EFFECT OF MACRO-ECONOMIC VARIABLES ON NATIONAL SAVING IN KENYA
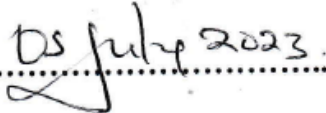
BY

MUSYOKI JOSEPH KIOKO

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI.

JULY 2023

DECLARATION

This study project is a unique piece of work on my part, and to my knowledge it has not been presented for review at any institution or university.
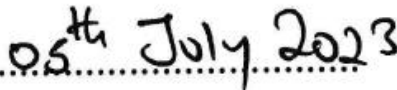
Signed.................... Date....05 July 2023.

Musyoki Joseph Kioko

D61/76775/2012

In my role as the supervisor at the university, I have granted permission and given my blessing for the presentation of this research project for the purpose of assessment.

Signed.................... Date....05th July 2023

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DEDICATION

This thesis is dedicated to my dear Wife Dorcas, daughter Ivanna and son Isaac. Through your prayers, support and encouragement, I attained the resolve to undertake and accomplish this study.

ACKNOWLEDGEMENTS

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ABBREVIATIONS

CBK - Central Bank of Kenya

FDI - Foreign Direct Investment

GCF - Gross Capital Formation

GDP - Gross Domestic Product

ROA - Return on Assets

ROE - Return on Equity

ABSTRACT

Low-savings countries tend to grow economically more slowly than high-savings countries. Accumulating capital enables a nation to raise its production and productivity, which in turn creates more opportunities for exports and other sources of supplementary revenue. The study's goal was to single out the most consequential macroeconomic factors influencing Kenya's economy. The research factors were GDP growth, M2 money supply, NFDR, CPI, and the dependence ratio among the elderly. This study was driven by the theoretical frameworks of the marginal propensity to save, the dependency ratio, and the Harrod-Domar growth theories. Data collection included the use of secondary resources. The current study shows that national savings are not correlated with any of the independent variables except for inflation. In addition, the research found that national savings were significantly related to the age dependence ratio, economic growth, money supply, and net FDI. The amount of national savings is shown to have a positive and substantial relationship with GDP growth, M2 money supply, and net FDI. However, the data further demonstrated that the age dependency ratio has a negative substantial link with national savings. Additional findings indicate that the model, which includes economic growth, money supply, foreign direct investment, consumer price index, and the age dependency ratio, not only strongly explains the level of national savings, but also has the potential to significantly forecast the level of national savings. Only the amount of money in circulation and the age dependence ratio are shown to have meaningful links with national savings, as the final results show. In contrast, the findings of this study showed that FDI, inflation, and economic growth had little effects on national savings. The findings of the research went on to show that each of the aforementioned macroeconomic parameters has a positive link with national savings that is negligible. It is suggested that in an effort to strengthen savings rates, government officials, Treasury policymakers, and legislators focus on and make use of macroeconomic difficulties, with a particular emphasis on money supply. Recommendations are also generated to financial institutions' management to check on macro-economic factors when deciding on the liabilities management strategies. When the economic climate is unfavourable, financial institutions have the option of seeking out other types of liabilities in addition to deposit liabilities, despite the fact that deposit liabilities are their principal source of funding.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The essential principle which guided this study was Keynes' (1936) notion of marginal propensity to save, which was developed as an economic concept. The theory predicts that when income rises, the savings rate will follow suit. A rise in people putting their money into commercial banks is good for their savings and the economy as a whole. A nation's budget deficit and a negative balance of payments may both be the outcome of low savings rates. Rodriguez (1988) proposed the dependency ratio hypothesis, which states that nations with a high population of either children or the elderly would be unable to accumulate substantial wealth. As a result, national production will suffer as the fraction of the population that is of working age declines. Despite the fact that Cassel (1924) had provided a model that was theoretically analogous to the Harrod-Domar development theory, the latter is the ultimate assumption that guides this investigation. It has been predicted that a rise in the national savings rate from its present low level will lead to a rise in the growth of the country's GDP. As a consequence of this, the only means of achieving economic development and expansion is via increasing levels of national savings and investment. As a direct result of this, one may anticipate that there will be a positive correlation between the expansion of real GDP and the rate of saving.

