quicker economic recovery (Pettinger, 2016), consequently achieving full employment and price stability (Jahan et al., 2014). Economists following the Keynesian model advocate

expansionary fiscal policy in a recession. Keynes argued that people responded to the threat of unemployment in a recession by increasing savings and reducing their spending (Pettinger, 2016). Although a rational choice, it contributes to an even more significant decline in aggregate demand and GDP. The Keynesian model explains why government intervention may be needed to help stimulate aggregate demand and real GDP output, enabling a quicker economic recovery (Pettinger, 2016). Therefore, if GDP growth influences the ROE of firms, any economic recovery as evidenced in real GDP growth would again influence the profitability of listed entities.

Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was propounded in 1976 by the American economist Stephen Ross. The asset pricing theory argues that an asset's expected returns can be predicted with a linear correlation against the macroeconomic factors that affect the asset's risk (Corporate Finance Institute, n.d.). A factor-specific beta coefficient represents the sensitivity to these factors. Analysts and investors use the APT as a multi-factor pricing model for securities, based on the relationship between a financial asset's expected returns and its risks (Corporate Finance Institute, n.d.). The APT is commonly referred to as a substitute for the Capital Asset Pricing Model (CAPM). Both proclaim a linear relationship between an assets' expected returns and their covariance with other random variables (Huberman, 2005). The APT model derives a rate of return which will then be used to price the asset correctly. The asset is valued by discounting the asset's cash flow at the model-derived rate of return. If there is a price discrepancy between the current asset price and the price calculated, arbitrage should bring it back into equilibrium (Huberman, 2005). Ndlovu and

Alagidede (2018) found that the APT principles regulated levels of variation in ROE when considering the positive effects of unforeseen changes in the gross domestic product (GDP) and interest rates. They argue that macroeconomic influence on ROE is captured through the Arbitrage Pricing Model principles. Based on the APT theory, the study expects the economic growth relationship to be fairly linear to the profitability of the firms listed on the Namibian Stock Exchange, using the ROE as a proxy for profitability.

2.2.3. Accounting measures to Assess Financial Performance

Various factors drive the financial performance of companies. It has been found that firms with greater exposure to demand and supply and international trade, in connection to the 2007/2008 economic crisis, were more negatively impacted than their counterparts (Notta & Vlachvei, 2014). Furthermore, entities with a weak financial structure made them more vulnerable to an economic downturn (Claessens, Djankov & Colin Xu, 2000). Pre-existing firm-specific weaknesses were critical factors in a declining performance (Claessens, Djankov & Colin Xu, 2000).

There are different ways financial performance is assessed. The most popular is the Return on Equity (ROE), Return on Assets (ROE), DuPont analysis, or the Economic Value Added (EVA). ROE and Return on Assets (ROA) are perhaps the most extensively applied benchmark of corporate financial performance that view the ROE as an essential ratio every investor should consider (Al Manaseer et al., 2012; Chari et al., 2012; Monteiro, 2006; Uwuigbe & Olusanmi, 2011; Warrad & Khaddam, 2020). Alternatively, Pacini, Mayer, Attar, and Azam (2017) performed a study that

investigated the impact of chosen macroeconomic factors on firm performance in the United Kingdom. For firm performance, measured by profitability, they applied the rate of the net value added to its total assets, also known as asset productivity.

According to Chen et al. (2014) and Al-Matari et al. (2014), Return on Equity (ROE), as computed as a net profit ratio to Equity, is a fair descriptive ratio of performance evaluation. The Du Pont analysis (Correia, Flynn, Uliana and Wormald, 2017; Correia, Flynn, Uliana & Wormald, 2002) is the result of structured financial ratio analysis of the ROE and may therefore contribute to the appeal thereof among analysts and shareholders (De Wet & Du Toit, 2007).

Although it has been argued that using the DuPont analysis on its own does not provide accurate performance information, combining it with advanced methods such as EVA is more suitable in understanding a company's Return on Equity (ROE) (Chen et al., 2014). Furthermore, according to Wenlei and Wenyu (2002), the Du Pont analysis cannot fully reflect the company's operating performance as it cannot eliminate non-business operating activities such as price-fixing through accounting policy adjustment. However, some argue that the Return on Assets (ROA), as computed as a ratio of the net profit to the total assets, appears the most suitable and central ratio as it covers the operational efficiency of the assets (Rahman et al., 2020). Al-Matari, Abdullah and Hanim (2014) compared different financial statement ratios and concluded that ROE efficiently evaluates banks' profitability and financial performance.

On the contrary, Zahra and Pearce (1989) and Rhoades, Rechner and Sundaramurthy (2001) argued that accounting measures present some disadvantages, e.g., manipulating figures, such as understating asset values or overstating income values to inflate the ratio of return to asset values. Moreover, De Wet and Du Toit (2007) argue that the earnings used in ROE can and are legally manipulated using acceptable accounting standards in the form of accounting policy changes. In addition, the ROE is calculated after the cost of debt but before considering any cost of own capital (De Wet & Du Toit, 2007).

Nonetheless, the accounting measure (namely ROE) is commonly used due to both the availability of data and stakeholders' interests. Thus, according to the present research's goal, the ROE is considered the most appropriate financial performance indicator and is considered in this study (Pantea, Gligor & Anis, 2014).

2.2.4. History of the NSX and Profile of NSX listed companies

The first stock exchange in Namibia was founded in 1904 in Lüderitz (the Lüderitz Stock Exchange) primarily due to the diamond rush; it was again closed in 1910 when the diamond rush ceased. After independence in 1990, the notion of establishing a stock exchange retook form. The government gave full legislative support, while funding came from 36 leading Namibian businesses. These 36 founding members donated N$10,000 each to act as start-up capital for the first three years of the existence of the Namibian Stock Exchange. The Namibian Stock Exchange (NSX) was launched in 1992; it consisted of one dual-listed firm and one stockbroker (Namibian Stock Exchange, n.d.-b). The NSX is licensed by the Namibia Financial Institutions

Supervisory Authority (NAMFISA) and is regulated through the Stock Exchanges Control Act 1 of 1985, as amended.

Based in Windhoek, the Namibian Stock Exchange (NSX) is the second most significant stock exchange in Africa, after the Johannesburg Stock Exchange (JSE), owing to their extensive dual or secondary listings (Namibian Stock Exchange, n.d.-c). For 2020, the overall comparative value traded was N$ 11,011 billion for the year ending December 2020, which signified a 24% increase from the prior year. On 31 December 2020, the total market capitalisation was N$ 1,738 trillion or US$ 119 billion (Namibian Stock Exchange, 2020). To date, the listing complement comprises 39 companies and 11 exchange-traded funds (Namibian Stock Exchange, n.d.-a)

For a company to be listed or registered on the stock exchange, the following basic requirements are to be met:

- Share Equity amounting to N$1 million.
- Minimum of 1,000,000 shares in issue.
- Profitable trading record for three years.
- Current audited profit of at least N$500,000 annual before taxation and interest.
- Minimum of 20% of the shares to be held by the public.
- Minimum of 150 shareholders.
- Auditor's reports for the previous three years.
- An acceptable record of business practice and management integrity.

As the study requires the publicly available financial statements of listed entities, it is important to bear in mind the profile of the respective entities in the study.

2.2.5. The Global Industry Classification Standard (GICS) and Industrial Classification Benchmark (ICB) for Share Classification

Global Industry Classification Standard (GICS)

The Global Industry Classification Standard (GICS) is a method that classifies companies into specific economic sectors based on the company's principal business activity, which is driven by the company's primary source of revenue. GICS was developed jointly by Morgan Stanley Capital International (MSCI) and Standard & Poor's. It is one of two rival systems used by investors, analysts, and economists to compare and contrast competing companies (Morgan Stanley Capital International & Standard & Poor's, 2001).

The GICS methodology is used by the MSCI indexes, which include the US and international shares. Its hierarchy starts with 11 sectors which can be further defined into 24 industry groups, 69 industries, and 158 sub-industries. It follows a coding system that assigns a code from each grouping to every company publicly traded in the market. More than 26,000 stocks worldwide have been classified by GICS, accounting for more than 95% of the world's listed market capitalisation (Morgan Stanley Capital International & Standard & Poor's, 2001).

The Industry Classification Benchmark (ICB)

The NSX uses the Industry Classification Benchmark (ICB) to categorise shares and indexes according to their respective sectors. The ICB is a system for assigning all public companies to appropriate subsectors of specific industries. The system was developed by Dow Jones and the Financial Times Stock Exchange (FTSE), and is recognised globally and adopted by amongst other, Euronext, NASDAQ OMX, London Stock Exchange, Taiwan Stock Exchange, Johannesburg Stock Exchange, Borsa Italiana, Singapore Stock Exchange, Athens Stock Exchange, SIX Swiss Exchange, Cyprus Stock Exchange, and Boursa Kuwait (FTSE Russell, n.d.). These stock exchanges make up more than 65% of the world's market capitalisation (Kenton, 2019). The ICB uses 11 industries partitioned into 20 supersectors, divided into 45 sectors, containing 173 subsectors. These numbers are subject to change, the same as the GICS (Hawkins, 2021).

The study relied on the classification standard to identify the three main sectors; i.e. the Financial Services Supersector, which focuses on Banks, Finance and credit services; secondly, the Food Retailers and Wholesalers and lastly, the Household Goods personal goods sector.

2.3. Empirical Literature

2.3.1. Introduction

Apart from economic growth, a profitable banking system enables an economy to absorb adverse shocks better and contribute to economic and financial stability.

