KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES SCHOOL OF BUSINESS

IMPACT OF INFLATION, INTEREST RATE AND EXCHANGE RATE ON ECONOMIC GROWTH IN ECOWAS COUNTRIES

BY

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DECLARATION

I hereby declare that this submission is my own work toward the award of the Master of Science Finance and that to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has made.

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DEDICATION

I dedicate this work to my Dad Edward Kyei Baffour and my Mum Veronica Kyei Baffour who has supported me throughout my academic life.

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ABSTRACT

The main objective of the study will be to examine the effect of exchange rate, interest rate and inflation on the economic growth amongst ECOWAS. The population of the study include the Economic Community of West African States which has 15 member country. The study sample is based on seven (7) countries due to data availability. The exchange rate of some countries using the West African CFA franc, which is a fixed exchange rate to the US dollar is excluded. The study made use of secondary data. The secondary data consist of the annual report of the country's central bank and the World Bank website. The study used available data from the year 2006 to 2021 and focused mainly on the long-run impact of these factors on economic growth. The study revealed unstable trends in the exchange rate, interest rate and inflation amongst ECOWAS Countries sampled. It was also found that exchange rate, interest rate and inflation have an influence on the growth of the economics of these countries. The while exchange rate had a negative impact, interest rate and inflation had a positive influence on the economic growth measured by the gross domestic production ratio. Therefore, the study concludes that the determinants of economic growth among West African countries include inflation, interest and exchange rates. This shows that inflation, interest and exchange rate can be used as a benchmark for investors to invest in a country. So it can be indicated that jointly, the independent variables namely inflation, exchange rates, and interest rates have either positive or negative and significant effects on the dependent variable (economic growth). It is recommended that government makes policy decisions to help stabilize the rate in exchange, interest and inflation for economic growth.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Understanding the inflation growth nexus is critical for monetary policy. Considerable theoretical and empirical research has been conducted on the relationship between inflation, exchange rate, and interest rate on economic growth (Olamide et al., 2022). A consistent increase in Gross Domestic Products over time is called Economic growth (Mukherjee, 2007). A sustained economic growth is essential for one major reason: it creates job, income and tax revenues that helps to alleviate poverty. (Osabuohien et al. 2018; Mahonye and Zengeni 2019). As a result, studies into the economic growth drivers have occupied researchers for decades. (Ucube et al. 2017; OECD 2020, Vilakazi 2018).

Whether or not inflation impacts economic growth depends on whether or not money is a super-neutral (Akinsola & Odhiambo, 2017) or a substitute (Taderera et al., 2021). According Seleteng et al., (2013); Vinayagathasan, (2013) macroeconomic policies aim to achieve high economic growth while keeping inflation low and stable. Whilst some inflation is required to "grease the wheels" of the economy, too much inflation can have a negative re-distributive and welfare effects (Eggoh and Muhammad, 2014). Although Friedman (1969) advocated for negative inflation, it has never been pursued as such. Businesses and individuals need to spend money and make efficient use of resources for the economy to thrive. Both of these tendencies flourish in an environment of low inflation (Africa Development Group, 2017).

However, there are still gaps in our understanding of how interest rates affect GDP expansion. Interest rates have been shown to be an inconsistent policy tool employed by governments to stimulate economic growth. Economic growth can be stimulated (Campos,

2012), and the economy can be rescued when interest rates are lowered as part of an expansionary monetary policy (Jelilov, 2016).

A restrictive monetary policy implemented through a relatively high interest rate regime, has been associated to slower economic growth and this relationship has been statistically significant (Alper, 2017; Udoka, 2012). Hansen and Seshadri (2014) are among the researchers who have found no correlation between interest rates and economic expansion. The purpose of this study was to find out the long-term impact of the exchange rate, interest rate and inflation rate on economic growth. According to the research, none of these factors has a clear consequence on the economy when analyzed separately.

Exports, imports, trade balance, inflation, and investment all feels the effects of fluctuations in the exchange rate. These elements have substantial effects on a country's GDP. When a currency declines in value, it raises transaction costs and dampens economic expansion. After the collapse of the Bretton Woods system of fixed exchange rates between 1971 and 1973 (Fofanah 2020), Policymakers and academics began to place more emphasis on the exchange rate as a means of mitigating the risks associated with economic transactions. Umaru et al. (2018) notes that, ever since then, emerging nations have struggled under the weight of currency fluctuations. According to Bahmani-Oskooee and Gelan (2018), a halt in economic growth is possible if profit-seeking traders withdraw from these markets due to fluctuations in the value of currencies.

1.2 Problem Statement

Macroeconomists and policymakers have argued heatedly in recent years about whether or not inflation, exchange rates, and interest rates affect economic growth. One of Africa's greatest assets is the growing interconnectedness of its member countries, as evidenced by the Southern African Development Community (SADC) (Ogujiuba 2021). A strong

military has both positive and bad effects on trade, economic stability, infrastructural development, and the general rise in the standard of living. The effects of inflation on gross domestic product are one such cost (UN-WESP, 2020). However, the regional effects of exchange rate volatility with inflation pass-through have received little attention in previous attempts to analyse how these costs affect the economic performance of individual nations (Lean and Ehigiamusoe, 2019; Ehikioya, 2019; Barguellil et al., 2018; Ogujiuba, and Abraham, 2013; Barguellil et al., 2018; Ehikioya, 2019). Inflation was discovered to have a negative correlation with GDP growth (Faraji and Nwakanemela's 2013). Particular attention is paid to the question of whether or not inflation aids or hinders economic development. The pace of capital formation is the most important determinant of economic growth.

According to research by Datta and Kumar (2011), capital formation is affected by both exchange and interest rates. No correlation has been established between these three macroeconomic parameters because, most studies only focus on one of them. Monitoring inflation, exchange rates and interest rates is critical for ensuring economic growth, particularly in West African countries. Macroeconomic indicators in one West African country may be affected by changes in the interest rate, exchange rate, and inflation in another. Therefore, this study aims to contribute to the existing literature by investigating these prospective outcomes.

1.3 Research Objectives

The main objective of the study is to examine the effect of exchange rate, interest rate and inflation on the economic growth amongst ECOWAS countries in West Africa.

Specifically, the study sought to

1. Analyse the trend in exchange rate, interest rate and inflation in ECOWAS

Countries.

2. Examine the impact of exchange rate on the economic growth in ECOWAS Countries.

3. Examine the impact of interest rate on the economic growth in ECOWAS Countries.

4. Examine the impact of inflation on the economic growth in ECOWAS Countries.

1.4 Significance of the Study

If the links between inflation, exchange rate, and interest rate are made clear along with the implications of these interactions on economic growth, then this work may be beneficial for macroeconomists and economic policymakers. Policymakers will then be able to create instruments and programs that are appropriate for economic growth. Based on changes in the major economic indicators and differences in the tendencies of the West African countries, the empirical results of this study may be utilized to forecast the economic growth of a nation. It can be used as a resource and will increase the body of knowledge already available for academics and students who are interested in exploring the effects of inflation, currency volatility, and interest rates on national economic development.

1.5 Brief Methodology

This study adopted a descriptive research strategy to meet its goals. The model used, which is based on the Phillips formula, evaluates how monetary policy affects economic growth (Ogbulu and Uruakpa, 2011). According to the Phillips paradigm, economic growth is determined by the money supply (M2), and this affect growth and exchange rate negatively. This claim is further supported by (Nibeza and Tumusherure, 2015). This

model was expanded by Ahmad et al. (2016) to include the interest rate and inflation rate. The underlying claim of Ahmad et al.,(2016) economic growth model, which takes inflation and interest rates into account, is as follows:

Economic growth = f (Money Supply, Exchange Rate, Inflation Rate, Interest Rate, Gross Fixed Capital Formation Rate, Labor Force Participation Rate). This study's model is thus mathematically expressed as

$$EG_{it} = c + \beta_1 ER_{it} + \beta_2 INF_{it} + \beta_3 INR_{it} + \beta_4 TOT_{it} + \beta_5 FDI_{it} + e_{it}.$$

This study used a descriptive research design. ECOWAS consists of fifteen (15) countries, but because of data availability, the study sample was based on seven (7) countries. Consequently, panel data regression was utilized to evaluate the data across a 16-year period, or from 2006 to 2021. The study restricts itself to secondary data collected during the aforementioned time because to the era's data availability. All data were derived from the World Bank's World Development Indicator for 2006–2021. (WDI). The dataset is a balancing panel because it included all information that was available for the variables for the full period for all the countries.

1.6 Scope of the Study

The main focus of the study is on how inflation, exchange rates, and interest rates affected the growth of the economies of West African countries. The study focused on how these factors affected economic growth between the years of 2006 and 2021 using easily accessible data. Data from years prior to 2006 were not considered in this study or used to draw conclusions due to a lack of data availability and data from other regions of the African continent. Additionally, data gathered after 2021 were not included in the study.

1.7 Organisation of Study

The study is organized into five chapters. The first chapter, introduction captures the background of the study. The chapter further presents the statement of the problem, purpose of the study, the research objectives and hypothesis that will guide the study, as well as the significance and scope of the study.

The second chapter reviews the literature related to the study. The review of the literature, which also serves as this study's direction, takes care of the conceptual framework. Both a theoretical review and an empirical review were carried out in order to get a full understanding of the topic and serve as a guide for the research. The literature review summary will wrap up this chapter. The research methodology is discussed and presented in Chapter three. The chosen study design, sampling methodology and instruments are discussed. The method for population and data collection is also offered. To wrap up this chapter, a description of the data analysis plan is provided. The analysis of the actual data collected is displayed in Chapter four. After a thorough study of the data, the findings are presented in this chapter along with a discussion of the results.

The final chapter, chapter five, provides a summary of the findings and conclusions of this study as well as recommendations for more research. The results of this study's conclusions are also included in this chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section discusses issues under various thematic areas such as conceptual review, the theory that supports the concepts, and any available empirical review that highlights the current trend of literature on the topic.

2.2 Conceptual Review

2.2.1 Inflation Concept

The annualized percentage increase in consumer prices is what economists call inflation (Rajan, 2014). Two common indicators of inflation are general price increases and higher costs of living. Maintaining steady prices has far-reaching effects on the economy as a whole and the standard of living for all citizens. Sharma and Bicchal (2015) defined inflation as the yearly percentage increase in the WPI. It gives a good approximation of the normal yearly increase in prices for a standard set of consumer products and services. The inflation rate in India is often compared to that of the World Price Index. According to Gali and Monacelli (2005), inflation is defined as the "average rate of growth in prices within an economy." Prices and price ranges fluctuate widely from market to market. The price of some commodities rises with time, while the price of others falls.

Several empirical research (Chen and Feng, 2000; Yazdkhasti et al., 2015 and among others, have shown that inflation slows economic expansion. When referring to the rate at which consumer prices are rising, the term "inflation" is commonly employed. The three main causes of inflation are built-in-inflation, demand-pull, and cost-push. The two most popular measures of inflation are the Consumer Price Index and the Wholesale Price Index.