Kenya had a 12.37% gross national saving to gross GDP ratio in 2021. (World Bank, 2022). This proportion is lower than the target of 30 percent of GDP that was set by the Kenya Vision 2030 (Ndirangu & Muturi, 2015) (Ndirangu & Muturi, 2015). Kenya's banking system continues to rely heavily on deposits from the country's residents. Seventy-five percent of all commitments to date have been met via these deposits. A total of 3.616 trillion Kenyan shillings

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were deposited in banks as of June 2020 (CBK, 2020). According to the information shown in the regulatory reports issued by the CBK, there was a discernible rise in the total amount of cash deposits made throughout the period of time beginning in 2001 and continuing through 2011. Since June of 2000, deposits have expanded by approximately 1138 percent, going from KES 292 billion to over 3.616 trillion by the end of 2020 (CBK, 2000; CBK, 2020).

1.1.1 Savings

Putting money aside with the intent of spending it later or creating a resource flow for future use is what is meant by the term saving. Buying equities, depositing more money in a bank, or keeping more cash on hand are all ways to save more (Basu, Inklaar, & Wang, 2011). Cash on hand at commercial banks will stand in for savings for the sake of this analysis. Funds deposited into checking, savings, or money market accounts are also considered bank deposits. Withdrawals of any amount up to the maximum allowed by the account agreement may be made by the account holder at any time (Fixler, 2009).

Diewert (2011), a "deposit" is an amount of money kept in a bank account, typically with the expectation of earning interest. Bank deposits may be broken down into two broad groups: demand deposits and time deposits, as stated by Basu, Inklaar, and Wang (2011). A demand deposit is an amount of money put into an account that may be withdrawn immediately or with less than seven days' notice. This kind of deposit is also known as an on-demand deposit. A loan deposit is referred to as a time deposit, and it is a deposit that is retained by a bank or other financial organization for a certain amount of time. The depositor is allowed to withdraw the money, but only after receiving notice first.

According to Fixler (2010), bank deposits are an essential component of the process through which money moves across an economy. A country's M1 supply is comprised of its physical currency in addition to its demand deposits. Bank deposits that meet certain criteria are included in the M1 supply; they include demand deposits and other liquid assets under CBK management. Included in the M2 measure of the money supply. The M3 money supply includes time deposits with balances of less than KES100,000. The quantity of reserves a financial institution has on hand, in vault cash, or on deposit with the central bank is often determined by the amount of deposits on demand the firm has. Savings accounts and deposit certificates (CDs) used to be required to be held in the central bank's reserves, but this rule has since been repealed (Rescue Center, 2009).

According to Basu, Inklaar, and Wang (2011), a drop in GDP consumption may be used as a proxy for measuring gross savings (Basu, Inklaar & Wang, 2011). Fixler (2009) uses data from 1993–2006 to derive his assumptions about the risk-free asset rate of return of households, which he then compares to the average interest rate paid by banks on deposits, which he calculates to be rD. Fixler's estimations are based on data from 1993 to 2006. Therefore, the expenses of the end-of-period deposit are going to wind up being the same regardless of the time period.;

$$u_D \equiv 1 - (1 + r_D)/(1 + \rho_H) = (\rho_H - r_D)/(1 + \rho_H)$$

Higher average account balances are good for the bank because they allow the institution to invest a larger portion of its capital in revenue-generating assets, and lower service fees are offered to clients to encourage them to keep their balances high. Costs known as "relation fees" are charged to customers based on the breadth and depth of their use of a bank's products and

services. An indication of the total amount of deposits held by Kenyan commercial banks was derived from the total value of deposit liabilities held by all commercial banks in Kenya for the purpose of this study.

1.1.2 Macro-Economic Factors

Various parameters including gross domestic product, money supply, foreign direct investment, inflation, and age dependency ratio, influence the rate of domestic saving (Newman et al., 2008). (Newman et al., 2008). Narayan and Narayan (2006) on time basis of long term, 1% increase in the per capita income growth augmented the saving rate by 0.05% and 0.07%. Imran et al. (2010) established that consumer price inflation impacted on national saving. Simleit, Keeton and Botha (2011) also established that per capita income has a positive significant relationship with savings. However, Kim (2010) established that economic growth negatively impacts on savings. Kim (2010) went further to state that during thriving economic conditions, individuals. Paxson (1997) also documented a negative relationship between per capita income and the saving.

Chaudhry, Faridi, Abbas and Bashir (2010) established that consumer price index has a large positive impact on national saving in the long run. However, Chaudhry, Faridi, Abbas and Bashir (2010) revealed that remittance were favorably connected with saving in the short run. Age dependency ratio has been shown by Rehman et al. (2010) to positively relate to savings rate. Issahaku (2011), however, found that age dependency ratio does not significantly affect saving. Kim (2010) also discovered that the age dependency ratio had little bearing on savings. Metin-Ozcan et al. (2003) proved that the M2 to gross national product ratio and age dependency ratio considerably affect on savings.