Prevailing empirical literature pronounces bank profitability as a function of the internal and external determinants (Athanasoglou, Brissimis, & Delis, 2008). Moreover, many studies have focused their target on the financial sector, showing profound evidence of GDP having a positive effect on the bank's profitability (Dzikevičius & Šaranda, 2016; Filip, 2015; Loto, 2018; Ndlovu & Alagidede, 2018; Rahman, Yousaf, & Tabassum, 2020). For these same authors, inflation has been proven to have an adverse effect on a firm's profitability. Only a few exceptions have indicated a positive correlation of inflation to a firm's profitability (Bhutta & Hasan, 2013; Haider, Anjum, Sufyan, Khan & Khan, 2018; Saif & Datin, 2017).

2.3.2. Empirical Evidence from Americas, Europe, Asia, and the Middle East

According to Filip (2015), there is a strong relationship between the determinants of bank profitability in the banking systems' performance and the general economic and social climate. The study identified several determinant factors, both internal (bank-specific) and external (industry-specific and macroeconomic), and used as a proxy for bank profitability their ROA and ROE indicators. The data of 13 Western European countries for 2000 to 2011 were then analysed using econometric methods. The results indicated a significant positive impact of economic growth and significant adverse effects relating to inflation on the bank's profitability, respectively. Furthermore, in a study by Petria, Capraru, and Ihnatov (2015), the main determinants of banks' profitability were evaluated for the 27 countries in the European Union (EU) from 2004 to 2011. The factors that influence bank profitability were categorised into two large groups, namely bank-specific (internal) and industry-specific and macroeconomic (external) factors. The proxies considered for the bank's profitability were the return on average assets (ROAA) and the return on average Equity (ROAE).

The empirical findings indicated that credit and liquidity risk, management efficiency, the diversification of business, the market concentration, and economic growth impact bank profitability, both on ROAA and ROAE. To summarise, GDP growth significantly affects bank profitability, while inflation seems not to influence performance. However, Issah and Antwi (2017) concluded that real GDP negatively correlates with the respective company's ROA.

Equally important, to add to this argument, a study investigating the macroeconomic impact on financial performance in the Automobile sector of the Pakistani stock exchange proved that selected macroeconomic variables negatively affect ROE and ROA. In contrast, inflation has a positive impact on ROE yet a negative influence on ROA (Haider, Anjum, Sufyan, Khan & Khan, 2018). Additionally, Alfadli and Rjoub (2020) considered the stable panel statistics of 62 commercial banks in the gulf cooperation council countries from 2011Q1 to 2017Q4 (Alfadli & Rjoub, 2020). They concluded that the macroeconomic indicators influenced the bank's financial performance measures. In another study, the inflation rate (INF) and the ratio of the domestic credit volume to the GDP (DCF) had a negative effect on the performance of financial centres. These results infer that economies intending to establish a finance centre must provide macroeconomic stability (Karabulut & Şen, 2018).

Makris (2017) concluded that using financial data from a large sample of Eurozone-listed firms over ten years, including country-specific indicators, can lead to an adverse macroeconomic environment that crucially weakens the firm's returns. In addition, Saif and Datin (2017) also concluded that the macroeconomic factors reflected in the gross domestic product, gross domestic product growth, and inflation rate have a

significant positive relationship with the return on assets (ROA). On the other hand, in another study, it was proven that the GDP (amongst others) is one of the most important macroeconomic factors that can be used to forecast different profitability levels, financial leverage, liquidity as well as other financial performance indicators of individual business sectors or companies (Dzikevičius & Šaranda, 2016).

Furthermore, Singh (2010) discovered a positive correlation between macroeconomic variables, specifically GDP and Bank profitability in India, as tested in Return on Assets (ROA). It was also noted that foreign banks operating in India were less affected in their profitability by the macroeconomic environment when compared to domestic banks.

On the contrary, Tan and Floros (2012) established a negative relationship between GDP growth and bank profitability using a one-step GMM estimator to test the persistence of profitability in the Chinese banking sector. Also, Nuhiu, Hoti, and Bektashi (2017), in their study, used their financial performance indicators, Return on Average Equity (ROAE), Return on Average Assets (ROAA), and Net Interest Margin (NIM). Furthermore, they used time series and panel data from the banking sector in Kosovo. Employing a regression analysis, the study outcome indicated that commercial banks' profitability in Kosovo was driven primarily by internal determinant factors such as capital adequacy, asset quality, and management efficiency. In contrast, macroeconomic factors had an insignificant impact on the financial performance of commercial banks in Kosovo.

Interestingly, Hansen and Wernerfelt (1989) postulate that organisational factors have about twice as much impact on the change in profit rates as economic factors.

To further evidence that there is a strong relationship between macroeconomic variables and firm performance, a study conducted by Issah and Antwi (2017) investigated to what extent macroeconomic variables can predict firm performance as presented by Return on Assets (ROA). The findings confirmed that macroeconomic variables and prior-year ROA could predict future firm performance measured by ROA. Again, Ahmad (2017), who investigated the Non-Life Insurance Sector in Pakistan, established that there was a significant positive association between real GDP and financial performance of the non-life insurance sector. In contrast, unemployment and inflation negatively influenced financial performance. In a study by Khizer, Akhtar, and Ahmed (2011), both the ROA and ROE were used to represent profitability and assess the impact of economic growth on profitability models. It was again concluded that economic growth positively and significantly related to profitability in both models as measured by ROA and ROE.

A study focused on the Asian markets, specifically Singapore, concluded that approximately two-thirds of the local bank's average financial performance fluctuations can be explained by changes in the macro-environment (St.Clair, 2004).

In addition, a study conducted on 37 non-financial Portuguese firms listed on Euronext Lisbon from the period 2010 to 2015 established that macroeconomic variables were more crucial in explaining firm performance than firm-specific variables (Simões, Elisabete, & Gomes, 2019). In the mentioned study by Simões et al. (2019), three

dependant variables were considered, i.e. ROA, Tobin's Q, and stock returns. In addition, according to McNamara and Duncan (1995), firm performance as measured by ROA is directly correlated to macroeconomic variables. Again, Dewi, Soei, and Surjoko (2019) concluded that all independent variables, as identified, the inflation rate, unemployment level, and Gross Domestic Product (GDP), influenced the ROA ratio. Further, their results showed that only the GDP level significantly affected the firm's profitability, while the other macroeconomic factors had no significant influence. Their study was conducted on fast-moving consumer good firms listed on the Indonesia Stock Exchange (IDX) and tested from 1998 to 2016 (Dewi et al., 2019).

Finally, Doyran (2013), who examined the Argentine commercial banking performance, using return on assets (ROA) and net interest margins (NIM) as dependant variables over the period 1994-2011, concluded that inflation (INF) negatively and significantly affected bank profitability.

When focusing on studies that have specifically identified the impact of macroeconomic determinants on various industries, the results are influenced mainly due to the country's economic condition, including the level of foreign direct investment (FDI) and the nature of the industry. Mohd and Siddiqui (2020) selected seven sectors in their study, specifically the Sugar, Textile, Garments, Automotive, Food, Ceramics, and Cement industries. The results indicated that inflation was a significant factor in the sugar industry, whereas labour unit cost and exchange rate significantly influenced the textile industry's firm performance. The garment and auto industry's firm performance was greatly affected by inflation and unemployment. Lastly, the food and cement industry's ROA was also prominently influenced by the

rate of exchange and the FDI. Firms listed in the Karachi Stock Market food sector in Pakistan were analysed in Bhutta and Hasan (2013). They reported a significant negative relationship between size and profitability and an insignificant positive relationship between food inflation and profitability.

Similarly, in a case study focusing on commercial banks of Pakistan, the authors concluded that inflation has a significant negative effect on ROA. In contrast, the real GDP has a significant positive impact on ROA (Bilal, Saeed, Gull & Akram, 2013). In a study by Rehman, Zhang, and Ali (2014), seven sectors, all non-financial firms listed on the Karachi Stock Exchange, Pakistan, were assessed regarding their relationship between financial performance, macro-economic variables, and firm size for the period 1999 to 2010. The textile sector was used as a baseline category compared to the other seven non-financial sectors set as dummy variables. These were D1: 1 for cement, 0 for others; D2: 1 for chemical, 0 for others; D3: 1 for fuel & energy, 0 for others; D4: 1 for information, 0 for others; D5: 1 for papers, 0 for others; and lastly D6: 1 for sugar, 0 for others. It was found that there was a highly substantial difference between ROA of textile and that of cement, chemical, fuel & energy and information sectors. The p-values of D5 & D6 suggested a substantial difference between the ROA of paper and sugar with that of the textile sector. Ultimately, it can be confirmed that GDP is highly correlated to a sector's ROA (Rehman et al., 2014).

Raju (2017) found mixed results from the empirical study conducted on selected listed companies in India concerning stock market performance. The impact of macroeconomic variables was not constant but varied between various macroeconomic variables on stock market performance (Raju, 2017). On the other

hand, Nijam, Ismail, and Musthafa (2015) analysed the relationship between the 'All share price index' of Colombo stock exchange and five macroeconomic variables, amongst other GDP, inflation, and exchange rate (ER) over the period 1980 to 2012. The analysis revealed that macroeconomic variables and the stock market index in Sri Lanka were significantly related. It concluded that the stock market index referred particularly positively to GDP and ER while it was negatively related to inflation proxied by the wholesale price index of Sri Lanka. Similar results were concluded by Tripathi and Seth (2014) that examined the causal relationships between the stock market performance and a selection of macroeconomic variables in India, an emerging market economy. A significant correlation was found among stock market indicators and macroeconomic factors using monthly data from July 1997 to June 2011. Factor analysis, ADF and PP unit root tests, Regression, ARCH model, Granger causality, and Johansen Co-integration test were used for data analysis.

Furthermore, Khan and Khan (2018) applied their study to the Karachi Stock Exchange of Pakistan, investigating the effect of various macroeconomic variables on stock prices by analysing the monthly data from May 2000 through August 2016. They found that the Karachi Stock Exchange stock prices in the long term were significantly affected by money supply, exchange rate, and interest rate. Although, in the short tenure, all the variables' impact was insignificant except for the exchange rate, which negatively impacted stock prices.