The best inflation rate to promote economic growth is still a moving target for both industrialized and emerging nations. By focusing on the Economic Community of West

African States (ECOWAS), a group of countries with a common customs area and broadly similar macroeconomic policies, this research hopes to add to the ongoing conversation. There are fifteen countries in the West Africa sub region of Africa. The Economic Community of West African States (ECOWAS) consists of 15 Countries.

Since its members are so geographically close together and because of the general alignment of its macroeconomic policies, including those pertaining to monetary policy, exchange rate policy, international trade, and investment links, the Economic Community of West African States (ECOWAS) provides a good natural experiment to take the issue to some logical conclusion. Sub-Saharan Africa's economy are largely comprised of those of ECOWAS member states. In 2018, ECOWAS countries contributed 45 percent of SubSaharan Africa's GDP to the global total, as reported by the Africa Development Bank. The economies of Nigeria and Ghana alone account for more than 75% of West Africa's GDP. However, recent years have demonstrated that these countries economy is growing slowly (Ahmad et al., 2016).

2.2.1.1 Measurement of Inflation

The rate of inflation is a major indicator of the economy's future and the standard of living of average consumers. The Consumer Price Index (CPI), the CPI less food and energy, personal consumption expenditure (PCE), and PCE without food and energy or core PCE are the four measures of evaluating inflation provided by (Powell 2023).

Consumer Price Index (CPI). Cost increases across the board are referred to be inflation (Dharma et al., 2020). In Ghana, the Consumer Price Index (CPI) is widely used as a proxy for inflation. The term "market basket" is used to describe the wide variety of products and

services available to consumers today. Inflation, as Powell (2023) defines it, is a common topic of conversation when discussing the CPI.

CPI, Less Food and Energy. According to Powell (2023), whenever the BLS releases the CPI, there is a headline number that specifies the percentage increase or decrease in price of the 80,000 items comprising the basket. However, there is another number, commonly called the "core," that is deliberately hidden due to the unpredictability of food and energy costs. Such isolated spikes in commodity costs probably wouldn't portend broader economic trouble in the near future (Dharma et al., 2020). They may merely reflect environmental factors.

Personal Consumption Expenditure (PCE). The term "consumer spending" is sometimes used interchangeably with "personal consumption expenditures" (PCE) (Garner et al., 2022). Powell (2023) claims that the PCE does, in fact, use certain data from the CPI as inputs, but in a somewhat different way. According to Bhattarai et al. (2021), there is considerable agreement between the PCE and CPI.

Core PCE refers to the amount spent on necessities other than food and energy. The Bureau of Economic Analysis releases the PCE figure without include food and energy, similar to how the Bureau of Labor Statistics releases the CPI data. The Federal Reserve bases its inflation goal on this "core" PCE number. This, according to Powell (2023), allows for the identification of a broad trend in the negative effects of inflation on the retail sector.

2.2.1.2 Causes of Inflation

In most cases, increase in the supply of money causes inflation and other economic factors. The money supply can be increased in a number of ways, (Schoultz 2014) by, Printing

more money and distributing it to the public, legally devaluing legal tender currency and creating new reserve account credits through the banking system, purchasing government bonds on the secondary market. These scenarios results in a lower monetary value. Inflation can be caused in three ways: demand-pull inflation, cost push inflation and builtin-inflation.

Demand-Pull Inflation happens when consumers access to credit and money increases more than the economy's ability to produce goods and services (Wollie, 2018). As its popularity grows, so does its price. Schoultz (2014) claims that higher salaries lead to happier consumers. As a result of increased spending, costs must increase. The combination of rising demand and stable supply causes prices to rise.

Cost-Push Inflation. When growing input costs are passed on to the final product, inflation arises due to a cost push (Tetik and Bilgin, 2022). All intermediate items will go up in price if more cash and credit are pumped into the commodity or asset markets. When the availability of necessities drops because of a recession, this becomes obvious. Price rises for consumers are a direct result of the changes made to the product or service (Wollie, 2018). For instance, a speculative increase in oil prices may be triggered by an increase in the money supply. The cost of electricity could go up as a result, which would increase inflationary pressures across the board.

Built-In-Inflation. Tetik and Bilgin (2022) propose that innate inflation is linked to adaptive expectancies, the notion that individuals expect current inflation rates to persist in the future. The general public might figure that the cost of living will keep going up at about the same rate it has been. As a result, workers may push for higher pay or higher prices to maintain their current lifestyle. It's a self-perpetuating loop because as their salaries rise, so do the prices of everything they buy.

2.2.2 Economic Growth Concept

Increasing production of goods and services over a period of time is one definition of economic growth offered by Jalava and Pohjola (2002). There needs to be more precision in estimating the effects of inflation. The company's profitability is unrelated to the rate of economic expansion. As a result, the share price rises. As a result, we'll be able to expand our staff and take on more work.

As more people enter the labor field, wages may increase. The recent economic recovery has increased consumers' discretionary money. Consumer spending is the engine that drives economic expansion. That's why both countries are committed to maintaining healthy economic growth. This means that inflation is the key indicator for economic forecasting in the long run.

Gross domestic product (GDP) is the most common metric used for this purpose. The GDP is a measure of the total economic yield of a country, which includes the profits made by foreign investors from purchasing domestically produced goods. Since income equals spending, GDP is a measure of the total consequences of these two main economic acts. The term "gross domestic product" (GDP) refers to the sum total of an economy's output, income, and spending.

The recent increase in GDP growth rate has been beneficial to the expansion and stability of the economy. Rising per capita GDP has contributed to improved living conditions worldwide. DeGroot et al. (2010) claim that gross domestic product is not a reliable indication of economic welfare, which complicates cost-benefit analysis of proposed policy changes.

The Office of Management and Budget and the Congressional Budget Office have both said that rising GDP will boost budget prospects. A 0.1% yearly increase in GDP would produce about $300 billion in deficit reduction over a decade (Bivens & Mishel, 2013), primarily due to increases in tax collection. Economic growth mitigates the danger of budget deficits, all else being equal, but policies that promote unrealistic projections of growth underestimate the long-term damage they'll do to the budget.

Increasing worker productivity (how much is generated per hour) and a larger working force are two aspects that McLean (2012) cites as crucial to economic growth. Both are good for the economy in general, but only rapid economic expansion boosts GDP and individual profits.

Gains in productivity makes it possible to do the same amount of work, or perhaps more, without sacrificing one's free time. Gross domestic product (GDP) is not a useful measure of economic health, according to Bergheim et al. (2006), who point out that it ignores the value of the economy as a whole. Hiring a babysitter or nanny to assist out with grandma or the kids is a good way to inject money into the economy. Those who are of working age tend to.

Costs to certain countries may rise if they delay GDP growth to implement health, safety, and environmental standards, but those costs must be evaluated against the benefits of better public health, fewer occupational accidents, and a cleaner natural environment. It's possible that reports of economic growth don't tell the complete story. The level of financial investment in the United States' economic development program is highly connected with the performance of the program. In contrast to the period between 1948 and 1973, when living standards for people of all income levels increased (Stone, 2016), income disparity has widened dramatically since the 1970s.

2.2.2.1 Measuring Economic Growth

Economists use a variety of indicators to gauge the health of the economy and its growth rate. Real gross domestic product (GDP) is the most widely-used economic measure (Salisu et al., 2023; Kohli, 2006). Salisu et al. (2023) provides three ways to look at real GDP growth: quarterly growth at an annual rate, four-quarter or year-year growth rate and yearly average growth rate.

Quarterly growth at annual rate is expressed as a percentage. This initially analyses growth over the course of a quarter before annualizing the results to arrive at the annual growth rate (Salisu et al., 2023). If the shift was 0.3% from quarter to quarter, the expected yearly rate would be 1.2%.

Annual average growth rate. This chart compares the percentage annual growth in GDP for the same quarter in two different years (Salisu et al., 2022). It's a frequent way for businesses to mitigate the effects of seasonal variations as stated by (Kohli, 2006).

Annual average growth rate. According to Kohli (2006), this is the average of the changes in each of the four quarters.. The annualized growth rate would average out to 7.5%. The annual rate in 2022 would be 1.875 percent if the quarterly rates were 2%, 3%, 1.5, and 1%, respectively.

2.2.2.2 Phases of Economic Growth

According to Lucio and Palomeque (2023), the economy goes through different periods of activity, which is referred to as the “business cycle.” It has four stages: Expansion, Peak, Contraction and Tough

Expansion. If real GDP rises from a low point to a high position over the course of two or more consecutive quarters, as per (Lucio and Palomeque 2023), the economy is in an expansionary phase of the economic cycle. Expansion, often known as an economic rebound, is typically followed by gains in employment, consumer confidence, and the stock market. Jobs, salaries, manufacturing output, and consumer spending all rise, along with real GDP, throughout this time period (Nersisyan and Wray, 2021).

The peak of an economic cycle occurs midway between an expansion and a downturn (Nersisyan and Wray, 2021). The cycle reaches its apex in the final month before key economic indicators such as employment and new housing begins to decline. According to Lucio and Palomeque (2023), this is the point at which an economic expansion reaches its limit. It is, in fact, a major turning moment.

Contraction. Economic contraction describes the trough of the business cycle. As defined by (Wolla 2023), a contraction occurs when economic output falls. The economy is producing less goods and services now than it did in the past. When production of goods and services falls, businesses have less demand for human labor and other inputs. Every part of an expansion starts to break down now (Wolla, 2023) thus there's no use in continuing. When economic activity drops significantly and broadly, we call that a recession.

Trough. During a business cycle's trough, both activity and prices fall before eventually rising again (Wolla, 2023) due to the inevitable business cycle's cyclical nature. The term "business cycle" is used to describe the up-and-down swings in GDP that result from expansions and recession. There is a lull in the intensity of a recession around now (Wolla, 2023) so take advantage of it while you can.

2.2.3 Interest Rates Concept

The amount by which the lender increases the borrower's principal is referred to as the interest rate (Ferrari et al. 2018). With the passage of time, the interest rate paid by a bank or other financial institution on a deposit increases. The interest rate on a savings account shows how much smarter it is to save money rather than borrowing money. Interest rates are often expressed as a percentage of the loan's principal balance when provided by a lender (Bollinger & Yao, 2018). Loan interest is often stated as an annual percentage rate (APR).

Interest payments on loans are a standard cost of doing business. Whether it's money, goods, wheels, or bricks and mortar, anything can be borrowed. Borrowing costs are affected by interest rates, which is also called the "cost of money" (Ferrari et al., 2018). Therefore, interest rates play a critical role in any financial transaction involving the borrowing or lending of money. Many people take out loans to finance important life events like buying a home or car, doing substantial renovations, starting a business, or paying for college. Lots of businesses need loans so they can make long-term investments like new buildings and machines. One option for paying back a loan is making a single large payment at the end of the loan term (Christie et al., 2021).