1.1.3 Commercial Banks in Kenya

The banking sector in Kenya is subject to the regulation of a number of different laws and standards. First and foremost are the laws that have been enacted by the CBK and which also serve to control the sector. The Banking Act is yet another piece of legislation that controls the industry. The KCB is in charge of establishing and maintaining effective monetary policy frameworks, as well as keeping an eye on the solvency and safety of the country's banks. Furthermore, CBK is responsible for developing and enforcing sound monetary policy. The CBK oversees commercial banks (Githaiga, 2015). Commercial banks accept deposits and provide loans to the general public. There were forty-three commercial banks and one home finance company active as of the end of 2018. Of these banks, 30 were held by local investors.

Banks in Kenya have a monopoly on the financial sector, hence they primarily rely on commercial banks to serve as their financial intermediaries (Kamau, 2009). According to Oloo (2009), Kenya's banking industry is essential to the country's overall economic stability. Both the survival and growth of the agricultural and industrial sectors rely heavily on the banking industry. In Kenya, where consumers are responsible for 75% of the nation's financial obligations, banks mostly rely on consumer financing. In June 2020, there were 3.616 trillion KES in bank deposits overall (CBK, 2020). The volume of deposits has increased, according to KCB surveillance data from 2000 to 2020. Deposits grew from KES 292 billion in June 2000 to more than 3,616 billion by the end of 2020, an increase of roughly 1,138%. (CBK, 2000; CBK, 2020). Kenya's GDP to gross national saving (GNS) ratio stood at 12.37% in 2021. 202 (World Bank). This proportion is less than the 30% of GDP target set by Kenya Vision 2030. (2015) Ndirangu and Muturi

1.2 Research Problem

A nation that has a greater percentage of its population contributing to savings has a better rate of economic growth than one that has a lower percentage of its population contributing to savings. In addition to providing an additional source of revenue for nations (Ribaj, Mece, Cinaj, and Kadrimi, 2020), the accumulation of capital provides a country with more opportunities for increasing its levels of output and productivity. UNCTAD (2004) notes that in this setting, domestic capital growth is the primary driver of savings. Therefore, developing nations should prioritize domestic saving strategies to ensure that their growing capital reserves are invested in the most productive means of production. Encourage investment, boost local output, and boost savings rates are just a few of the many economic policies that Rasmidatta (2011) claims governments must do if their economies are to thrive.

The correlation between growing levels of domestic savings and the expansion of a nation's gross domestic product is much stronger in developing nations. Companies in developed economies don't have to seek out foreign investors to finance massive R&D, technological progress, and infrastructure building projects because there are so many affordable funding options available to them. This association cannot be established in nations that have undergone industrialization (Budha, 2014; Olapido, 2010). However, in 2019, Kenya's gross savings were just 7.97% of GDP, which is a dismal result when compared to the ratio of gross savings to GDP found in developed countries. For example, as of 2019, the United States, Great Britain, China, Japan, France, and Germany each had a gross savings amount that was 13.38%, 24.99%, 27.84%, 23.4%, and 28.5% of their respective GDP, respectively (World Bank, 2019). These figures were derived from the countries' respective personal consumption expenditures. Therefore, despite the fact that Kenya is a developed nation, its ratio of gross savings to GDP is lower than that of the other countries that were selected. Despite the results of Budha (2014)

and Olapido (2010), the relationship between a country's rising internal savings and economic progress is stronger in emerging nations.

Many researchers have tried to determine the factors that can enhance national savings. In the global arena, Narayan and Narayan (2006) sought to establish the determinants of domestic savings in Fiji. The determinants analysed were; prevailing interest rates, current account deficit, and age dependency ratio. In the regional front, Newman et al. (2008) executed a research study on the factors that determine domestic savings in Africa. The returns on savings and family size were the variables investigated. The macroeconomic variables that would be used in the current study, such as gross domestic product, money supply, foreign direct investments, inflationery, and age dependency ratio, were not used in the evaluated studies. This poses a concept knowledge gap. The studies also weren't conducted in a setting representative to Kenya. This fills a gap in one's understanding of the contextual setting.