It is evident from the extensive empirical research that it is unquestionably clear that GDP percentage change does correlate significantly to firm performance, especially where measured by their ROA or ROE.

If explored further to assess this per sector, overall, the conclusion remains the same unless the industry is uninfluenced by domestic markets but rather international market forces.

2.3.3. Empirical Evidence from Africa

In a study focusing specifically on Insurance Companies in Kenya from 2009 to 2013, Murungi (2014) found that GDP influences financial performance, among other firm-specific variables. Specifically, it was found that inflation and ROA have an inverse relationship. The correlation analysis found a positive relationship between return on asset and interest rate, return on asset and gross domestic product, and a negative correlation between return on asset and inflation rate. However, it was also concluded that the relationship of GDP to ROA is statistically insignificant and may require further research (Murungi, 2014).

Moreover, an additional study was conducted on the Ghana Stock Exchange that examined how macroeconomic indicators affect the performance of stock markets using quarterly time-series data covering the period 1991-2005 (Kyereboah-Coleman and Agyire-Tettey, 2008). The study's findings revealed, amongst others, that the

inflation rate, which is subject to a lag period, negatively impacts stock market performance (Kyereboah-Coleman & Agyire-Tettey, 2008).

Looking at Nigerian listed companies and investigating the effect of macroeconomic variables on the economic value created by EVA, it was determined to be a function of prior year EVA (Atanda, Asaolu, & Adewale, 2015). That inflation rate, interest rate, foreign exchange rate, capital expenditure ratio, and the labour market development were important macroeconomic factors influencing the EVA of Nigerian quoted companies (Atanda, Asaolu, & Adewale, 2015).

Further, Atanda et al. (2015) used macroeconomic- and firm data covering the period 2001 to 2012, which was also divided into two sectors, i.e., manufacturing companies (715 observations) and service companies (710 observations). Another study that also focussed on listed firms on the Nigerian stock exchange, specifically commercial banks for the period 1990 to 2016, assessed three different profitability measures: Return on Assets (ROA), Return on Equity (ROE), and the Equity Multiplier (EM) and their relationship to macroeconomic indicators. It was concluded that the real GDP had a positive correlation with banks' profitability, whichever way it was measured, whether it was using ROA, ROE or EM and that inflation had a low significant negative correlation to profitability (Loto, 2016). Egbunike and Okerekeoti (2018) observed the relationship between macroeconomic factors, firm characteristics, and financial performance. They performed their test on selected quoted manufacturing firms in Nigeria; and found no significant effect for interest rate and exchange rate;

however, they found that the inflation rate and GDP growth rate substantially impacted ROA.

In South Africa, Ndlovu and Alagidede (2018) examined the effect of industry structure and macroeconomic indicators on return on Equity (ROE) of listed financial services firms in emerging economies, specifically those identified as BRICS, i.e., Brazil, Russia, India, China, and South Africa. Furthermore, the Herfindahl–Hirschman index concentration scales categorised industries into competitive, moderate, and concentrated segments. In contrast, The Arbitrage Pricing Theory was used to capture the effect of macroeconomic fundamentals on ROE. Findings suggest that the influence of macroeconomic fundamentals on ROE wanes as one moves from competitive to concentrated industries. At the same time, the ROE is volatile in concentrated markets and less volatile in competitive markets. Concentrated markets overall enjoy monopoly profits, and finally, gross domestic product and interest rates positively impact ROE, while inflation, unemployment, and exchange rates have a negative effect (Ndlovu & Alagidede, 2018). Ojo and Ogunbunmi (2018) analysed the macroeconomic indicators on economic performance in selected Sub-Saharan African countries using a generalised method of moments (GMM) approach using panel data from 1990 to 2017, utilising four variables: GDP growth rate, Inflation rate, Monetary policy rate, and Exchange rate. The GMM result discovered that all explanatory variables accounted for 23% variation of economic performance in the sub-Saharan African countries.

2.3.4. Empirical Evidence from Namibia

Coming closer to home, Phillipus (2019) investigated the effect of macroeconomic variables on the performance of the Namibian stock market, specifically looking at monthly data from 1996 to 2016. For the NSX stock market performance, Phillipus (2019) used a local index as a proxy, explicitly focusing on locally registered companies and excluding dual-listed ones. Furthermore, the macroeconomic variables tested were interest rate, inflation, exchange rate, foreign direct investments, and GDP. It was concluded from the study that the NSX has insignificant positive long-run relationships with interest rate and GDP and an insignificant inverse relationship with inflation and foreign direct investments.

An analysis in Namibia, that focused on macroeconomic determinants and their impact on the banking sector expansion, proxied by private sector credit (PSC) measured as a ratio of nominal GDP, established that real GDP and nominal interest rates positively influence the banking sector development. At the same time, an inverse correlation was found regarding inflation against the banking sector's development (Shifotoka, 2014). The study used the ratio of market capitalisation to the nominal gross domestic product as a proxy of stock market development (Shifotoka, 2014). Shifotoka (2014) concluded that real gross domestic product growth is essential for developing the banking sector.

Thus, one can conclude that overall, based on historical empirical evidence, both macroeconomic factors and firm characteristics influence firm performance.

2.4. Conclusion

The chapter aimed to find empirical- and theoretical foundations that explain the relationship between macroeconomic factors and firm performance. Ultimately, from vast empirical literature, it has become evident that performance proxies commonly used are either the return on Equity (ROE) (Al-Matari et al., 2014; Chen et al., 2014; Ndlovu & Alagidede, 2018) or the return on assets (ROA) (Bilal et al., 2013; Dewi et al., 2019; Doyran, 2013; Issah & Antwi, 2017; McNamara & Duncan, 1995; Mohd & Siddiqui, 2020; Murungi, 2014; Rahman et al., 2020; Saif & Datin, 2017; Simões et al., 2019; Singh, 2010) or a combination of both (Egbunike & Okerekeoti, 2018; Filip, 2015; Haider et al., 2018; Khizer et al., 2011; Loto, 2016; Nuhiu et al., 2017; Petria et al., 2015).

The economic indicators influence business development, such that information about external factors (including economic ones) must be considered to determine business development predictions (Dzikevičius & Šaranda, 2016). In addition to that, any changes to the external factors have either a positive or negative inference on various companies operating in the same business sector (Wei & Zhang, 2008). This premise is reiterated in the 2018 Standard Bank Namibia Holdings report, as noted by the then present Chief Financial Executive, that business confidence remained low due to a "poor macroeconomic environment" (Standard Bank Namibia, 2018, p. 26). Likewise, as emphasised by the then present Group chairman in the 2018 Capricorn Group Integrated Results, "A stagnant economy and challenging market conditions have rung in a new era for the regional financial services industry: one of stifled growth and reduced returns (Capricorn Group, 2018, p. 21).

A substantial volume of preceding studies have focused solely on one sector; most of which were conducted specifically either on the Banking Industry or the Insurance Industry (Alfadli & Rjoub, 2020; Bilal et al., 2013; Doyran, 2013; Filip, 2015; Issah & Antwi, 2017; Karabulut & Şen, 2018; Loto, 2016; Nuhiu et al., 2017; Petria et al., 2015; Shifotoka, 2014; Singh, 2010; Tan & Floros, 2012). A limited number of studies were conducted on the Food Sector (Bhutta & Hasan, 2013), the Manufacturing Sector (Egbunike & Okerekeoti, 2018) or even Retailers (Dewi, Soei & Surjoko, 2019). Very few studies looked at the impact of macroeconomic factors on firm profitability across various sectors or regions (Mohd & Siddiqui, 2020). Further, the studies on the Namibian market have focused on stock market performance rather than firm profitability, of which the most recent period is 2016 (Phillipus, 2019; Shifotoka, 2014). The study intends to link the literature gap by reviewing more recent periods from 2011 to 2020 and increasing the scope of the sectoral analysis.

CHAPTER 3: RESEARCH METHODS

3.1. Introduction

This chapter presents the research methods for the study, which is divided into eight main sections. Section 3.2 discusses the underlying philosophical assumptions underpinning the research. Sections 3.3, 3.4 and 3.5 lists the research design, instruments and procedures, respectively. Section 3.6 discusses the data analysis process engaged in the study, which includes the model specification and unit root testing. Finally, sections 3.7 and 3.8 present the hypothesis testing procedures and the variables used in the study.

3.2. Philosophical Assumptions

It is good practice for purposes of rigorous research to lay the foundation of the philosophical position. Should a researcher lack understanding and knowledge of these assumptions, research cannot proceed effectively, leading to insufficient research conclusions. Research is guided by beliefs or worldviews, known as a paradigm. Paradigms are frameworks that researchers use as a basis or interpretative viewpoint of assessing the world. This interpretative viewpoint can differ for every individual (Killam, 2013). According to Mingers (2003), all research has in common the primary method of 'modelling,' but differ in terms of "*what they model* (ontology), *how they model* (epistemology), and *why they model* (axiology)" (Mingers, 2003, p.2).

3.2.1. Epistemology

The practice of academic research is fundamentally driven by the first philosophical pillar, which is epistemology, or theory of knowledge, which is the branch of

philosophy that studies the nature and scope of knowledge. The term 'epistemology' is based on the Greek words episteme (knowledge) and logos (account/explanation) (Mingers, 2003). Epistemology is concerned with all aspects of the validity, scope, and methods of gaining knowledge, such as a) what constitutes a knowledge claim; b) how knowledge can be acquired; and c) how the extent of its convey ability can be evaluated. Epistemology is significant because it influences how researchers set their research in their endeavours to ascertain knowledge (Moon & Blackman, 2014). By focusing on the relationship between a subject and an object, we can explore the idea of epistemology and how it influences research design.