Multiplying the interest rate by the loan's principal yields both the total cost of borrowing and the lender's rate of return (Amoako-Adu and Eshun, 2018). Lenders demand principal and interest payments because, the value of their money decreases over the course of a loan. A lender might have earned less on a loan than they would have, from investing the same amount of money. The annual percentage rate at which interest is charged is the cost of borrowing money. A borrower who appears to be a safe bet for the lender may be offered

a lower interest rate. If the lender sees the borrower as a high risk, they will charge a higher interest rate.

2.2.3.1 Determination of Interest Rates

Various factors, such as the state of the economy and the interest rate set by the central bank in each nation, are taken into account when individual banks calculate their own APRs, as stated by (Ferrari et al. 2018). The cost of borrowing money increases whenever the Federal Reserve raises interest rates.

When interest rates are extremely high, borrowing money is more difficult and costly, therefore consumers tends to reduce their discretionary spending. According to Ferrari et al. (2018), inflation and interest rate increases go hand in hand. A reduced money supply, increased consumer demand for credit, and greater reserve requirements from banks all work against the goal of reducing inflation (Smets, 2018). The increased potential for gain from invested cash motivates people to be frugal when interest rates are high. Investors would rather put their money in savings than the stock market due to the lower returns offered by the latter. Restrictions on the availability of commercial debt have a similar impact on GDP expansion (Benmelech et al., 2019).

When interest rates on loans are low, consumers and businesses are more likely to spend and invest, respectively (Smets, 2018). When savings interest rates are low, individuals and businesses are more likely to spend freely and invest in more volatile markets, such as the stock market. This sort of spending helps the economy grow by flooding the financial markets with new money. If interest rates are kept artificially low for a long time while demand continues to outstrip supply, inflation will result. To wit: (Benmelech et al., 2019).

2.2.4 Exchange Rate Concept

The exchange rate has long been the source of heated debate among economists, politicians, and other economic actors due to the far-reaching effects it can have on the economy as a whole. Exchange rate volatility, as defined by Oloba and Abogan (2013), is the risk posed by sudden shifts in the value of a currency relative to another. The main economic indicators have become increasingly unstable, including inflation, interest rates, and the trade balance.

According to Auboin and Ruta (2013), the volume of international trade is influenced by changes in exchange rates. Currency exchange rate instabilities, have a negative effect on both foreign and domestic trade. This is why currency is not exchanged until the time of delivery, despite the fact that it is agreed upon at the time of contract signing together with the exchange rate. According to Musyoki et al., (2012) the uncertainty about future income caused by shifting exchange rates undermines confidence in international trade. Since the 1970s (Obstfeld and Taylor, 2017), when the argument over whether to use a fixed, pegged, or floating exchange rate regime was at its height, most European currencies have been floating. Since nations will soon be choosing a new currency rate system, this discussion is still timely.

Exchange rate fluctuations poses a threat on the monetary value of a country's exports and its income. Some economists and Hooper and Kohlhagen (1978) conducted a theoretical research on the rise in currency exchange rate volatility. The following is the justification: International trade falls as risk-averse retailers raise the price of doing business abroad. Due to the fact that payment is not made until the future delivery actually takes occurs, the delivery date in the future is of utmost importance in trade transactions in which currency

exchange rates are decided the time of the trade transaction. The advantages of global trade may be diminished if fluctuations in exchange rates cannot be reliably forecast.

Because forward markets are so uncommon, no country consistently hedges its exposure to foreign exchange risk. Even if it were possible, hedging through the forward markets would be difficult and costly. Taking advantage of the forward markets, for instance, calls considerable forethought on account of the large size and short maturity of the contracts involved. However, recent theoretical frameworks shed light on when fluctuations in exchange rates could actually boost trade volume.

Trade and exchange rate volatility may be positively associated when income effects are larger than substitution effects, as proposed by (Auboin and Ruta 2013). This is due to the fact that increased exchange rate volatility raises the expected marginal utility of export income, encouraging exporters to increase exports if they are sufficiently risk averse. Risk aversion moderates the impact of exchange rate uncertainty on exports, as proposed by (Auboin and Ruta 2013). According to recent theoretical models of hysteresis in international trade, high volatility in currency rates can also influence international trade. This is especially true when big sunk costs are at stake. However, predicting economic repercussions is notoriously tricky.

2.2.4.1 Types of Exchange Rate

According to Miranda-Agrippino and Rey (2020), a country's exchange rate regime is intrinsically linked to its monetary policy. There are three kinds of exchange rate regimes: floating exchange rate, fixed exchange rate, and pegged float exchange rate. (Dbrowski and Wroblewska 2020).

Floating Exchange Rate. According to Dbrowski and Wroblewska (2020), a country with a floating exchange rate system has a currency, whose value is determined by the market,

taking into account the supply and demand for the currency in relation to other currencies. In a fixed exchange rate system, where the government has main or entire control over the currency rate, Miranda-Agrippino and Rey (2020) argue the opposite is true.

Fixed Exchange rate. According to Dbrowski and Wróblewska (2020) a fixed exchange rate occurs when a government or central bank sets its currency's value at a constant ratio to that of another currency or the price of gold. The purpose of a regime with a fixed exchange rate, is to limit the range across which a currency's value fluctuates. When the exchange rate is determined, both importers and exporters have more stability in their operations. Low interest rates promote investment and commerce, which according to Dbrowski and Wroblewska (2020), leads to low inflation.

Pegged Float Exchange. Miranda-Agrippino and Rey (2020) created the term "pegging" to describe the practice of fixing or tying the value of one currency to another. Pegging, which uses predetermined ratios, is sometimes called a "fixed rate." It is common practice for two countries to "peg" their currencies together for the sake of the stability of the other currency.

2.3 Theoretical Review

To comprehend the relationship between the exchange rate, interest rate, inflation, and economic growth, various theories may be applied. The Quantity theory and Interest Rate Parity (IRP) theory falls under this category. The hypotheses are briefly explained as follow.

2.3.1 Interest Rate Parity (IRP) Theory

It was proposed by Priewe (2017) that, the spot exchange rate between two currencies is directly proportional to the predicted spot exchange rate or forward exchange rate. Based

on this reasoning, the forward exchange rate is equal to the current exchange rate multiplied by the domestic interest rate divided and by the foreign interest rate.

Loans with and without insurance carry identical interest rates. In contrast, no-arbitrage need not be ensured by the use of a forward contract in an uncovered IRP scenario. IRP requires a shift in the inferred exchange rate in the non-observed scenario. Predictions of the spot exchange rate incorporate this concept.

When the no-arbitrage condition of the forward contract is met, the covered interest rate parity condition is met. Investors in Covered IRPs were free to select either the interest rate in their own country or the interest rate in another nation without worrying about the impact of future exchange rate fluctuations on the value of their assets. The forward exchange rate takes this into account.

IRP is the view that the difference in a currency's short-term interest rate from another's short-term interest rate represents the forward exchange rate (Kim and Moneta, 2017). The inflation-related parity (IRP) exchange rate varies over time, as opposed to the fixed exchange rate (1 GHC = 1 USD), which remains constant independent of inflation or other economic circumstances. The concept of interest rate parity describes a situation in which the differences in interest rates between two currencies is equal to the difference in the predicted future exchange rates of those currencies. In cases where two entities are equivalent, the IRP will not apply to either of them. The IRP would be jeopardized if it occurred.

Since interest rates, spot exchange rates, and forward exchange rates are all interconnected, interest rate parity suggests that investors should not care about disparities in interest rates between countries (Muchiri, 2017). An individual's rate of return on investment (ROI) is assumed to be the same whether he invests in his home country and then converts the

revenues to a foreign currency or changes his money into the foreign currency and then invests the same amount in the foreign country under the IRP hypothesis.

If a loan or deposit's interest rate is "covered" by a forward contract, then any changes in the value of the underlying currency won't affect the interest rate. Without a forward contract in place, the spot rate will be used to calculate the interest rate parity (IRP) that will apply in the future.

2.3.2 The Quantity Theory of Money

Money supply, as Krugman (2007) points out, is a good device for managing longer-term swings in the price level but is ineffective at controlling shorter-term economic volatility. To keep inflation in check, the money supply needs to grow at a rate that keeps up with expected economic growth.

It has been argued, however, that governments have limited leeway with monetary laws and that, in advanced economies, the money supply is extremely responsive to changes in demand. Krugman's detractors point out that when consumer purchasing habits shift, businesses have less time to adjust their supply chains, and consumers don't immediately see the same shift in their income.

In response to increased demand, Krugman (2007) believes that more credit will be created and used, especially in the form of trade credit. One explanation for the high rate of circulation is that the money supply can quickly respond to the changes in demand.

The quantity theory of money is a school of thinking in the field of monetary economics that has its roots in the Western tradition of economic thought from the 16th and 17th

centuries. All goods and services have their prices set by the total money supply, so says the Quantity Theory of Money.

The framework provided by the Quantity Theory of Money allows for extensive research into the link between money supply and prices. According to the article, rising costs are a result of increased monetary supply. Giving quantity theory of money (Gatawa et al., 2017), if the money supply doubles, inflation also doubles. When the money supply doubles, inflation skyrockets.

2.4 Empirical Review

2.4.1 Trends of Exchange Rate, Interest Rate and Inflation

The analysis by Lower (2021) emphasizes the gap between the target rate and the average inflation rate during the past decade, 2009–2019. Fiqure 2.1, Inflation targets have been missed more often than not, although it is evident that this is not always the case. Changes in the labor market, increased globalization, and advances in technology are just a few of the myriad elements at play here. Most governments and international groups currently anticipate that the current inflationary trend will only be short-lived. The latest inflation data for several nations, as well as the IMF's projection for inflation in 2022, are displayed in the graph below. The average inflation rate is expected to be much lower and hover around 2% in 2019 across most economies.

How much of a hike in policy interest rates would be needed to bring about the anticipated decrease in inflation and keep it there is a question worth asking. Most industrialized nation central banks will likely raise their policy interest rates by the end of 2022, with some already having done so (South Korea, New Zealand, and Norway).