Locally, Kenya's domestic savings drivers were studied by Arok (2014). Predictors of GBS in Kenya were studied by Kivindu (2015). Macroeconomic factors including the rate of technological progress, inflation, and the dependency ratio of the population over 65 were considered. Gross domestic product, money supply, foreign direct investment, inflation, and the age dependency ratio are examples of macro-economic variables that were not used in the reviewed research but will be included in the present investigation. This poses a conceptual knowledge gap.

Kenya had a 12.37% gross national saving to gross domestic product (GDP) ratio in 2021. (World Bank, 2022). This percentage is lower than the Kenya Vision 2030 target of 30 per cent of GDP (Ndirangu & Muturi, 2015). (Ndirangu & Muturi, 2015). So as to realize the predicted expansion in the economy, there is need to determine the elements determining the amount of gross domestic savings. The goal of the study was to examine the most important national

savings variables that had not before been examined in the Kenyan context and had been found in empirical literature. The current study attempted to achieve this by formulating the research question; what are the macro-economic determinants that affect national savings in Kenya?

1.3 Research Objective

The main goal of this study was to evaluate the macroeconomic variables that influence national savings in Kenya.

1.4 Value of the Study

There are wide-ranging ramifications of this study's findings for academics, legislators, corporations, and the general public. This new research has some promising implications for the future evaluation of the connection between savings rates and economic expansion. The results of this study will serve as a blueprint for future research. Because of this, there will be a corresponding rise in the breadth of research inquiries and publications. The outcomes of the study are beneficial for learning and getting information about the issues that were researched.

When it comes to formulating policies, the report is of great use. The findings of the research will assist officials at the Treasury and the CBK in their efforts to encourage the accumulation of savings in order to stimulate economic development. The research is useful to lawmakers and policy makers because it provides them with information that is helpful to them when they are developing new policies or making changes to policies that are already in place. Because of the insightful information that was supplied by this research, such suggestions and policy drafts will be of a higher quality and more appropriate to the situation. Policy drafts that are good and a regulatory framework that is sound are what assure the quality of policies and laws.

The results of the present research will be used by management of financial institutions to carry out a massive mobilization of deposits. This will provide these organizations the means to invest and improve their financial standing. As a direct result of a booming economy, rising savings rates will inevitably have an effect on how financial institutions function. The results of this research have the potential to encourage individuals to increase their savings rates, which in turn will stimulate economic expansion.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The intention of the section is to offer an understanding on the theories of savings and economic growth to give an understanding of their concepts and the empirical review how bank deposits influence on the growth of economy. The chapter is critical in spelling out the knowledge gaps in the previous studies on how economic growth is influenced by savings.

2.2 Theoretical Foundation

This critical review of the literature looks at how saving influences economic development in various nations, with an emphasis on the author's original research that was conducted by other researchers. This section clarifies key ideas, gives a foundation upon which to grow, and draws attention to the limitations of the study. Theories are a significant resource for the different parts due to the fact that they define the important phenomena and underlying principles. (Lyon, 1977) The theoretical framework is an illustration of how many different ideologies interact with one another, and it gives recommendations for the project or commercial venture. The marginal saving tendency, dependency ratio, and Harrod-Domar growth theories were also investigated in the study.

2.2.1 Marginal Inclination to Save Theory

The marginal disposition to save hypothesis was presented by Keynes in the year 1936. The idea maintains that an increase in total revenues will inevitably bring to a rise in the level of savings. It goes on to explain how more savings would encourage investment and spur growth in the economy. Because of their dependence on bank deposits, this is especially important in developing nations. Low savings rates, according to this theory (Keynes, 1936), cause both government deficits and a negative trade surplus.

However, the theory of economic growth, proposed by Keynes (1936) rebutted the positive influence of savings driving economic growth. The theory postulates the paradigm thrift, which argues that the more the ambition to save in a country, the poorer it gets. The favorable impact of savings on economic development has been reaffirmed by several writers, including Pigou (1936), Hazlitt (1959), Robertson (1940), Case and Fair (1989), Barro (1993), McKinnon (1973), Edwards (1991), and Boyes and Melvin (1990).

The idea is instructive because it suggests that if total savings were to grow, economic growth and investment would follow suit. This tendency is especially noticeable in underdeveloped nations where savings accounts at commercial banks are the main source of financial resources. This research was place in the developing nation of Kenya. Since the majority of developing countries' savings are held in commercial banks, this research examined the effects of this factor on economic growth. Kenya was chosen as the country in which to carry out the study because it is a developing country. It is possible that when Keynes (1936) wrote his theory of economic growth, he was talking to the setting of established economies and not the situation of emerging nations when he said that an economy would get poorer in proportion to the level of its citizens' desire to save money.