Epistemology and research methodology are closely correlated. The former relates to the philosophy of "how we come to know the world," and the latter consists of the act of coming to know and how we conduct the study (Remenyi, Pather & Klopper, 2011).

3.2.2. Ontology

The epistemological stance of researchers is influenced by their ontological standpoint, which, literally interpreted, means 'the study of being' (Remenyi et al., 2011). Ontology, or the 'study of being,' is concerned with what exists in the world from which humans can acquire knowledge. Ontology assists researchers in distinguishing how assured they can be about the nature and existence of objects they are researching. For instance, what' truth claims' can a researcher make about reality? Who decides the validity of what is 'real'? How do researchers handle diverse and disagreeing ideas of reality (Moon & Blackman, 2014)?

3.2.3. Axiology

Axiology originates from the Greek word *Axios*, which means value or worth (Killam, 2013). Axiology raises the question of what is (or should be) the role of values in research (McGregor, 2018). To put it differently, focusing on correct data collection techniques and procedures assesses the value and quality of a study which refers to Axiology (Dawood & Underwood, 2010). In simple terms, axiology focuses on what you value in your research.

Knowing what we value (Axiology); what is out there to know (Ontology); what and how can we know about it (Epistemology) drives the question further as to how that knowledge can be acquired, which signifies our methodology. Thus the three pillars mentioned above drive the methodology and the methods applied in the study.

3.3. Research Design

This study employs a longitudinal- or panel data research design using a quantitative research strategy. The longitudinal research design is the most suitable for two dimensions (cross-sectional and time dimensions). A quantitative approach will measure the direction, magnitude, and significance of the underlying relationships. The quantitative research strategy evaluates the effect of the economic growth and consumer price index on the Return on Equity of eleven listed entities across three identified sectors and eleven years, from 2010 to 2020. The three sectors are Banks, Finance & Credit Services, secondly Food Retailers and Wholesalers and lastly, Household Goods and Personal Goods.

3.4. Research Instruments

Secondary data will be obtained from annual financial statements available on each listed entities' website. Moreover, a requisite as per NSX's listing requirements is the public availability of financial statements. The information obtained from the annual financial statements is valid as it is subject to an external regulated audit, which subjects the data to scrutiny and correction before being published. The annual financial statements also drive the market sentiment as it evidences to shareholders the company's performance. Thus the firm is invested in ensuring an accurate and truthful reflection of their financial records to the public. Additionally, data on economic growth (GDP percentage change) and the consumer price index (CPI percentage change) are sourced from the Bank of Namibia.

3.5. Procedure

The STATA statistical software package was employed to estimate the parameters. The variables captured are the Gross Domestic Product (GDP) percentage change being the independent variable to proxy economic growth and firm profitability as proxied by ROE to be the dependant variable. Return on Equity is arguably the most suitable tool to evaluate profitability (Chen et al., 2014). The study incorporated the Consumer Price Index (CPI) as a control variable. These variables were captured for eleven entities from 2010 to 2020, which yielded 121 observations. The Hausman specification test was used to choose the most suitable model. To avoid spurious results, variables were tested for unit root, applying both the Levin-Lin-Chu test and the Im-Pesaran-Shin test.

3.6. Data Analysis

The STATA statistical software was used to estimate the regression. The use of panel data analysis has several advantages over other models, according to Baltagi (2021) and Hsiao (2006), who highlight the following benefits:

1. Provides more accuracy of model parameters
2. Enables greater capacity for capturing the complexity of relationships
3. Allows for simplifying computation and statistical inference.
4. Provides greater control of possible correlation between independent variables
5. Suppression of possible unobservable heterogeneity, preventing potential incorrect statistical findings.
6. Panel data can minimise estimation biases that may arise from combining groups into a single time series (Aptech Systems, 2021b).

The Hausman test can be applied in a panel data analysis to determine the best-fitting model, whether fixed-effects or random-effects models. The random effect model is used as determined by the Hausman specification test and because observations are not random sample selection from a population but rather specific identifiers within a pre-determined scope of participants. Also, the random effect model assumes that the individual-specific effect is uncorrelated to the independent variable (Park, 2011). The analysis has been limited to three industries and only companies listed primarily on NSX or dual-listed between JSE and NSX.

3.6.1. Model Specification

By combining time-series and cross-sectional dimensions, the panel data gives "more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency" (Rehman et al., 2014, p.705). The general equation for the study is expressed as:

$$ROE_{it} = \beta_0 + \beta_1 GDP_t + \beta_2 CPI_t + \varepsilon_{it} \qquad (1)$$

$$ROE_{it} = \alpha_0 + \alpha_1 GDP_{jt} + \alpha_2 CPI_t + V_{it} \qquad (2)$$

Where;

ROE_{it} is the return on Equity of firm i at time t,

β_0 and α_0 is the intercept, β_i and α_i is the coefficient for estimation,

GDP_t is the overall gross domestic product at time t and GDP_{jt} denotes GDP for the identified sectors/industries j.

CPI_t is the consumer price index in year t,

ε_{it} and V_{it} are the residual terms that are used to be white noise.

i = 1, 2, 3… (Number of firms)

t = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (Number of years)

3.6.2. Correlation Coefficient

The relationship (or the correlation) between two variables is denoted by the letter r and quantified with a number, which varies between −1 and +1. The sign of the r shows the direction of the correlation. A negative r means that the variables are inversely

related, and a positive r indicates a positive correlation (Akoglu, 2018). The strength of the correlation increases both from 0 to +1 and 0 to −1. Zero means no correlation, where 1 indicates a complete or perfect correlation. Akoglu (2018) aimed to summarise the interpretation of the Pearson's and Spearman's correlation coefficients, clarify challenging aspects, and summarise the naming practices for the strength of correlation coefficients. The summary of his interpretation is presented below:

Figure 2: Interpretation of the Pearson's and Spearman's correlation coefficients

Table 1

Interpretation of the Pearson's and Spearman's correlation coefficients.

Correlation Coefficient		Dancey & Reidy (Psychology)	Quinnipiac University (Politics)	Chan YH (Medicine)
+1	−1	Perfect	Perfect	Perfect
+0.9	−0.9	Strong	Very Strong	Very Strong
+0.8	−0.8	Strong	Very Strong	Very Strong
+0.7	−0.7	Strong	Very Strong	Moderate
+0.6	−0.6	Moderate	Strong	Moderate
+0.5	−0.5	Moderate	Strong	Fair
+0.4	−0.4	Moderate	Strong	Fair
+0.3	−0.3	Weak	Moderate	Fair
+0.2	−0.2	Weak	Weak	Poor
+0.1	−0.1	Weak	Negligible	Poor
0	0	Zero	None	None

The naming on the 1) Left: Dancey & Reidy.4 2) Middle: The Political Science Department at Quinnipiac University, 3) Right: Chan et al.5.

Source: (Akoglu, 2018)

The above basis can be used to interpret the strength and direction of the variables in the study.

3.6.3. Unit Root Test

Unit root tests are tests for “stationarity” in a time series (Glen, 2021, p.1). A time series is a group of observations of distinct data items obtained through repeated measurements over time. The data set must be well defined and consistently measured

at equally spaced intervals. Data collected irregularly or only once is not a time series data set (Australian Bureau of Statistics, n.d.). Thus the yearly measured ROE obtained from the financial statements of listed entities over eleven years is classified as a time series data set per entity. The same applies to the economic growth and the consumer price index data set, which is measured on an equal annual basis and across sectors.

A time-series data is stationary if its mean and variance are constant over time, while the directional relationship between the variables (covariance) between two time periods fluctuates only due to the interval between the periods instead of the actual point in time at which this covariance is evaluated (Kwofie & Ansah, 2018). When analysing a time series data set, and there is the existence of a unit root, it can cause some complications with the analysis as follows:

- It produces a higher coefficient of determination (R^2) even if the data is uncorrelated, also known as 'spurious regressions' (Glen, 2021).
- It could also cause aberrant conduct due to assumptions for the analysis not being effective (Glen, 2021) or invalid inferences (Aptech Systems, 2021a).

Unit root tests consider the null hypothesis that a series contains a unit root in contrast to the alternative that a series is trend stationary (Aptech Systems, 2021a). Various unit root tests need to be clearly distinguished as to which test is being applied to avoid drawing incorrect conclusions about the findings (Aptech Systems, 2021a). Amongst these are the Augmented Dickey-Fuller Test (ADF) test, the Phillips-Perron Test (PP), the Kwiatkowski–Phillips–Schmidt–Shin (KPSS), the Levin-Lin-Chu (LLC) unit root test (Aptech Systems, 2021a), Breitung test and the Im-Pesaran-Shin test, amongst

others (STATA, n.d.).

Both the LLC, ADF test and the PP test compare the null hypothesis of non-stationarity of the variables against the alternative hypothesis of stationarity. In other words, the null hypothesis that the series is I(1) has a unit root, against the alternative hypothesis that the series is I(0) (Aptech Systems, 2021a). The difference between the LLC and the IPS unit root test is that the Im-Pesaran-Shin (IPS) test is not as restrictive as the Levin-Lin-Chu test since it allows for heterogeneous coefficients (Baltagi, 2006, 2021). The null hypothesis for the IPS test is that all panels contain a unit root, and the alternative hypothesis allows for some (but not all) of the panels to have unit roots as opposed to the LLC test's alternative hypothesis in that all panels are stationary, i.e. do not have a unit root. The ADF test eliminates serial correlation, the deviation from the sample mean by including the dependant variables that are time-lagged in the specification (Aptech Systems, 2021a).