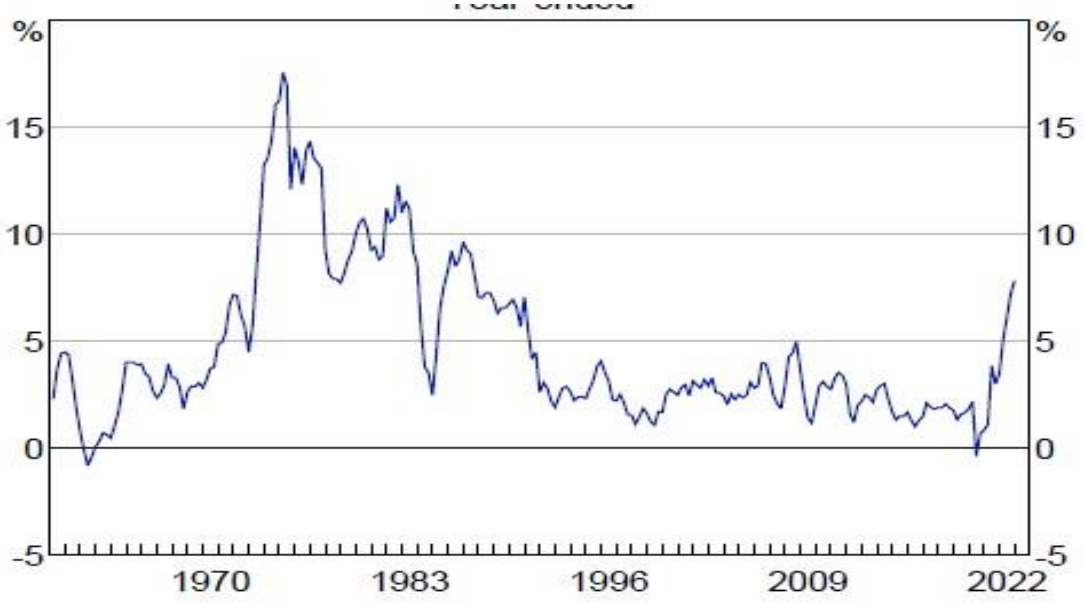


Figure 2.1: Trends in inflation

Source: Lowe (2021)

Inflation in advanced economies is examined globally by Mikolajun and Lodge (2016). For 19 advanced economies, open-economy, Phillips curves are estimated. We incorporate both retrospective and prospective survey measures of inflation expectations, and we added global variables such as worldwide inflation, global economic slack, and global commodity prices to Phillips curves.

The concept that the state of the international economy directly affects domestic inflation receives little backing from their analysis. These findings also indicate that the sensitivity of global inflation to changes in inflation rates is the primary reason for its relevance in local inflation forecast. Under the Phillips curve model, domestic inflation expectations for the future are positioned similarly. According to our findings, standard reduced-form Phillips curves can be constructed without considering global factors (with the exception of commodities prices).

Using survey data and a long-term inflation projection, Chan et al. (2018) built a bivariate inflation model to study the relationship between the trend and the prediction. Inflation trends and long-term survey estimates can be unrelated, highly connected, or unrelated in any combination; thus, their strategy can be applied in all of these scenarios.

The research found that adopting long-term projections helped significantly with improving estimations, fitting, and predicting inflation using several inflation measures and survey-based forecasts across multiple nations. Current inflation rate comparisons to inflation projections are not as informative.

Data for the OECD's annual statistics for the twentieth century are available from 1960 to 1994. Lindh and Malmberg (2000) investigate how age distribution affects inflation. Therefore, there is proof of a generational trend in inflation's effects, lending credence to the hypothesis that inflation falls as the share of the population that saves money grows. However, inflation ensues when younger retirees begin spending their pension money. One explanation that fits this pattern is the one in which people save throughout their lives and inflation occurs gradually over time. Inflation estimates could benefit from using demographic data in the long and medium term, the findings imply. Our panel model's projections are consistent with the gradual deflationary trend in the OECD that has been ongoing since the early Nineties. Additional country-specific data is needed to make accurate estimates.

Mazmudar et al., (2021) research aimed to track Medicare payment trends. From 2007 to 2021, the 47 most common dermatological procedures. Several cosmetic dermatological procedures experienced percentage and annual rate increases in cost. Inflation-adjusted, the average cost of dermatological procedures falls by 4.8% between 2007 and 2021. Simple/intermediate/complex repairs increased by 9.9%; flap repairs increased by 14.1%;

graft repairs increased by 12.0%; and skin biopsies increased by 30.3%; shave excisions increased by 24.5%; Mohs micrographic surgery increased by 14.4%; and excision of benign, premalignant, or malignant tissue increased by 3.9%. (6.6%; p .001). After accounting for inflation, the average yearly percentage increased in benefits throughout this time period. The anatomical hazard groups were not subject to a separate reimbursement reduction.

2.4.2 Exchange Rate and Economic Growth

Barguellil et al. (2018) have looked at how changes in exchange rates affect GDP growth. In this paper, we show the empirical analysis results of a sample of 45 developing and emerging economies over the period 1985-2015 using the difference and system generalized approach of moments estimators.

Generalized autoregressive conditional heteroskedasticity indicates that both nominal and real exchange rate volatility restrain economic growth. Countries that allow greater financial and exchange rate freedom may be hit harder by currency fluctuations. Alagidede and Ibrahim's (2017) study looked at the impact of currency fluctuations on growth in the Ghanaian economy. This inquiry was sparked by issues like these, which are of paramount importance. Results showed that misalignments often correct rather slowly, having unfavorable short-term consequences as economic agents adjust their consumption and investment patterns in response to exchange rate shocks, which have a propensity to revert to the mean.

Factors within the economy account for roughly three-quarters of real exchange rate shocks, while the remaining quarter is linked to external variables such government spending, money supply growth, fluctuations in the terms of trade, and output shocks. A

number of factors, including technological advancement and improved resource management, might have the opposite effect of greater uncertainty and actually speed up development.

Musyoki et al., (2012) analysed how changes in the real exchange rate affect GDP expansion in Kenya. The authors employed the Generalized Autoregressive Condition of Heteroscedasticity (GARCH) model and the Generalized Method of Moments (GMM) to assess the impact of fluctuating real exchange rates on economic development spanning the years January 1993 to December 2009. The study relied on monthly data from the Central Bank of Kenya, the International Monetary Fund, and the Kenya National Bureau of Statistics.

Variation in RER was shown to be statistically significant during the span of the analysis. Kenya's RER followed an appreciating and fluctuating pattern across the study period, suggesting a deterioration in international competitiveness. The RER Volatility shows how this affects Kenya's economic growth negatively.

Morina, et al., (2020) look into how the fluctuation of the actual effective exchange rate affects economic growth in CEE countries. There are three routes that can be used to monitor currency rate volatility, and each can be used to assess the effect on economic expansion. This research uses annual data for fourteen Central and Eastern European (CEE) countries from 2002-2018 to examine the nature and extent to which these changes have influenced growth.

We found that, instabilities in the exchange rate have a sizable adverse influence on real GDP growth using panel data with fixed effects estimates. The results seem to be compatible with the standard deviation and the z-score, two other measures of exchange rate volatility. The author of this piece contends that the government should adopt

additional policies to maintain a stable exchange rate in order to stimulate economic expansion.

Dickson (2012) uses annual data from 1970 to 2009 to examine the effects of currency volatility on economic growth in Nigeria. According to the existing literature, shifts in the value of a currency can either encourage or discourage growth in the economy. An ADF stationarity check was the first step in the empirical inquiry. The model was then subjected to a co-integration analysis. In contrast to the other variables, whose integration orders were all one (1), the unit root test revealed that exchange rate volatility was integrated at order zero (I (O)). The co-integration study likewise confirmed that the variables were cointegrated.

Generalized Autoregressive Conditional Heteroscedasticity (GARCH) modeling was used to examine the link between exchange rate volatility and economic expansion. The results also shows that, a rising currency value is good for a country's economy in the short term, but bad in the long run. These findings suggest that rising oil costs will limit long-term economic growth in Nigeria. Higher oil prices have a significant impact on production but have a little impact on income because of plant closures and relocations to adjacent countries.

Ozata's (2020) research intends to do this for the Turkish economy using data from 1998:Q1 to 2019:Q3. In this piece, we use the Autoregressive Distributed Lag (ARDL) Model to analyze the effect of currency fluctuations on Turkey's gross domestic product. Currency volatility is estimated using the real effective exchange rate and the GARCH (1, 1) model. The ARDL model and the limits testing strategy were shown to be superior to more common counteraction techniques by applying the Lagrange Multiplier (LM) test for autocorrelation and the Ramsey RESET test for specification error. In order to ensure that

the estimated short-run and long-run coefficients are consistent with one another, the CUSUM and CUSUMSQ diagnostic tests are used. According to the ARDL model, there is a negative and highly significant relationship between real effective exchange rate volatility and Turkish economic growth.

Long-term real GDP is positively affected by export and investment variables, but negatively affected by import and exchange rate volatility. In conclusion, stabilizing the exchange rate and strengthening the country's fiscal and financial infrastructure are both necessary for sustained economic growth. The need for fiscal discipline and monetary reinforcement has never been greater. Increasing domestic manufacturing of intermediate goods is critical, as is funding for higher education and innovative research and development.

2.4.3 Inflation and Economic Growth

Barro (2013) studied data from 100 nations between 1960 and 1990 to estimate the impact of inflation on economic development. A regression analysis demonstrates that real per capita GDP growth slows by 0.2-0.3 percentage points and the investment-to-GDP ratio slows by 0.4-0.6 percentage points for every one percentage point of annual average inflation. Relationships among inflation, growth, and investment may help us understand the underlying causes thanks to the statistical methods' use of plausible instruments for inflation.

The positive correlation between export variation and GDP growth among the G7 countries is the subject of (Yakubu's 2022) study. This study uses information gathered between 1995 and 2018 to study the long-term effects of export variation on economic growth through

the use of completely modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) techniques.

Diversifying exports was found to benefit G7 economies. The growth-promoting effect of export diversification is mitigated, however, by variations in the exchange rate. In addition, we provide data that bolsters the bloc's trade-led growth theory by demonstrating how easier access to global markets accelerates progress. To the best of the team's knowledge, no studies have been located that directly link G7 export diversification to increases in GDP. Although the export diversification-growth nexus has been extensively studied, we were unable to locate any empirical studies that account for the moderating impact of exchange rate volatility.

Olamide et al. (2022) looked at the impact of fluctuating currency rates on regional inflation and growth from 2000 to 2018. Success in accomplishing the study's aims was achieved through the use of the Pooled Mean Group (PMG) estimator of the Panel Autoregressive Distributed Lag model, the Generalized Moments (GM) method, and the Dynamic Fixed Effect (DFE) method. The GARCH (1, 1) model was also utilized to artificially create currency instability. There was a negative correlation between the exchange rate and inflation on regional GDP expansion.

In addition, the results imply that the inflationary-growth link in the region worsens as exchange rate instability rises and that higher levels of exchange rate volatility are related with lower levels of economic growth in the territory. This supports the menu cost pricing theory, which argues that inflation and price increases go hand in hand since higher prices represent the rising cost of living. All involved are urged to make every possible effort to boost the value of their respective national currencies.

Inflation and currency depreciation, according to Perpetua's (2014) study, have slowed growth in the Nigerian economy. We utilized a simple Least squares technique to evaluate the overarching trend in the data set, which contained annual values for real GDP and inflation rate from 1980 to 2010. One major area of investigation is how changes in the exchange rate and inflation have affected the growth of the Nigerian economy. Primary data points acquired across the study's 23-year time period were inflation and currency rate measures. The Central Bank of Nigeria's Statistical Bulletin and Annual Report, as well as the International Monetary Fund's World Economic Outlook Database, were used as primary sources. We calculated the interest rate fluctuations by taking the three-year moving average of the standard deviation of the nominal exchange rate.