2.2.2 Dependency Ratio Theory

The dependency ratio idea was first introduced by Rodriguez (1988). The theory predicts that countries with a larger share of their population comprised of young people and the elderly would be less able to conserve money. This, in turn, will reduce the economically active population and, as a result, reduce overall national production. The neoclassical growth model includes savings as an essential component, and this factor may be used to establish a connection between dependence and economic success. The pace of spending also increases

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along with the number of dependents living in a household, which results in a lower savings balance. According to Fayissa and Gutema (2010), as the level of dependency on the house grows, the amount of time required to care for the employees increases, while the amount of time available for paid labor falls.

According to Rossi (1989), when the dependence ratio decreases, a greater number of resources become available, which in turn accelerates the pace of rise in income experienced by each individual. However, a more economically favourable atmosphere is necessary for this condition to exist. More specifically, there must be no diversion or waste of the whole quantity of resources made accessible outside of this economy. The anticipated growth advantage from a decrease in dependent on other economies, whether purposefully or mistakenly pursued, cannot be achieved by the movement of resources. According to the World Bank (2002) and Bloom, Canning and Sevila (2001), the absence of benefits from dependency reduction as a result of financial crises may be attributed to debt services and unfavorable trade conditions.

The theory is significant to the investigation at hand because it establishes a link between savings and the expansion of the economy. This hypothesis predicts that nations with a larger-than-average number of either children or the elderly will have a harder time saving for the future. Because of this, the economically productive population will decrease in size, leading to poorer national output. The overall demographic dependence ratio in emerging countries fell from 0.93 in 1991 to 0.81 in 2020. On the other hand, industrialized nations' overall dependency ratio has decreased somewhat from 0.50 in 1990 to 0.49 in 2020 (World Bank, 2020). The sluggish rates of economic growth seen in emerging nations may be explained by their high reliance ratios. Perhaps this is due to rising household consumption, which in turn reduces the

savings rate, or perhaps it is due to rising dependency costs, which in turn reduces the time available to working members of the labor force, which in turn reduces the savings rate.

2.2.3 Harrod-Domar Growth Theory

Although Cassel (1924) proposed a proposal that is fairly similar, the Harrod-Domar development theory was established independently by Harrod (1939) and Domar (1946). The theory predicts that a country's GDP would expand in tandem with an increase in its saving rate from low to high. As a consequence of this, the only mechanism that may lead to economic expansion and growth is an increase in the nation's savings and investment. As a consequence of this, we anticipate that there will be a constructive connection between the expansion of the real GDP and the rate of savings.

On the other hand, the nations that were industrialized after World War II served as the basis for the Harrod-Domar model. Harrod (1960) said that he later came to regret his method because he believed that it did not adequately take into consideration long-term growth rates. At best, the Harrod-Domar growth hypothesis oversimplifies intricate economic processes by ignoring important factors like worker productivity, technological innovation, and corruption. Growth rates in countries like Thailand are quite high because of this (Boianovsky & Hoover, 2014). The situation in Thailand is only one illustration of this trend.

The hypothesis may shed light on the study's results since it deals with the correlation between economic growth and savings. If the national savings rate was increased from its low level where it is now, it would be feasible to achieve a quicker rate of growth within GDP. To encourage further economic growth, Kenya may now focus on boosting its national savings. It

is certain that as it raises its national savings, it will also raise its investments, which will, in turn, lead to a rise in the country's economic development.

2.3 Determinants of National Savings

The various national savings determinations were explained within section. These are: economic growth, financial performance, organizational culture, and firm size.

2.3.1 Economic Growth

Indicators of economic growth include rising levels of aggregated income such as the GDP. The rate of increase in GDP is a good indicator of economic health. Growth in the economy may be seen in the rising output of products and services. If economic growth is negative, the economy can be considered to decrease, especially in times of economic depression and recession (Barro, 1997). Economic growth is one of monetary policy's primary objectives and a major macroeconomic target for every nation (Otieno, 2015). Having more money may boost an economy's output and the number of enterprises that operate in it, as discussed by Mosiori (2014). The adoption of laws that support the accumulation of investment capital may stimulate economic expansion in a nation. This can occur as a result of corporations and greater personal savings (Mishkin, 2004).