Serial correlation causes the estimated variances of the regression coefficients to be biased, leading to unreliable hypothesis testing (Studenmund, 2017). The study applied the LLC test, recommended when using "moderate" sized panels, described as having between 10 and 250 panels and 25 to 250 observations per panel (STATA, n.d.). The LLC unit root test assumes that each unit in the panel shares the same autoregressive (AR) coefficient, i.e. predicting future behaviour based on past behaviour using the correlation between values in a time series and the values that precede and succeed them (Glen, 2015). The LLC unit root test allows introducing time lags of the dependent variable to permit serial correlation in the errors test by considering individual effects, time effects, and possibly a time trend (Bornhorst & Baum, 2001).

The test may be viewed as an Augmented Dickey-Fuller (ADF) test when lags are included, with the null hypothesis being non-stationarity (Bornhorst & Baum, 2001).

3.7. Hypothesis Testing

The first null hypothesis of the study states that the Gross Domestic Product does not affect the profitability as represented by the Return on Equity. The null hypothesis is accepted if the estimated GDP percentage change's coefficient is not statistically significant from zero. The null hypothesis is tested through the t-statistic to test whether the estimated coefficient differs from zero at a significance level of 5%. The second null hypothesis of the study examines if the effect of sectoral economic growth on the financial performance of the firms differs across the identified sectors. As an illustration, whether the effect of sectoral economic growth on the financial performance of the Banks, Finance & Credit Services industry or the Food Retailers and Wholesalers industry is not different from the Household Goods and personal goods industry.

3.8. Variables Description

3.8.1. Return on Equity

The Return on Equity is arguably one of the most popular choices for measuring financial performance (Haider et al., 2018; Khizer et al., 2011; Loto, 2016; Ndlovu & Alagidede, 2018; Petria et al., 2015). The study applied ROE as the dependant variable and is calculated by taking the profit after tax and preference dividends of an identified year and dividing it by the book value of the average equity. The average equity entails the reserves, issued ordinary share capital and share premium, excluding preference

shares. The ROE was calculated using the identified participants' published annual audited financial statements, which resulted in eleven participants for eleven consecutive years from 2010 to 2020.

3.8.2. Gross Domestic Product

The Gross domestic product is defined as the “total market value of all final goods and services produced within a country in a given period and includes private and public consumption, private and public investment, and exports less imports” (Focus-Economics, 2019, p.1). The Gross domestic product percentage change is proxied for economic growth and is one of the independent variables in the study. Specifically, the GDP percentage changes year on year. This data was obtained from the Annual Report of the Bank of Namibia. The study used real GDP.

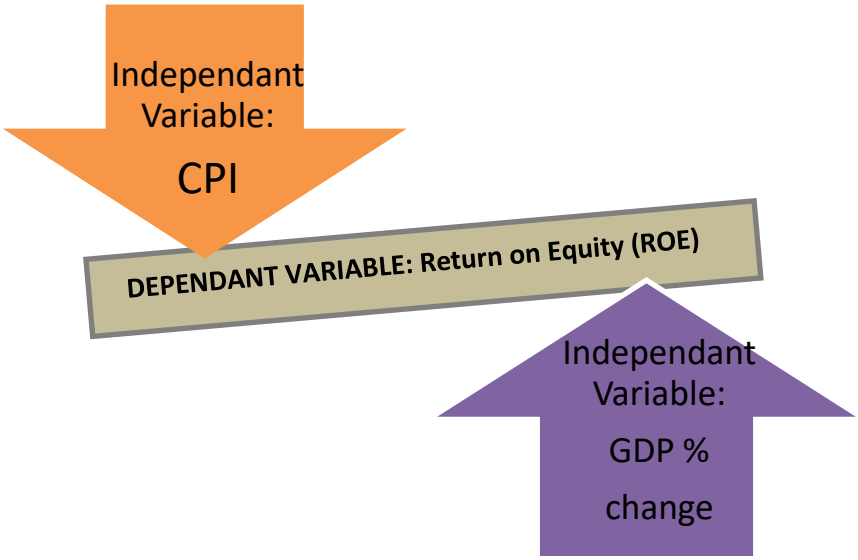
3.8.3. Consumer Price Index

The consumer price index is the second independent variable applied as a control variable in the study using annual percentage changes. The consumer price index (CPI), commonly known as inflation, measures price changes in a basket of goods and services representative of household consumption within an economy (The Economic Times, 2021). In Namibia, the ‘‘basket’’ weights are obtained from the household income and expenditure survey, which the Namibia Statistics Agency generally conducts. The CPI baseline was adjusted only once during the study period, applying the same baseline from 2012 to 2020.

3.8.4. Expected Relationships Between Variables

Based on the empirical literature, it is evidenced that the ROE fluctuates based on the Gross Domestic Product for the period, usually positively correlated, i.e. as GDP growth increases, the firm profitability increases as it operates in a more favourable environment as evidenced by economic growth (Al-Matari et al., 2014; Chen et al., 2014; Filip, 2015; Loto, 2016; Ndlovu & Alagidede, 2018; Petria et al., 2015). Concerning inflation, the study expects an inverse relationship towards a firm's ROE (Ahmad, 2017; Bilal et al., 2013; Doyran, 2013; Filip, 2015; Karabulut & Şen, 2018; Murungi, 2014). The following diagram illustrates the study's expectation:

Figure 3:Expected Influence of CPI and GDP on the ROE



3.9. Research Ethics

The researcher will treat all information for research purposes only, thus adhering to the principle of confidentiality. Furthermore, this study cannot be conducted unless prior approval is obtained to proceed with the research in the form of an ethical clearance certificate attained before data collection could commence.

3.10. Conclusion

This chapter discussed the research methods applied in the study to obtain research results and findings. The philosophical assumptions were briefly discussed, laying the foundation for the study's research methodology and methods. Secondly, the research design, -instruments and the procedure for hypothesis testing were formulated. Further, the variables of the study were clearly defined and framed. Finally, the research ethics applied to the study were highlighted.

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents the findings from the study, which is divided into the following sections, namely section 4.2.1. 'Descriptive Statistics' entails a discussion on descriptive statistics, 4.2.2. 'Unit Root tests' present the findings on the unit root tests using the techniques of the Levin-Lin-Chu (LLC) and the Im-Pesaran-Shin (IPS) unit root tests and section 4.2.3. 'Hausman Specification Test' presents the consideration for the random-effects versus the fixed-effects model. Lastly, section 4.2.4. 'Empirical Estimation and Findings' presents the estimation findings on the effects of economic growth and inflation on the Return on Equity of selected entities listed on the Namibian Stock Exchange. Finally, the chapter concludes with a discussion on the significance of the findings in section 4.3. 'Discussions'.

4.2. Results

4.2.1. Descriptive Statistics

This section presents the descriptive statistics of the three variables: the Return on Equity of each firm, overall and per identified industry, the Gross Domestic Product percentage change (economic growth) (symbolized as GDP % change) and the Consumer Price Index percentage change (denoted as CPI % change).

The GDP percentage change was classified for only two sectors relevant to the industries above. As previously explained, three sectors were identified, Banks, Finance & Credit Services, denoted as ROE_Banks; Food Retailers and Wholesalers symbolized as ROE_Foods; and Household Goods and personal goods, represented as

ROE_HH. The first ‘Financial and Insurance Service Activities’, denoted as GDPFS and the second being ‘Wholesale and retail trade’ represented as GDPWR.

Their descriptive statistics are presented as follows:

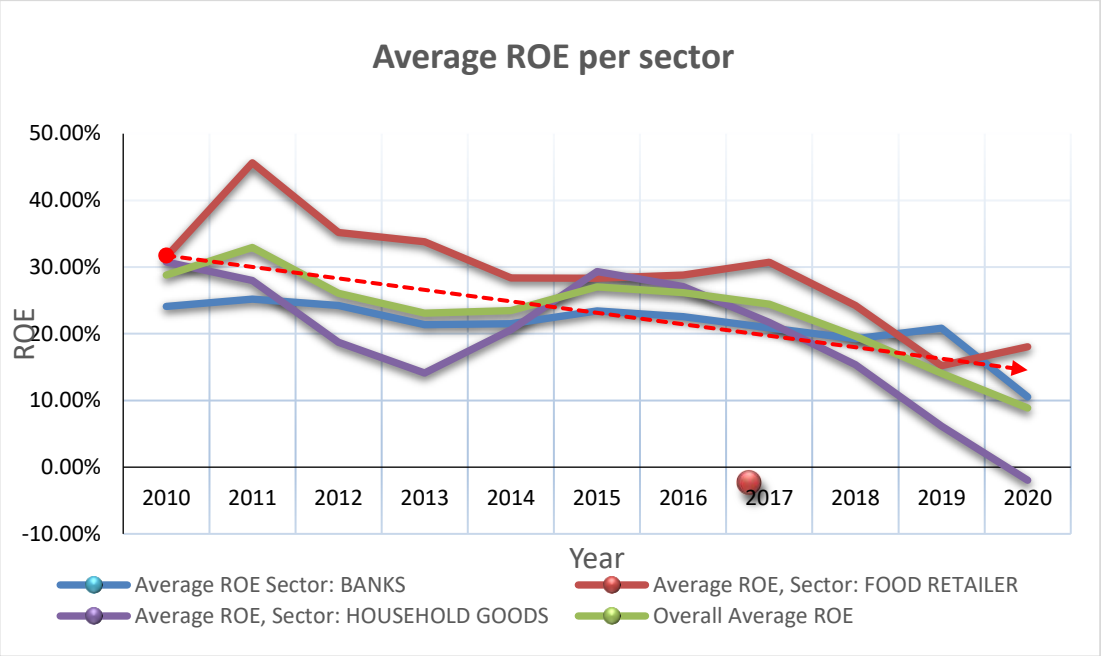
Table 1: Summary of descriptive statistics

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
CPI % change	121	4.918182	1.362657	2.2	6.7
GDP % change	121	2.163636	4.239851	-8	6.4
ROE_BANKS	121	21.26888	3.807606	10.54052	25.1951
ROE2_FOODS	121	29.08027	7.903524	15.21498	45.63452
ROE_HH	121	19.08077	9.77604	-1.958801	30.76396
GDPFS	121	4.627273	7.05736	-11.7	17.9
GDPWR	121	2.372727	8.454368	-11.7	15.2
ROE_FIRMS	121	21.29228	12.29986	-11.21595	54.06689

The Banks, Finance, and Credit Services sector, having a standard deviation of 3.81, was less volatile than the Food Retailers and Wholesalers sector, with a standard deviation of 7.90. The financial services sector’s ROE is more balanced yet still influenced by economic growth. The Household Goods and personal goods sector’s ROE was the most volatile, with a standard deviation of 9.78, analysed under empirical findings compared to the other two sectors.