The positive relationship between exports and imports is not statistically significant due to the 3.4% margin of error. There was a positive correlation suggested by the exchange rate coefficient, and the significance level was determined to be 3.4%. There appears to be a positive correlation between inflation and the value of the currency. This is because inflation leads to more frequent changes in exchange rates. Expansion of the economy was the only factor that was correlated adversely with everything else. According to the research, low and stable inflation is good for savings and investment returns and the economy as a whole, while high inflation and currency volatility are detrimental. According to our findings, raising input productivity should be prioritized over lowering inflation by macroeconomic policies that aim to spur sustainable economic expansion.

Obura and Anyango (2016) found that, interest rates could mitigate the impact of currency volatility on stock market performance. The impact of interest rates on the connection was studied. We used a correlational approach, reviewing supplementary data from 2006 through 2010.

The results of the hierarchical regression, which raised the R2 by 0.085, corroborated the modest effect. After discovering that interest rates moderate the effect, the authors of the study recommended for the adoption of guidelines to govern interest rates.

However, statistical significance becomes clear when people who have lived through extreme inflation are included in the sample. Inflation has a small short-term effect on GDP but a large long-term effect on people's level of life. An rise of just 10 percentage points per year in monetary policy, for example, may reduce real GDP by 4–7 percent after 30 years, thus worries about price stability are well-founded.

For the countries of Bangladesh, India, Pakistan, and Sri Lanka, Mallik and Chowdhury (2001) compiled data on inflation and GDP growth. They analysed the empirical evidence using annual data from the IMF's International Financial Statistics on cointegration and error correction models.

Long-term, we find a positive correlation between inflation and GDP growth in all four nations. Inflation is highly correlated with economic growth. These results have significant implications for public policy. Price increases may result from rapid economic progress, yet inflation helps growth along within a specific range. As a result, the future of these countries remains unknown.

Two aspects of the inflation-growth relationship are investigated by Eggoh and Khan (2014) using the PSTR and dynamic GMM methods on a sizable panel data set consisting of data from both developed and developing countries. Multiple cutoffs are selected, one for the total sample and one for subsamples that are stratified by wealth, after first examining the nonlinearity of the connection. Additionally, it establishes whether or not macroeconomic forces at the national level are primarily responsible for this nonlinearity.

The evidence supports both assumptions and shows that the sensitivity of a country's inflation growth nonlinearity is influenced by its financial development, capital accumulation, and trade openness and government expenditure. In addition, this nonlinear relationship shows substantial variation due to a wide range of country-specific factors.

The presence of the inflation growth link in Pakistan's economy was re-examined by Ayyoub et al. (2011), who conducted an experimental study of the impact of inflation on GDP growth. The goal was to determine whether the presence of inflation has an effect on economic growth and if so, how that effect varies with its intensity. They utilize Ordinary Least Squares (OLS) to analyze a set of annual data from 1972–1973 through 2008–2009. Pakistan's inflation rate was inversely related to the country's economic growth. All the study agreed that, if inflation rates go above a certain threshold, economic growth begins to stall. We hope that our descriptive and econometric analysis would help us convince Pakistani policymakers to keep inflation below 7%. With the hope that it would bring about the economic growth it promises.

Datta and Mukhopadhyay (2011) argue that rapid economic growth and low inflation are two of the most crucial objectives for any nation. Structuralists and monetarists have been at odds for decades about how to best promote price stability and economic expansion. Structuralists view inflation favorably, while monetarists do not. An important connection could form soon, but it could not stay.

This research examines a critical problem facing the Malaysian economy from a variety of angles. Statistical procedures like the Autoregressive Distributed-Measures Test, the Panel Data Unit Root Test, the Vector Error Correction, the Vector Auto Regression, the Impulse Response Function, the Variance Decomposition, and so on all benefit greatly from the annual data that IFS gives. Granger causality studies demonstrate that inflation

leads to economic expansion in the short run but that economic expansion leads to inflation in the long run.

The correlation between inflation and GDP expansion in Vietnam is analyzed by Tien (2021). It is presumed that, inflation and GDP growth have no linear relationship. The Vietnamese government places a premium on inflation management in order to realize their economic stability and GDP growth objectives. Defining the inflation and GDP growth threshold connection is essential for making credible inflation goal suggestions. The results show that hyperinflation, as well as too-low inflation, are detrimental to GDP expansion. To put it simply, inflation dampens economic expansion. Inflation around 6% seems to be the sweet spot that the Vietnamese government should aim for in order to promote economic growth.

2.4.4 Interest Rate and Economic Growth

Aziri's (2019) paper uses data from the economy of the Republic of Macedonia to investigate questions like why interest rates fluctuate and how they affect other economic indicators like GDP and economic growth. To further comprehend the phenomenon under study, we will employ regression analysis and ordinary least squares estimation (OLS) to shed light on the causal linkages between the variables.

Our data collection spans the years 1993-2013. Interest rates are known to significantly influence economic expansion, according to previous studies. All indications from the data, analysis, and findings of this study lead to an inverse relationship between the interest rate and economic growth in the Republic of Macedonia.

The work of Silva and Holanda (2021) offers a model for calculating the natural interest rate in a small open economy, building on the work of Laubach and Williams (2003) and

Holston et al. (2017). The natural interest rate is computed using the uncovered interest rate parity rather than forecasting future rates of economic growth. The model is tested on the Brazilian economy from 2004 to 2019 using Bayesian estimations.

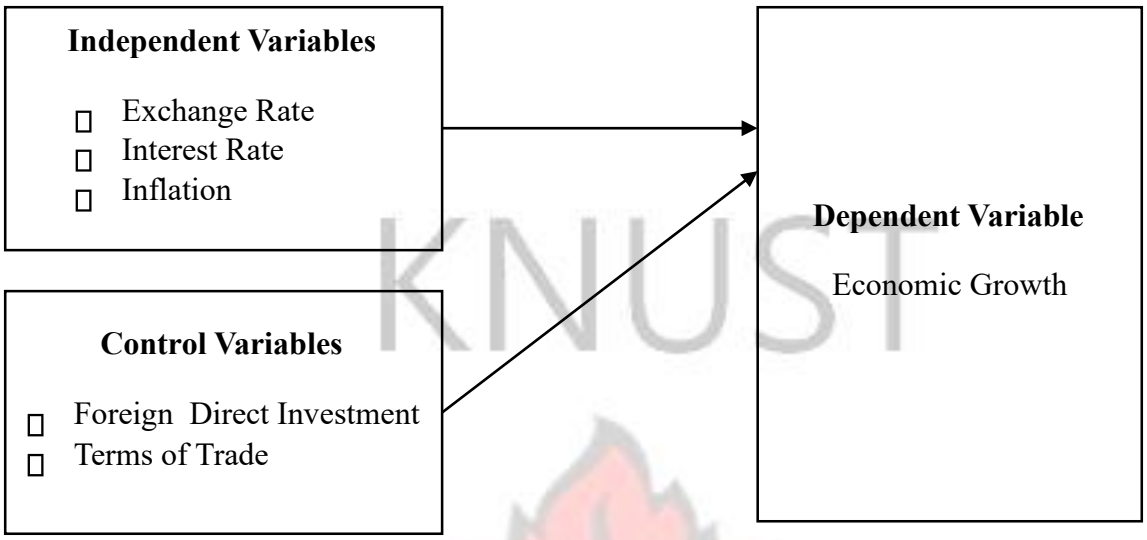
Since Brazil's disastrous recession in 2014, the country's natural rate of interest has been extremely unstable. The natural rate fluctuations over the examined time period can be better explained by the little open economy method than by the closed economy framework. A prominent "neo-Fisherian" explanation of the effects of low interest rates is said by Garca-Schmidt and Woodford (2019) to rely on perfect foresight equilibrium analysis, notwithstanding the improbability of people having such expectations. To better anticipate future endogenous variables, we propose a mental method that agents could intentionally apply.

Our reflective equilibrium, on the other hand, shows that a commitment to a low nominal interest rate for an extended period of time is consistent with perfect foresight as a reasonable approximation, without requiring either neo-Fisherian conclusions or implausibly strong predicted effects of forward guidance.

2.5 Conceptual Framework

The conceptual framework which is the visual of the study, is based on a review of existing studies on this topic. A conceptual framework is an instrument used by researchers to guide their work. It is a collection of ideas used to organize the research, similar to a map, and may include the research question, a literature review, methods, and data analysis. (Osanloo and Grant, 2016).

Figure 2.2: Conceptual Framework



Source: Author's Construction (2023)

As shown in Figure 2.2, the dependent variable is economic growth, whereas the independent variables indicates exchange rate, interest rate, and inflation rate. Terms of trade (TOT) and foreign direct investment (FDI) are utilized as control variables. Liobikien and Butkus (2019) assert that FDI indirectly stimulates economic growth through its interaction terms in addition to directly promoting economic growth by itself. According to Jebran et al., (2018), TOT deterioration is crucial for boosting economic growth. Therefore, the purpose of this study is to examine the effect of inflation, interest rates and currency rates on the economic growth of ECOWAS countries in West Africa.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The approach used to investigate the impact of inflation, interest rates, and currency rates on economic growth in ECOWAS countries is summarized in this chapter. Thus, the

research design, data collection techniques, sampling strategies, and data analysis techniques are covered in this chapter.

In order to support the goals of the research, it would also be provided in a sufficiently meaningful form to include the population to be analysed, the sampling and sampling techniques, and the rationale for using the data. The information used comes from both published and unpublished journals, reports, newspapers, magazines, annual reports of central banks, and the World Bank website.

3.2 Research Design

The research design demonstrates a consistent method for handling the research issue by combining several research features logically and systematically. It includes a thorough plan for collecting, evaluating, and interpreting data. The purpose of the study informs the framework for the work plan, which is known as the research design.

Descriptive, explanatory and exploratory research are the three main types of research. A descriptive research strategy is described in this paper. On the other hand, descriptive research is used to characterize what is available in relation to changing situations and to obtain information about the current situation. Research that is well-described has the ability to question the status quo and inspire more descriptive study of occurrences.

3.3 Population and Sampling Design

As indicated by Bevan et al. (2013) Secondary data collection refers to data obtained .from existing sources such as journals, newspapers, magazines, annual research reports and so on, rather than directly from a government or a research organization. The population of the study includes the Economic Community of West African States (ECOWAS). The fifteen countries that make up ECOWAS include Ghana, Guinea, Guinea-Bissau, Liberia,

Mali, Niger, Nigeria, Senegal, Sierra Leone, The Gambia, and Togo (Tesche and Van Walbeek, 2021).

Due to data availability, the study sample is based on seven (7) countries. The exchange rate of some countries using the West African CFA franc, which is a fixed exchange rate to the US dollar is excluded. Cabo Verde, The Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone are the countries that are a part of the study. The country's central bank is required to keep the West African CFA franc exchange rate at the predetermined level, which is fixed or pegged to the US dollar or a basket of currencies (Obikili, 2019).

3.4 Sources of Data of the Study

Information that has previously been obtained as well as information that will be received over the course of the investigation can both be used as data sources. Secondary data was used in the study. Examples of secondary data sources that uses data from primary sources include, the World Bank website, the combined financial statistics of the countries used in the study, archives, or online searches for journal articles. To find the data for this study, a significant and extensive library search was also conducted. As a result, a strong critical and analytical framework for the study could be built. The study focused on the long-run effects of these factors on economic growth and examined data that was available from the years 2006 to 2021.

3.5 Model Specifications

The study adopted a regression model to institute the connection amid the variables of commercial banks in Ghana as recommended by Hair, et al. (2006). The model specification is presented here. The generic economic model employed in the study which was similar to what is found in Greene (2012) and Ahmad and Bashir (2013) is given as:

$$EG_{it} = c + \beta_1 ER_{it} + \beta_2 INF_{it} + \beta_3 INR_{it} + \beta_4 TOT_{it} + \beta_5 FDI_{it} + e_{it}$$

This equation is the equation that has been derived for this research. The symbolic meaning of the equation is ***Where:***

EG = Economic Growth

ER = Exchange Rate

INF = Inflation

INR = Interest Rate

TOT = Terms of Trade

FDI = Foreign Direct Investment

e = error

C = represents the y-intercept

β = Coefficient of data (Beta).

3.6 Measurement of Variables and Justification

As the name implies, the measurable variables are the variables that are measured in an experiment. The dependent variable is reliant on modifications to the independent variable (IV) (DV). Any experiment looks at how adjustments to the IV have an impact on the DV. Secondary variables are measurements that are either supportive of the primary purpose or that measure the consequences of the secondary objectives. Table 3.1 displays the variables that were measured as well as the information used to make those measurements.

Table 3.1: Measurement of Variables

S/N	Variable	Measurement	Sources
	Dependent		
1	Economic Growth	The rate of increase in the production of goods and services over a specific time period.	Jalava and Pohjola (2002)
	Independent		

2	Inflation	The rate at which prices increase over a specific time period is known as inflation	Rajan (2014).
3	Exchange Rate	The current rate of the local currency to the dollar (USD)	Olamide et al. (2022)
4	Interest Rate	the price you pay to borrow money which is set by the monetary authority (i.e. the central bank)	Bordo and Levin (2017).
	Control		
5	Foreign Direct Investment	log of total level of direct investment at a given point	Olamide et al. (2022)
6	Terms of Trade	the ratio between the index of export prices and the index of import prices	Olamide et al. (2022)

Source: Author's Construction

Economic growth

Here, economic growth is calculated as the rate at which the nominal GDP changes. The study's dependent variable is Economic growth. Since the study's explanatory variables are all in their nominal form, the nominal version of GDP has been chosen. Money supply, interest rate, inflation rate, and exchange rate all influence the variable. (Nibeza and Tumusherure, 2015; Ahmed et al., 2016).

Exchange rate

Simply said, the exchange rate is the cost of a foreign currency. Exchange rate appreciation is the word used to describe a decline in the cost of a foreign currency relative to a domestic currency. While exchange rate depreciation refers to a decrease in the price of the domestic currency in relation to a foreign currency. A declining exchange rate makes imported goods unappealing in a home market because business transactions between nations are conducted in terms of the exchange rate. This inhibits imports and encourages exports from an economic perspective. However, if the currency is strengthening, imports are encouraged but domestic product exports are constrained as foreign goods become less

expensive. Given the volatility of the currency rate, its impact on economic growth is unclear.

Inflation rate

According to Friedman (1956), "inflation is, and everywhere a monetary phenomenon". Economic growth is expected to slow during periods of high inflation. Increase in inflation leads to a proportional increase in money demand. This is because people become interested in the value of their money balances of the goods and services that they can buy. This is detrimental to aggregate demand and economic growth.

Nominal Interest rate

Keynes (1936) and Baumol (1952) made significant contributions to the theory of aggregate demand by including interest rates in national income, which works through aggregate demand. The 91-day Treasury rate is used in the study as a stand-in for nominal interest. Since Treasury bill returns are seen as the greatest substitute for other assets, this Treasury bill rate was chosen. Additionally, because the Treasury bill is under the supervision of the federal government, it is a risk-free investment. The variable is anticipated to have a detrimental impact on economic expansion. That instance, it is anticipated that economic growth will increase when interest rates fall and vice versa.

3.7 Data Analysis

The data that was gathered was examined using STATA 12. The descriptive and correlational data that were gathered were analysed by the study using a linear regression data analysis method. The study used Panel data, which is a collection of quantities obtained across multiple countries over regular time intervals and arranged

chronologically. Descriptive statistics are used to quantify the main performance variables using Mean, Maximum, Minimum and Standard Deviations.

The study used the Pearson correlation analysis to determine the relationship between the independent variables and the manipulated variables. Correlation analysis only shows the degree of relationship between variables and does not allow the researcher to determine causal relationships between variables (Marczyk et al., 2005). The regression model used in the study is a fixed effect following the Hausman test. However, several diagnostic tests were done.

3.8 Validity and Reliability

For research to yield valuable results, the tools used must be trustworthy and genuine (Mugenda, 2003). The effect of altering one variable in comparison to another is assessed using linear regression (Stock and Watson, 2003). In order to assess the validity and reliability of the study, the heteroscedastic, hausman and multicollinearity tests were also run.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The data gathered for the project are presented in this chapter. The chapter extends beyond simply presenting the information to additionally analyse the results of the research since it aims to respond to the questions raised in the research, as stated in the preface. Descriptive statistics and diagnostic tests, such as the Hausman Test results and

BreuschPagan/Cook-Weisberg test for Heteroscedasticity and correlation, are discussed in the chapter's opening sections.

4.2 Descriptive Statistics

The descriptive statistics of the variables used in the study are provided in this section and presented in Table 4.1. The presentation is done using mean, standard deviation, maximum and minimum values. The variables included Economic Growth, Inflation, Exchange Rate, Interest Rate, Foreign Direct Investment and Terms of Trade.

Table 4.1: Descriptive Statistics

Variable	Obs.	Mean	Std.Dev.	Min	Max
GDP	112	4.01	5.13	-20.49	21.08
Inflation	112	9.69	5.90	-1.41	31.26
Interest Rate	112	10.88	3.26	3.27	21.16
Terms of Trade	112	23.75	10.41	6.47	46.75
Foreign Direct Investment ($'000000)	112	1,300.00	1,980.00	0.19	8,840.00

The World Bank (2023).

As shown in Table 4.1, the highest GDP recorded was 21.08% with the minimum being negative 20.49%, and the mean was 4.01% with a standard deviation of 5.13%. This indicates that on average the countries used in this grew their economy by 4.01%. The standard deviation of 5.13% which is more than the mean also indicates that most of the countries have a low GDP growth.

Also, in the case of the inflation rate for the study period which is 16 years, it was revealed that the maximum rate was 31.26% and the minimum rate of negative 1.41%. A mean of 9.69% and a standard deviation of 5.90 were recorded. This means this country had a slow rate of increase in inflation for 16 years which is a 9.69%.

With respect to the interest rate, the mean and standard deviation of 10.88% and 3.26% were recorded respectively, also a minimum recorded value was 3.27% and a maximum of 21.16%. This means that the rate of increase in the interest rate for the seven countries for the 16-year period was 10%, which is high but with a standard deviation of 3.26% and a mean of 10.88% implying that most of the countries have higher interest rates.

In the case of terms of trade, a mean of 23.75%, and a standard deviation of 10.41 were recorded, with a minimum value of 6.47% and a maximum of 46.75%. This result indicates that these countries import more than they export because the terms of trade are defined as the ratio of the export price index to the import price index

Exchange rate, the was measured using the local currency to the US dollar, it was revealed that the highest rate of trading between the dollar and these countries used in the study was 306.95 and the minimum is 0.92%, the mean recorded was 64.20% and a standard deviation of 71.15%. This indicates on average the US dollar is trading among these seven countries at 64.20%.

The final variable include in this study was foreign direct investment, the study revealed an average of US$ 1,300,000,000.00 and a standard deviation of US$1,980,000,000.00. The minimum foreign direct investment the countries received during the period was US$ 19,000.00 and a maximum of US$ 884,000,000.00. This shows that the countries used in these studies received on average US$ 1,300,000,000.00 foreign direct investment yearly.

4.3 Diagnostic Tests

To set the analysis of the data used, diagnostic tests were done. A diagnostic test is used to evaluate the frequency with which something occurs and its interaction with other

elements. Three diagnostic tests were conducted which include Hausman Test, Heteroscedasticity and Multicollinearity.

4.3.1 Hausman Test

The Hausman test, which specifies whether a fixed or random effects panel model should be used, is one of the tests used to determine an appropriate model. Hausman test is one of the most commonly used test in panel data analysis. In the event that the data are statically important, this model dismisses the null hypothesis (p =0.05). If the results are insignificant (probability >0.05), a random effect model should be used. The result is presented in Table 4.2.

Table 4.2: Hausman Test Results

Variables	Chi2	Probability>chi2
Gross Domestic Product	15.94	0.0007

Source: Author's Estimation.

The Hausman test clearly shows that the fixed effect model is the best option. This is due to the fact that, a p-value of 0.0007 was recorded, which is less than the theoretical level of 0.05. The Hausman test was used to see if the random or fixed effect best fits the research's data set when evaluating the impact of the factors chosen on equity utilization.

The outcomes demonstrated that the fixed effect was the most suitable to be applied, much like the profitability. The outcomes in this regard are shown in Table 4.2.

4.3.2 Test of Heteroscedasticity

There are several methods of detecting Heteroscedasticity in regression models. However, the present study resorted to using Breusch-Pagan Godfrey Heteroscedasticity Test due to its robustness and wide acceptance. The results are presented in Table 4.3. If the probability

of the F-statistics of the test show significance that implies that there is a presence of Heteroscedasticity.

Table 4.3: Test of Heteroscedasticity

Description	chi2(1)	Prob > chi2
Gross Domestic Product	1.42	0.2327

Source: Author's Estimation.

As shown in Table 4.3, a p-value of 0.2327 is recorded. This indicates that the model showed significance, suggesting that Heteroscedasticity was not a problem in the study, since the p-values recorded are above the theoretical level of 0.05.

4.3.3 Correlation Matrix

The correlation Matrix examines the Multicollinearity in the data used in the study. A statistical concept that describes the correlation of multiple independent variables in a model is called Multicollinearity. A correlation matrix is a statistical technique used to evaluate the relationship between two variables in a data set. The correlation matrix is provided in Table 4.4.

As shown in Table 4.4, gross domestic product is found to correlate with exchange rate negatively, and positively with foreign direct investment. Also, Inflation correlates with terms of trade negatively but positively with foreign direct investment. It was found that interest rate correlated with three variables which included Foreign Direct Investment, Terms of Trade and Exchange Rate which were all negative.