4.1.2.1. Return on Equity

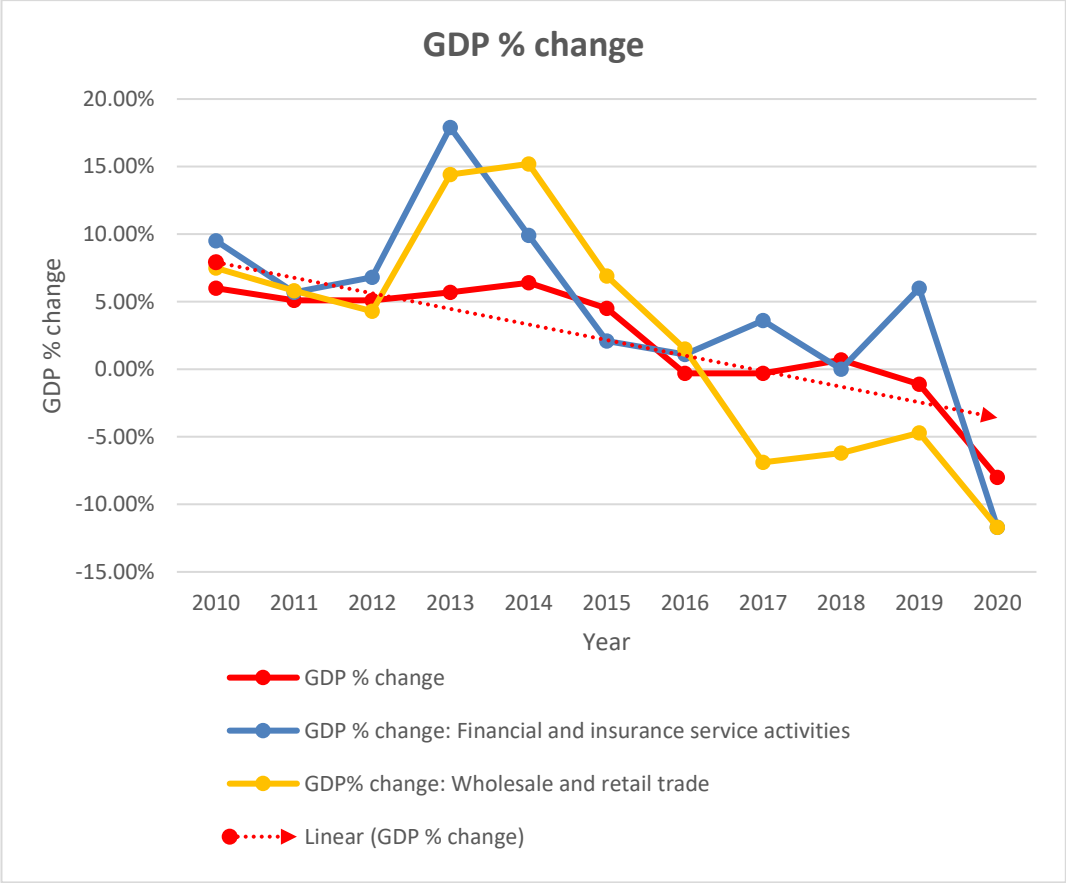
Figure 4: Average ROE per sector



As evidenced above, the Banks, Finance & Credit Services sector was less volatile than the Food Retailers and Wholesalers sector and the Household Goods and personal goods sector. The trend of the ROE for all industries is downward, which corroborates the study's expectation.

4.1.2.2. Gross Domestic Product percentage change

Figure 5: GDP % change overall and per sector

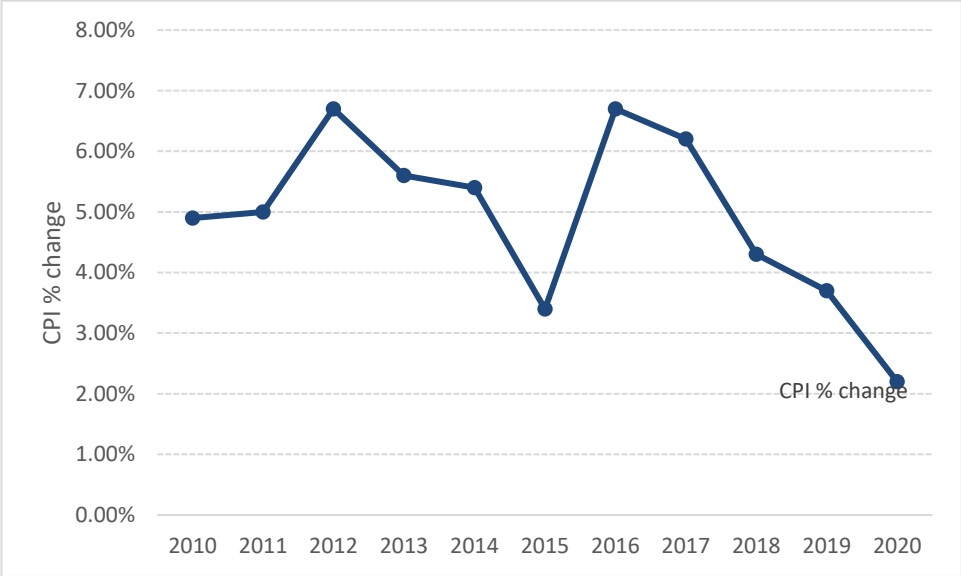


The graph above indicates that from 2019 through to 2020, the economy contracted significantly, presenting a negative percentage change of 8.5% in 2020, worsened by the COVID-19 pandemic. The GDP percentage change signalled a downward trend since 2010 with a slight recovery in 2013, 2014 and yet again in 2017, 2018. The trend moves downwards for all identified sectors, and according to the Bank of Namibia, the "deep contraction" affected "virtually all the main sectors of the economy"(Bank of Namibia, 2020, p.6). Accordingly, during 2020, the Bank of Namibia pursued an expansionary monetary policy and simultaneously relaxed regulatory requirements to provide relief to the financial sector and the economy (Bank of Namibia, 2020). This indicates that the Central Bank is taking measures to support economic growth, which

again influences the financial performance of companies affected by their economic environment.

4.1.2.3. Consumer Price Index

Figure 6: Annual inflation rate (CPI % change)



The graph above illustrates that annual inflation has declined to a "historical low" of 2.2% in 2020 (Bank of Namibia, 2020, p.6). These inflation levels are the "lowest since independence"(Bank of Namibia, 2020, p.6). Overall inflation declined with a 1.5 percentage point fall from 3.7% in 2019 primarily due to the deflationary pressure from excess supply in the rental market and low international oil prices (Bank of Namibia, 2020).

4.2.2. Unit Root tests

Numerous economic time-series studies have displayed non-stationarity or trending behaviour. Leading examples are asset prices, exchange rates and the levels of macroeconomic aggregates like real GDP. Granger and Newbold (1974) presented the

notion that the macroeconomic data, as a rule, contained stochastic trends, and this data is characterized by unit root. In other words, data that has a random probability distribution may be analysed statistically but limits accurate forecasts (Granger & Newbold, 1974). Using these variables in econometric models may lead to spurious regressions, one in which the time-series variables are non-stationary and independent (Giles, 2007). Hence, testing for stationarity is crucial because the regression results might be false. To summarise, a trended series is called non-stationary, having a unit root, whereas a non-trended series is a stationary series without a unit root (Mushtaq, 2011).

Once lags are included in the LLC unit root test, the LLC test may be viewed as a pooled Dickey-Fuller test or an Augmented Dickey-Fuller (ADF) test (Bornhorst & Baum, 2001). After transformation, the t-star (t*) statistic in the LLC unit root test is a standard normal distribution under the null hypothesis of non-stationarity (Bornhorst & Baum, 2001). According to Westerlund and Breitung (2009), the LLC unit root test is consistently more powerful than the IPS, as also verified in their theoretical results. Levin, Lin and Chu (2002) recommend using their test with panels of "moderate" size, which they describe as having between 10 and 250 panels and 25 to 250 observations per panel. The study has 11 panels and 11 observations per panel. The LLC test requires the assumption that all panels share a common autoregressive parameter, *p*. This assumption is fragile in light of cultural-, institutional-, and other factors for macro- and micro econometric panel datasets (STATA, n.d.). The study applied the Levin, Lin and Chu (LLC) unit root test without considering panel-specific intercepts or time trends, as determined by specifying the 'noconstant' option. Suppressing the panel-specific mean is based on the assumption that the series has a mean of zero for

all panels. Although no lags were specified, the default number of lags in the LLC unit root test is lags (1) (STATA, n.d.). The results illustrate the following outcomes:

Table 2: Unit Root tests

Variables	Test option	Test procedure		Values	
		Type	Number of lags:	t*Statistic	p-value
CPI	noconstant	**LLC**	lags (1)	-2.6700	0.0038*
GDP	noconstant	**LLC**	lags (1)	-1.9642	0.0248*
GDPFS	noconstant	**LLC**	lags (1)	-3.8511	0.0001*
GDPWR	noconstant	**LLC**	lags (1)	-3.2679	0.0005*
ROE_HH	noconstant	**LLC**	lags (1)	-4.4399	0.0000*
ROE_Firms	noconstant	**LLC**	lags (1)	-3.8154	0.0000*
ROE_Banks	noconstant	**LLC**	lags (1)	-5.7036	0.0000*
ROE2_Foods	noconstant	**LLC**	lags (1)	-9.6017	0.0000*

** denotes rejection of the hypothesis of non-stationarity (unit root) at 0.05 significance levels.*

Source: Author's compilation using STATA

The LLC test was applied, suppressing the panel-specific mean or intercept, thus removing the effects of each firm's unique characteristics. The outcome indicates stationarity at the significance level of 0.05 for all variables, suggesting a rejection of the hypothesis of non-stationarity (unit root). The CPI- and the GDP variable showed stationarity with a p-value of 0.0038 and 0.0248, respectively, at a significance level of 0.05, indicating the variables to be stationary. Also, GDPFS and GDPWR showed stationarity with p-values of 00001 and 0.0005, respectively, at a significance level of 0.05, signifying a rejection of the hypothesis of non-stationarity (unit root). The ROE for Household goods and ROE for Firms indicated stationarity with a p-value of 0.0000 at a significance level of 0.05, representing that we can accept the alternative hypothesis of stationarity. The ROE Banks and ROE Foods exhibited stationarity with a p-value of 0.0000 at a significance level of 0.05, signifying a rejection of the

hypothesis of non-stationarity (unit root). Finally, ROE Foods also showed stationarity with a p-value of 0.0000 at the 0.05 (significance) level.