Table 4.4: Correlation Matrix

Variable	1	2	3	4	5	6
1=Foreign Direct Investment	1					

2=Terms of Trade	0.04	1				
	0.68					
3=Exchange Rate	0.29	-0.21	1			
	0.00	0.03				
4=Interest Rate	-0.24	-0.17	-0.53	1		
	0.01	0.03	0.00			
5=Inflation	0.25	-0.25	-0.04	0.03	1	
	0.01	0.01	0.66	0.77		
6=Gross Domestic Product	0.20	0.13	-0.17	-0.01	-0.01	1
	0.04	0.17	0.03	0.88	0.60	

Source: Author's Estimation.

A perfect collinear is achieved, if the correlation coefficient between two variables is +/- 1.0. When independent variables are multicollinear, statistical inferences are less reliable. As shown in Table 4.4, none of the correlation values is above 0.90, therefore it indicates that there exists no problem of Multicollinearity in the data.

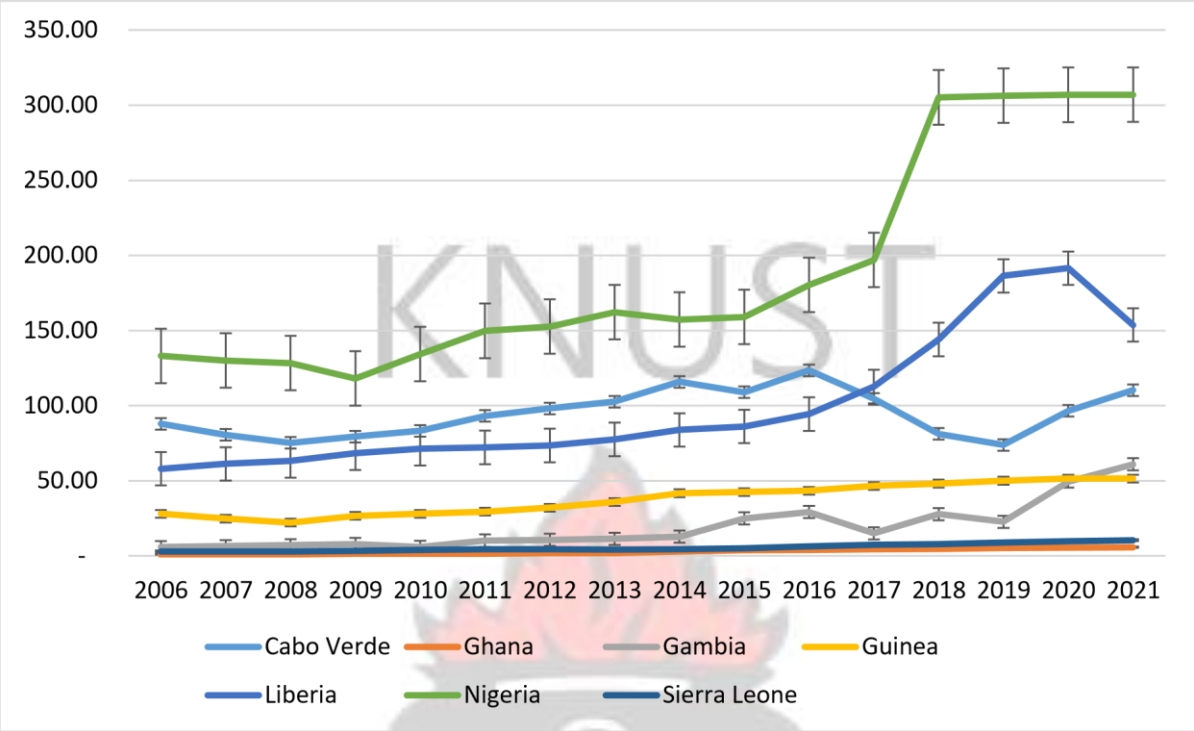
4.4 Trend Analyse

This section presents the trend analyses of three variables which include exchange rate, interest rate and inflation amongst the countries sampled. Graphics were used for the presentation of the results.

4.4.1 Exchange Rate Trend

The trend at which the local currencies are trading with the US dollar, at a period of time. The trend is based on 16 years of data for the seven countries sampled and presented using a graph.

Figure 4.1: Exchange rate Trend



Authors Construct, 2023

As shown in Figure 4.1, Nigeria has the highest exchange rate to the dollar, and Ghana has the lowest rate. Ghana and Sierra Leone had a consistent increase whiles Cabo Verde has a high fluctuating rate. The rate of change in Cabo Verde is opposite to Nigeria. When there is a fall in the rate of Nigeria's currency the Cabo Verde currency also falls and verse vice. Also, the Cabo Verde currency recorded the highest reduction in the rate recorded 73.84 in 2019 whiles the rate was 123.56 in 2016. The most fluctuating currency was the Gambian Dalasi. This result indicates that the currencies of the West African countries keep losing against, the US dollar.

4.4.2 Interest Rate Trend

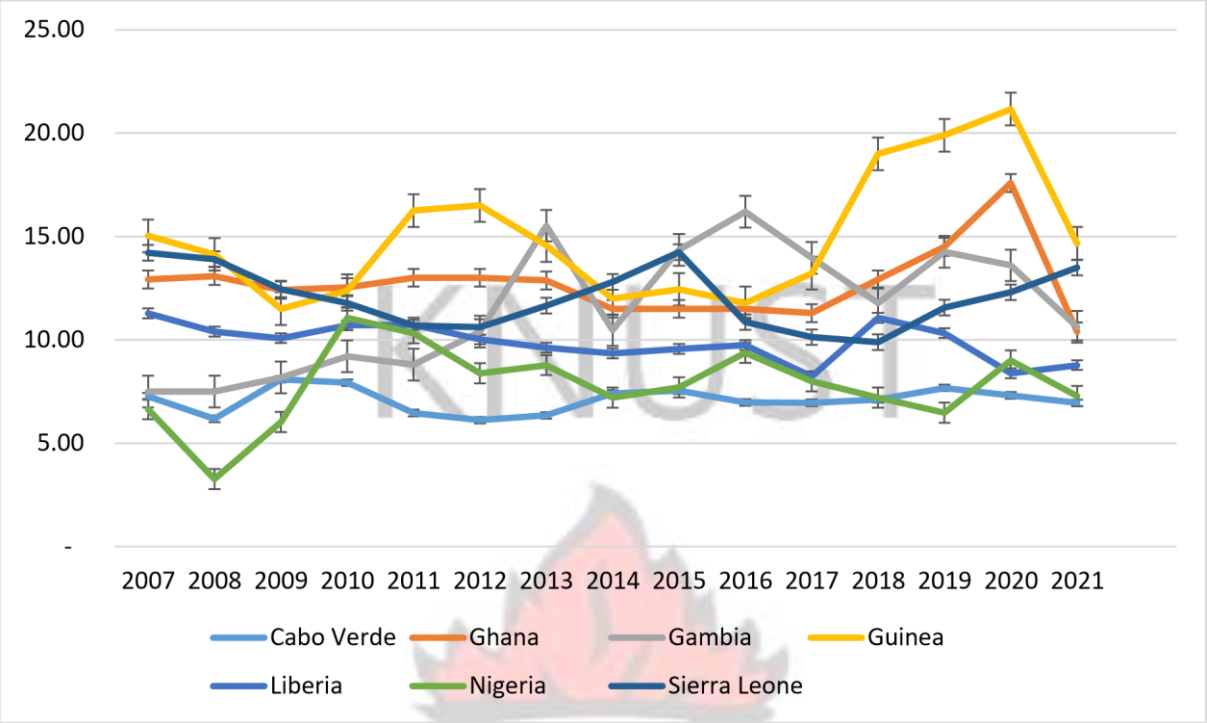
The trend analysis for the interest rate is presented in Figure 4.2, using 16 years data of from seven countries in West Africa. As shown in Figure 4.2, the countries keep changing their interest rate every year. Nigeria has the lower rate which was in 2008, and the highest

rate was recorded by Sierra Leone in 2020. All the countries reduced the interest rate in 2021 during the COVID-19 period. In 2015 and 2016 Cabo Verde and Nigeria has the same rate but in 2017, Nigeria increase the rate of interest while Cabo Verde decreased the rate. The rate of interest for the Gambia was regular until 2014 when the rate was decreased.

4.4.3 Inflation Rate Trend

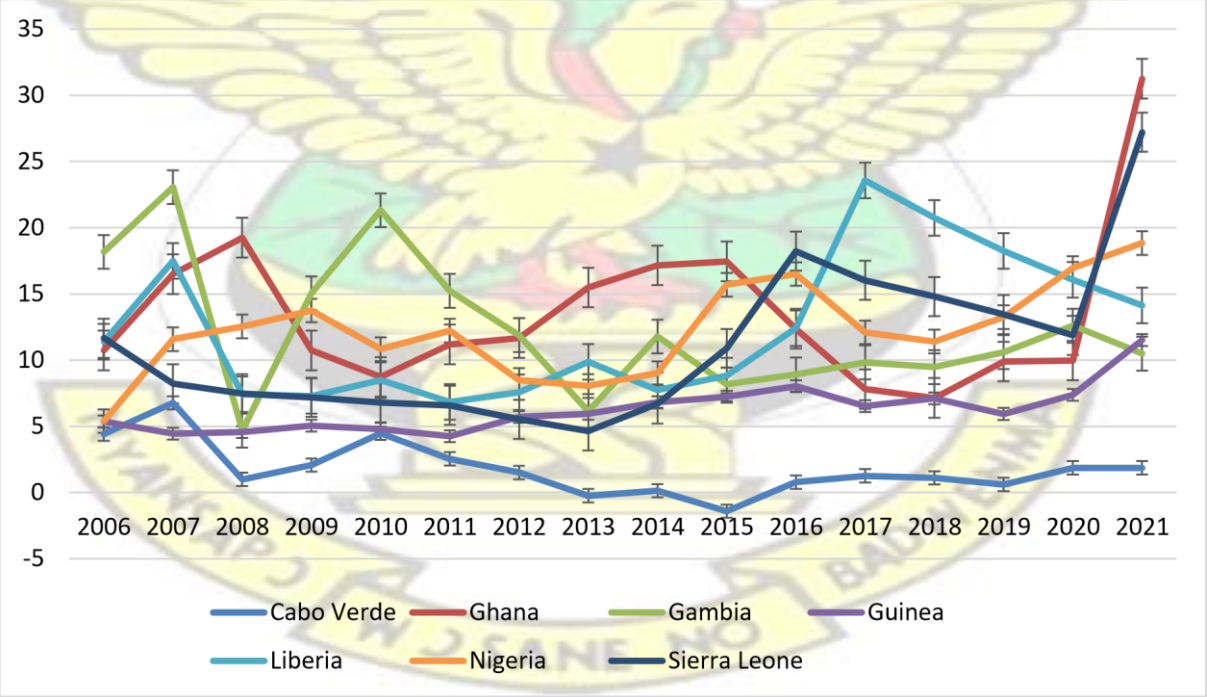
The trend of inflation among these 7 countries for 16 years is presented in this section of the study and illustrated in Figure 4.3. As shown in Figure 4.3, all the counties are found to be struggling with the rate of inflation. In 2018, 5 of the countries had a reduction in the rate of inflation but the other 2 had a sharp increase in the rate. In 2010 Gambia recorded the highest inflation rate but became the third lowest in just 3 years.