4.2.3. Hausman Specification Test

The Hausman Test (also called the Hausman specification test or "model misspecification") detects predictor variables in a regression model (Glen, 2017, p.1). These predictor variables are also called endogenous regressors, which have values determined by other variables in the system. One of the assumptions of OLS is that there is no correlation between a predictor variable and the error term. Having endogenous regressors in a model will cause ordinary least squares estimators to fail (Glen, 2017). The Hausman test helps identify whether a fixed-effects model or a random-effects model is more appropriate in panel data analysis. In the Hausman test, the null hypothesis is that the random-effects model is appropriate; the alternative hypothesis is that the fixed effect model is more appropriate. Fundamentally, the test determines whether there is a correlation between the unique errors and the regressors in the model. The null hypothesis is that there is no correlation between the two. The results of the Hausman tests indicate the following:

Table 3: Hausman specification test

Model	Variables	Chi-Sq Statistic	*p*-Values	Type of regression model
Model 1	ROE_Banks GDP CPI	0.00	1.0000	Random effects model
Model 2	ROE_Banks GDPFS CPI	0.00	1.0000	Random effects model
Model 3	ROE2_Foods GDP CPI	0.00	1.0000	Random effects model
Model 4	ROE2_Foods GDPWR CPI	0.00	1.0000	Random effects model

Model 5	ROE_HH GDP CPI	0.00	1.0000	Random effects model
Model 6	ROE_Firms GDP CPI	0.00	1.0000	Random effects model

Source: Author's compilation using STATA

At the 0.05 (significance) level, the p-value indicates the rejection of the alternative hypothesis and accepting the null hypothesis in all models. The Hausman specification test indicates that the random-effects model is the most appropriate for the OLS regression.

4.2.4. Empirical Estimation and Findings

This section summarises the results of the empirical estimation. The panel data is strongly balanced in that all entities have measurements in all periods. The data is organised in the long-form applying the random effect model as specified by the Hausman specification test. The random effect model is estimated by applying the generalised least squares (GLS) regression. The results indicate the following:

Table 4: First regression using ROE Banks on overall GDP % change and CPI % change

ROE_Banks	Coefficients	Standard Error	Z: T-statistic	p-value
GDP % change	0.6372	0.0459	13.88	0.000
CPI % change	0.7572	0.1428	5.30	0.000
Intercept	16.1662	0.6799	23.78	0.000
R-squared:	Overall = 0.7677			
Wald chi2(2)	389.89			

Source: Author's compilation using STATA.

As is shown in Table 4 above, the overall GDP percentage change and CPI percentage change are positively related and statistically significant in explaining the return on average equity. As is seen from the z-statistic of GDP percentage change of 13.88,

with the p-value of 0.000 (p<0.05) indicates a significant relationship with ROE. The same applies to the CPI percentage change, in that its p-value is 0.000 at a significance level of 0.05, with the z-statistic being 5.3. Basically, for one unit increase in GDP percentage change, the ROE of Banks is expected to increase by 0.6372 units *ceteris paribus.* Moreover, for one unit increase in CPI percentage change, the ROE of Banks is expected to increase by 0.7572 units holding all other variables constant.

Table 5: Second regression using ROE Banks on GDP for financial services and CPI % change

ROE_Banks	Coefficient	Standard Error	Z: T-statistic:	p-value
GDP % change of FS	0.2668	0.0393	6.79	0.000
CPI % change	0.9864	0.2037	4.84	0.000
Intercept	15.1827	0.9440	16.08	0.000
R-squared:	Overall = 0.5598			
Wald chi2(2)	150.09			

Source: Author's compilation using STATA.

Table 5 above indicates that the GDP percentage change relating to Financial services was regressed against the ROE of Banks, Finance & Credit Services. As is evident, the magnitude of the coefficient is smaller with a significant z-statistic of 6.79 with a p-value of 0.000 (p<0.05). Thus for one unit increase in GDP percentage change of FS, the ROE of Banks is expected to increase by 0.2668 units *ceteris paribus.* Also, for one unit increase in CPI percentage change, the ROE of Banks is expected to increase by 0.9864 units holding all other variables constant.

This relationship would indicate that the overall GDP percentage change rather than sector-specific GDP percentage change has a greater effect on the ROE of Banks.

Table 6: Third regression using ROE Foods on overall GDP % change and CPI % change

ROE2_Foods	Coefficient	Standard Error	Z: T-statistic:	p-value
GDP % change	0.9794	0.1340	7.31	0.000
CPI % change	1.8296	0.4171	4.39	0.000
Intercept	17.9629	1.9857	9.05	0.000
R-squared:	Overall = 0.5400			
Wald chi2(2)	138.52			

Source: Author's compilation using STATA.

Table 6 above indicates the return on equity for the Food Retailers and Wholesalers. It also shows a magnitude higher than other sectors, with a z-statistic of 4.39 and a p-value of 0.000 ($p<0.05$). This relation is statistically significant, indicating that Food Retailers and Wholesalers' ROE are more influenced by CPI percentage change than GDP percentage change at the 0.05 significance level. For one unit increase in GDP percentage change, the ROE of Foods is expected to increase by 0.9794 units *ceteris paribus.* Moreover, for one unit increase in CPI percentage change, the ROE of Foods is expected to increase by 1.8296 units holding all other variables constant.

Table 7: Fourth regression using ROE Foods on GDP for Wholesalers and CPI

ROE2_Foods	Coefficient	Standard Error	Z: T-statistic:	p-value
GDP % change WR	0.3637	0.0689	5.28	0.000
CPI % change	2.4464	0.4277	5.72	0.000
Intercept	16.1858	2.1123	7.66	0.000
R-squared:	Overall = 0.4594			
Wald chi2(2)	100.27			

Source: Author's compilation using STATA.

Table 7 above indicates that from the fourth regression, sector-specific GDP percentage change does not relate as strongly to the sector's ROE as the overall GDP

percentage change. The above GDP percentage change for wholesalers and retailers indicates a relatively weak correlation of 0.3637, with a significant z-statistic of 5.28 and a p-value of 0.000 at the 0.05 (significance) level. Again, CPI percentage change shows a significant parallel to the ROE of the Food Retailers and Wholesalers at a correlation coefficient of 2.44. For every one unit increase in GDP percentage change WR, the ROE of Foods is expected to increase by only 0.3637 units *ceteris paribus.* Also, for one unit increase in CPI percentage change, the ROE of Foods is expected to increase by 2.4464 units holding all other variables constant.

Table 8: Fith regression using ROE HH on overall GDP and CPI

ROE_HH	Coefficient	Standard Error	Z: T-statistic:	p-value
GDP % change	1.3735	0.1675	8.20	0.000
CPI % change	1.5592	0.5211	2.99	0.003
Intercept	8.4404	2.4813	3.40	0.001
R-squared:	Overall = 0.5305			
Wald chi2(2)	133.35			

Source: Author's compilation using STATA.

In table 8 above, the ROE for Household Goods and personal goods (ROE HH) indicates a significant association between GDP percentage change and CPI percentage change. The GDP percentage change has a z-statistic of 8.20 and a p-value of 0.000 ($p<0.05$). The CPI to ROE regression shows a z-statistic of 2.99 and a p-value of 0.003 at the 0.05 significance level. In other words, For one unit increase in GDP percentage change, the ROE of the Household goods sector is expected to increase by 1.3735 units *ceteris paribus.* Likewise, for one unit increase in CPI percentage change, the ROE of the Household goods sector is expected to increase by 1.5592 units holding all other variables constant.

Table 9: Sixth regression using ROE Firms on overall GDP and CPI

ROE_Firms	Coefficient	Standard Error	Z: T-statistic:	p-value
GDP % change	0.5507	0.2096	2.63	0.009
CPI % change	1.6905	0.6521	2.59	0.010
Intercept	11.7867	4.0100	2.94	0.003
R-squared:	Overall = 0.1064			
Wald chi2(2)	27.04			

Source: Author's compilation using STATA.

Table 9 above indicates that the final regression was the aggregate of all ROEs for all firms against the overall GDP percentage change and the CPI percentage change. GDP percentage change has a moderate to strong positive correlation to ROE for firms. Still, a stronger connection exists between ROE and the CPI percentage change at a correlation coefficient of 1.6905, with a z-statistic of 2.59 and a p-value of 0.010 at the 0.05 significance level. Consequently, a one unit increase in GDP percentage change will result in the firm's ROE being expected to increase by 0.5507 units *ceteris paribus.* Also, for one unit increase in CPI percentage change, the ROE of the firms overall is expected to increase by 1.6905 units keeping all other variables constant.

The goodness-of-fit measures determine whether the correct model is applied to the respective data (Park, 2011). For linear regression models, R-squared is a goodness-of-fit measure. For all models applied per sector, the R – squared is significant enough to justify the correct use of the random effect model using the GLS regression. Therefore, the panel regression equation is significant enough to argue changes in the independent variables related to changes in the response variables.

4.3. Discussions

4.3.1. Generalised Least Square Regression Model Estimation

4.3.1. Gross Domestic Product

The summary of the findings show the significance per sector sorted in descending order:

Table 10: GDP % change coefficients per sector

VARIABLE: GDP % change	COEFFICIENTS	STD. ERR.	Z: T-STATISTIC	P-VALUE
ROE HH	1.3735	0.1675	8.20	0.000
ROE FOODS	0.9794	0.1340	7.31	0.000
ROE FIRMS	0.5507	0.2096	2.63	0.009
ROE BANKS	0.6372	0.0459	13.88	0.000

Source: Author's compilation.

The GDP percentage change is regressed against the ROE of both the overall identified entities and the three identified sectors. These are Banks, Finance & Credit Services (ROE Banks), Food Retailers and Wholesalers (ROE Foods) and lastly, Household Goods and personal goods (ROE HH). There exists a strong relationship between the GDP percentage change and the ROE. The most substantial relation is that of the ROE HH as well as ROE Foods. As was indicated by Filip (2015), bank profitability can be explained from external factors (industry-specific and macroeconomic) using both ROA and ROE as a proxy for bank profitability. These findings also corroborate the overwhelming amount of evidence from other researchers that had found a strong positive correlation of GDP percentage change to ROE or ROA for financial performance (Alfadli & Rjoub, 2020; Atanda et al., 2015; Dzikevičius & Šaranda, 2016; Egbunike & Okerekeoti, 2018; Filip, 2015; Khizer et al., 2011; Loto, 2018; Makris, 2017; Ndlovu & Alagidede, 2018; Ojo & Ogunbunmi, 2018; Petria et al., 2015; Rehman et al., 2014; Saif & Datin, 2017; Simões et al., 2019; Singh, 2010).

4.3.2. Consumer Price Index

Concerning the control variable, CPI percentage change, the findings were collated. The summary of the findings show the significance per sector sorted in descending order:

Table 11: CPI % change coefficients per sector

VARIABLE: CPI % change	COEFFICIENTS	STD. ERR.	Z: T-STATISTIC	P-VALUE
ROE FOODS	1.8296	0.4171	4.39	0.000
ROE FIRMS	1.6905	0.6521	2.59	0.010
ROE HH	1.5592	0.5211	2.99	0.003
ROE BANKS	0.7572	0.1428	5.30	0.000

Source: Author's compilation.

The CPI percentage change was regressed against the ROE for the aggregate for the identified sectors and per individual sector. Again, inflation significantly affects the ROE rather than the GDP percentage change. As can be observed again, ROE Foods and ROE HH stand in line to have the most robust relation to CPI percentage change and GDP percentage change as opposed to ROE Banks. Overall, it is evident that CPI percentage change plays a more significant role in influencing the ROE of the sectors and the overall firm average more than GDP percentage change. Studies that have also found CPI to have a positive effect on financial performance are the likes of Bhutta and Hasan (2013), Haider et al. (2018) and Saif and Datin (2017). These conclusions oppose the findings of other studies that have found inflation to have an adverse effect on firm profitability (Bilal et al., 2013; Doyran, 2013; Loto, 2016; Murungi, 2014; Ndlovu & Alagidede, 2018). The domestic market of Namibia is a relatively small emerging economy where there are not many competitors in the same market. These ensure that even if inflation increases, firms can increase their prices (otherwise known as cost-push inflation) without the threat of losing customers to competitors. Porter's five forces theory explains these two forces as the 'threat of bargaining power of

buyers' and 'threat of new entrants'. In addition, the Reserve Bank of Namibia applies contraction monetary policies that govern inflation, thus ensuring that the inflation rate stays within an acceptable range.

4.3.2 Hypothesis and Objectives

The study's primary objective was to investigate the effects of economic growth on Namibian-listed companies' financial performance. As discussed above, it can be concluded with empirical evidence that economic growth and inflation positively influence Namibian-listed companies' financial performance. This indicates that any unit increase in economic growth will be associated with less than a unit increase in financial performance. However, a decrease in economic growth may lead to a fall in firms' financial performance.

The hypothesis that economic growth's effects on financial performance are not sector specific could not be accepted. Further, the study aimed to analyse the significance per identified sectors as Banks, Finance & Credit Services industry, the Food Retailers and Wholesalers and Household Goods and personal goods industry. There is significant evidence that the three sectors are influenced differently, with the ROE HH and ROE Foods being substantially influenced by the GDP percentage change and the CPI more than the ROE Banks.

4.4. Conclusion

This chapter presented and discussed the empirical results. Firstly, descriptive statistics were analysed and presented, analysing the trend over the past eleven years of the study. Unit root tests were then applied to the data to test for stationarity in the time series. Finally, the empirical estimations found that inflation significantly affects the ROE rather more so than the GDP percentage change. The most significant influenced sector was Food Retailers and Wholesalers (ROE Foods). In contrast, the Banks, Finance & Credit Services sector (ROE Banks) was the least affected by fluctuations of GDP or CPI.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The following chapter briefly outlines the summary of the study, its findings and conclusions drawn. Secondly, the recommendations are outlined based on the findings of the studies and suggest related studies that can be undertaken for further research.

5.2. Summary of the Study

This study examined the effect of economic growth on the financial performance of Namibian-listed companies. Furthermore, it examined the significance thereof in respect of three identified sectors. The empirical investigation is based on annual data for the periods 2010 to 2020, yielding 121 observations. The empirical results show conclusively that economic growth affects the financial performance of Namibian-listed entities. The study concluded that the CPI percentage change has a greater effect overall on the ROE of firms, irrespective of sector type. The Foods and Household goods sectors are more sensitive to changes in the CPI percentage change. Secondly, the GDP percentage change has a lower yet still statistical significance to the fluctuations of ROE of firms. The sectors showing more sensitivity to movements in the GDP percentage change at a significance level of 0.05 are those of the Household and personal goods sector and the Food Retailers and Wholesalers sector.

All research objectives were therefore met. Therefore, the study fails to accept the null hypotheses that economic growth does not affect the financial performance of Namibian-listed entities and that this effect is not sector specific.

5.3. Conclusions and Recommendations

It remains conclusive that due to the size of the Namibian economy, firms' profitability is subjected to fluctuations in the macroeconomic environment and fiscal policy changes. Therefore, the study's recommendations reiterate the Bank of Namibia's efforts to drive expansionary monetary policy and simultaneously relax regulatory requirements to ensure a stable macroeconomic environment. Apart from decreasing interest rates, the government should consider policy implementation that balances long-term growth and manages the current economic recession by, e.g., reevaluating privatisation and improving infrastructure.

In addition, the country's economic model has largely been based on mining natural resources with limited value addition. Thus the study recommends that diversification towards manufacturing, particularly value addition to natural resources, is vital for Namibia to achieve higher sustainable growth and create maintainable employment. Moreover, the study recommends rebalancing growth sources within the services industries away from public services and towards "high-end tradeable services" (African Development Bank, 2020, p. 2).

5.3.1. Recommendations to Future Researchers

Future studies may also investigate factors of a firm's profitability, such as the firm's size as studied by Egbunike and Okerekeoti (2018) or the experience and composition of the Board of Directors (Meah & Chaudhory, 2019).

Future studies can focus on foreign- and domestic markets to compare the size of the market to the significance of the GDP percentage change and inflation effect. Also, future studies can focus on the concentration scales in a particular industry as categorised by the Herfindahl–Hirschman index into competitive, moderate, and concentrated segments. The Herfindahl-Hirshman index could also assist in identifying the significance of those concerning the effect of macroeconomic indicators on ROE.

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APPENDICES

Appendix I: Ethical Clearance Certificate

UNAM

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: DEC FOC/ 09/05 Date: 17/09/2021

This Ethical Clearance Certificate is issued by the University of Namibia Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the ethics committee.

Title of Project: An analysis of the effect of economic growth on the financial performance of Namibian listed companies.
Student: Elize Heyns

Student Number: 219050228

Supervisor(s): *PROF .T KAULIHOWA*

Centre for Research Services

Take note of the following:

1. Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the ethics committee. An application to make amendments may be necessary.
2. Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the ethics committee
3. The Principal Researcher must report issues of ethical compliance to the ethics committee (through the Chairperson) at the end of the Project or as may be requested by the ethics committee
4. The ethics committee retains the right to:

i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,

ii) Request for an ethical compliance report at any point during the course of the research.

The ethics committee wishes you the best in your research.

Precious Mushendami (Chairperson Ethics Committee)

Prof. Davis Mumbengegwi (Head, Multidisciplinary Research)

Appendix II: Language Editing Certificate

Dr. Joseph Namutungika Mukoroli
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21 October 2021

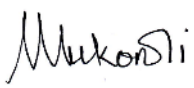
To whom it may concern

LANGUAGE EDITING – ELIZE HEYNS

This letter serves to confirm that a MASTER OF SCIENCE IN ACCOUNTING AND FINANCE entitled AN ANALYSIS OF THE EFFECT OF ECONOMIC GROWTH ON THE FINANCIAL PERFORMANCE OF NAMIBIAN LISTED COMPANIES was submitted to me for language editing.

The thesis was professionally edited, and track changes and suggestions were made in the document. The research content or the author's intentions were not altered during the editing process, and the author has the authority to accept or reject my suggestions.

Yours faithfully



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