Figure 4.2: Interest rate Trend.



Source: Authors Construct, 2023

Figure 4.3: Inflation rate Trend,



Source: Authors Construct, 2023

It was revealed that 5 of the countries had an increase in inflation in 2021 especially Ghana and Sierra Leone. Cabo Verde has the lowest rate and even recorded a negative value of -1.407816371 in 2015. The rate of inflation started reducing in 2008 and rising in 2016.

4.5 Panel Data Regression Estimation

Based on the results model selection that has been done, the model that is suitable for the study is a Fixed Effect Model (FEM). However, a robustness test was done to check the similarities between the Fixed Effect Model, Random Effect Model and Pooled OLS. Table 4.5 shows the results of panel data regression using the Fixed Effect Model (FEM), Random Effect Model (REM), and Pooled OLS.

Table 4.5: Regression Results Using

Variables	**EG (FEM) Coefficient**	**t-Statistics**	**EG (REM) Coefficit**	**t-Statistics**	**EG (POOLED OLS) Coefficient**	**t-Statistics**
Foreign-Direct Investment	0.146*** *(0.09)*	1.62	-0.017*** *(0.09)*	-0.19	0.662*** *(0.455)*	1.46
Terms of Trade	-0.138** *(0.06)*	-2.25	-0.165** *(0.19)*	-0.88	0.031*** *(0.053)*	-0.19
Exchange Rate	-0.139** *(0.06)*	-2.39	0.662 *(0.45)*	1.46	-0.016*** *(0.009)*	-1.71
Inflation	0.908*** *(0.08)*	11.56	0.031*** *(0.05)*	0.59	-0.017*** *(0.09)*	-0.19
Interest Rate	0.197*** *(0.05)*	4.25	-0.016*** *(0.01)*	-1.71	-0.165** *(0.19)*	-0.88
_cons	-0.730*** *(0.16)*	-4.49	0.701 *(4.91)*	0.14	0.701*** *(4.906)*	0.14
Number of obs.	112		112		112	
Number of groups	7		7		7	
R-sq within	0.435		0.1392		N/A	
R-sq between	0.946		0.1303		N/A	
R-sq overall	0.604		0.0213		N/A	
F	(5,100) 15.36		(5,96)3.11		(5, 102)1.17	

Prob > F	0.000	0.0122	0.0078

Standard errors are shown in parentheses (), ***,** and * denote 0.01, 0.05, and 0.1 level of significance respectively. Source: Author's Estimation.

As shown in Table 4.5, a robustness test was done to check the quantitative and qualitative similarities between the Fixed Effect Model, Random Effect Model and the Pooled OLS. And this shows that the fixed effect model and random effect model for foreign direct investment recorded a same standard error of (0.09) with coefficient of 0.146 and -0.017 respectively.

4.5.1 Exchange Rate and the Economic Growth

The coefficient of exchange rate is -0.139, standard error (0.058) with a t-statistics -2.39, which is statistically significant, according to Table 4.5, which estimates the panel data regression with the Fixed Effect Model. Therefore exchange rate has a negative and significant impact on the economic growth of West African countries. This suggests that the exchange rate has a negative significant impact on economic growth. These findings suggest that a rise in the exchange rate resulted in a fall in economic growth.

This study supports that of Yakubu (2022), who found that, exchange rates had a favorable impact on economic growth. Therefore, because exchange rates are influenced by pandemic conditions, experts like Barro (2013) and Olamide et al. (2022) contend that they have little impact and are not substantial on economic growth. The exchange rate has an impact on economic growth because there are several factors that can cause it to decline.

The findings support Auboin and Ruta's (2013) claims that, exchange rate volatility is a source of exchange rate risk and has some effects on international trade volume. As exchange rate volatility rises and foreign commerce falls, risk-averse merchants encounter increased risk. Increased exchange-rate volatility, according to Hooper and Kohlhagen

(1978), raises the costs for risk-averse traders and reduces international trade. This is because, while the exchange rate is decided during the trade transaction, payment is not made until the actual future delivery occurs. (Barguellil et al., 2018).

Additionally, the effect of fluctuating exchange rate is determined by the policies governing exchange rates and the degree of financial openness. Volatility is worse when countries implement flexible policies governing exchange rates and financial openness.

Barguellil and others (2018), the impact of currency rate volatility relies on the countries' financial openness and exchange rate regimes; in other words, volatility is more detrimental when nations embrace flexible exchange rate regimes.

4.5.2 Interest Rate and Economic Growth

In Table 4.5, the impact of interest rates on ECOWAS countries' economic growth is also shown. The results showed that the interest rate had a coefficient of 0.197 standard error (0.046), t-Statistics of 4.25 is statistically significant, indicating that inflation has a positive and significant impact on the economic growth of West African nations. According to this finding, rising interest rates result in economic growth. According to Ferrari et al. (2018), interest rate is the additional cost that the lender assesses to the borrower on top of the principal sum. When it comes to loans, the interest rate is applied to the principal, which is the total amount borrowed; this is what symbolizes the borrower's cost of debt and the lender's rate of return (Amoako-Adu and Eshun, 2018).

The outcomes counter the finding of Aziri (2019), which demonstrates a strong and unfavorable relationship between the interest rate and the Republic of Macedonia's economic growth. Furthermore, following the Great Recession in Brazil in 2014, the results of Silva and Holanda's (2021) study demonstrate a substantially oscillating natural

rate of interest. In some circumstances, according to Garca-Schmidt and Woodford (2019), analysis justifies a perfect foresight as a reasonable approximation. However, when it comes to a commitment to maintaining a decrease nominal interest rate for a long period, our reflective equilibrium does not imply either neo-Fisherian conclusions or implausibly strong predicted effects of forward guidance.

4.5.3 Inflation and Economic Growth

In this section of the study, the connection between inflation and economic growth is discussed. According to Sharma and Bicchal (2015), inflation is the percentage change in the value of the Wholesale Price Index (WPI) from one year to the next. It calculates the annual price variation of a basket of products and services with accuracy. Table 4.5 displays the study's findings, which shows that the inflation rate had a coefficient value of 0.908, standard error (0.079) is statistically significant with a t-statistics of 11.56. It may be concluded that inflation has a good and significant impact on the economic development of West African nations.

In a similar vein, research by Yazdkhasti et al. (2015) demonstrates that inflation is a hindrance to prosperity in the economy. Since inflation contributes to economic instability and distortions, which both result in slower economic development and less productive economic activity, there is a need to control inflation. Barro (2013) adds that, there is some support for the idea that these relationships reflect the causal effects of inflation on GDP and investment because the statistical procedures employ reasonable instruments for inflation.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings obtained from data analysis in chapter four, draws conclusions based on them and makes recommendations. The chapter is, therefore, divided into three sections. The summary of findings is the focus of section one. Section two presents the conclusion of the study. Section three offers recommendations.

5.2 Summary of Findings

The purpose of the study is to examine the effect of Exchange rate, Interest rate and Inflation on Economic growth amongst ECOWAS countries in West Africa. The findings are presented as follows;

The study's first objective was to examine the trends in the ECOWAS countries' inflation, interest rates, and exchange rates. The analysis showed that, with the exception of the Cape Verde Escudo (CVE), which has a relatively constant relationship with the US dollar, local currencies in West African nations are consistently losing value versus the US dollar. The study also discovered that there was a fluctuating trend in both the interest rate and the inflation rate among the sampled nations. This revealed that these nations' interest rate policy decisions are subject to change, as is the volatility of their inflation rates.

The study's second objective examined how exchange rates affect ECOWAS countries' economic growth. According to the study, the rate of change in a country's currency contribute significantly to the growth of that nation's economy. These findings suggest that a rise in the exchange rate resulted in a fall in economic growth. This is so that more money is exported from an economy since an increase in the exchange rate indicates that more money is required to convert foreign currencies.

Examining how interest rates affect ECOWAS countries' economic growth was the third objective of the study. It was found that inflation significantly and favourably affects the economic expansion of West African nations. This finding suggests that rising interest rates result in economic growth. This is as a result of the central banks choosing the appropriate interest rate level.

The study's fourth objective looks at how inflation affects economic growth across ECOWAS nations. It was discovered that the inflation rate significantly and positively affects economic growth. This suggests that the West African region's inflation rate has positively impacted economic growth. This is so that spending is encouraged in expectation of price increases.

5.3 Conclusion

The main objective of the study is to examine the effect of exchange rate, interest rate and inflation on the economic growth amongst ECOWAS countries in West Africa. The research was conducted using seven (7) countries due to data availability, within a period of 16years that is 2006-2021. A panel data regression technique was employed in the study. A linear regression data analysis method was done to analyse collected data both descriptive and correlation. The regression used in the study is a fixed effect Model following the Hausman test and other diagnostic tests. Based on the objectives on the study, the following conclusions were drawn. There were unstable trends in the ECOWAS countries sampled for inflation, interest rates, and currency rates. Additionally, it was discovered that Ecowas economies are affected by inflation, interest rates, and currency rates. While interest rates and inflation had a positive impact on the economic growth as

assessed by the gross domestic production ratio, exchange rates had a negative impact. The study comes to the conclusion that interest rates, inflation, and currency rates are all factors that influence economic growth in West African nations. This demonstrates how investors can utilize inflation, interest rates, and currency rates as a benchmark when deciding where to place their money. Therefore, it can be concluded that the independent variables of interest rates, currency rates, and inflation have significant, positive or negative influence on the dependent variable (economic growth).

5.4 Recommendations

The study's findings have led to the following recommendations.

According to the study, there is instability in the ECOWAS countries interest rates, inflation, and exchange rates. Therefore, it is advised that countries adopt policies to assist in balancing the rate of exchange, interest, and inflation for economic growth.

Additionally, the study discovered that the exchange rate has a substantial impact on economic growth hence, it is advised that central banks makes an effort to control their country's currency exchange rates with the US dollar. Central banks can influence currency value by printing new money, setting interest rates and managing foreign exchange reserves. Currencies in the open market can be manipulated by monetary authorities, by weakening or strengthening the exchange rate when prices on the market rises or falls.

It was discovered that inflation also significantly affects economic growth, hence, it is advised that measures be taken to control inflation in these nations. For instance, inflation can be controlled through monetary policy by primarily adjusting interest rates. However,

governments can also fight inflation by using fiscal policy. Additionally, governments can do this by reducing spending and raising taxes.

The study also showed that interest rates have a big impact on economic growth, therefore it's important for businesses and the government to manage them well. Government can control interest rate risk by implementing hedging or diversification methods that shorten the lifetime of a portfolio or neutralize the impact of rate changes. To assist control the fluctuation in interest rates, the government must set the proper monetary policy rate.

5.5 Recommendations for Further Study

Since this research only used 16 years, from 2006 to 2021, it is hoped that researchers who wish to perform similar research would be able to extend the research time period in order to improve the research outcomes. It is intended that, this research will serve as a resource for upcoming researchers as well.

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