According to Narayan and Narayan (2006), a 1% rise in per capita income growth increased saving rates by 0.05% and 0.07% over the long and short terms, respectively. According to Imran et al. (2010), consumer price inflation had an effect on national saving. Additionally, Simleit, Keeton, and Botha (2011) demonstrated a significant positive link between disposable per capita income and savings. Kim (2010), however, shown that economic development had a detrimental effect on savings. According to Kim (2010), during periods of economic stability,

individuals save less money, whereas during times of economic hardship, they save more money because they believe that the terrible times will persist and that they must take safeguards for the future. Additionally, Paxson (1997) noted a conflict between per savings and per capita income.

2.3.2 Money Supply

This is a collection of several assets that may be used by people, corporations, and even governments to create enterprises or have short term investments. Its definition is "asset collection." There are a variety of ways to estimate the size of the money supply, some examples of which are the monetary bases, M1, and M2. The monetarized base is comprised of the different amounts of money that are now in circulation in addition to the reserve balance. M1 is thus equal to the sum of all public currencies plus transaction deposits held in depositories. Savings deposit, small-denominations on time deposits, plus the retail moneys market mutual fund share are added to the M1 in creation M2 (IMF, 2020). According to Metin-Ozcan et al. (2003), savings are greatly impacted by the M2 to GDP ratio.

2.3.3 Foreign Direct Investments

According to Wang and Wong (2009), FDI occurs when investors from one country (the source country) put money into companies based in another country (the target country) with the goal of influencing the target country's production, distribution, and other business activities. FDI describes the practice of purchasing a share in a company located in a country with a distinct economic structure. The function of the investor is to have some level of control over the management of the business. Chaudhry, Faridi, Abbas and Bashir (2010) established that remittance were positively related with saving in the short run.

2.3.4 Inflation

The characteristic of inflation is persistent price increases throughout the economy as a whole. The term "inflation" refers to an economic climate in which general price levels grow while the purchasing power of currency decreases (Salwati & Wessel, 2021). Annual percentage change in the consumer price index; often known as the inflation rate.

2.3.5 Age Dependency Ratio

The percentage of children (0-14 years old) and the percentage of seniors (65 and older) are compared to the percentage of individuals of working age (15-64 years old) to get the age dependence ratio. This study determines whether the best linear unbiased estimators are used and if the assumptions are met. You may compare the reliance of the elderly to that of children by adding the two numbers together. In order to get the child dependence ratio, divide the total number of children by the total number of people who are actively participating in the labor force. The percentage of individuals who are 65 or older to those who are of working age in every one hundred is known as the old-age dependence ratio.

Rehman et al.'s (2010) study demonstrates a favorable correlation between the age dependence ratio and the savings rate. More than that, Masson (1998) discovered that nations with bigger proportions of their population in the working age had higher savings rates than those with lower shares. This was shown to be true for nations with smaller shares of their population in the labor force. On the other hand, Issahaku (2011) claims that the age dependence ratio has no bearing on savings. Kim (2010) also found that savings were not significantly impacted by the age dependency ratio. The age dependency ratio significantly affects savings, claim Metin-Ozcan et al. in 2003.

2.4 Empirical Review

Many hours have been spent by researchers attempting to identify the causes of increased national savings. Domestic savings variables in Fiji were studied by Narayan and Narayan (2006), who used the ARDL method to a co-integration rectification model to analyze data from 1968 to 2000. Aggregate saving was the study's response variable, while the study's predictors included economic growth, interest rates, current account deficits, and the elderly-to-youth dependency ratio. This research indicated that a long-term rise of 0.05% and a short-term increase of 0.07% in saving rates were the results of a 1% increase in per capita income growth. This demonstrates the significant effect that increased per capita income has on saving rate. Savings were significantly impacted by the real interest rate and the age dependence ratio. Savings, however, did not significantly connect to the current account deficit. The age dependence ratio, gross domestic product, money supply, foreign direct investment, and money supply were among the macroeconomic variables that were not considered in the study. This lacks intellectual understanding. Furthermore, the study was not carried out in the Kenyan context, leaving a knowledge gap.

In their 2010 study, Chaudhry, Faridi, Abbas, and Bashir looked at both the short- and long-term factors that affect national savings in Pakistan. The factors that were examined included exports, government spending, consumer price index, public loans, and worker remittances. The study found that while the consumer price index, exports, interest rates, worker remittance, and government spending had strong long-term positive relationships with saving rates, public loans had a significant long-term negative association with saving rates. However, only the interest rate and worker remittance showed a sustained, beneficial, and significant relationship with savings. The age dependence ratio, gross domestic product, money supply, foreign direct investment, and money supply were among the macroeconomic variables that were not

considered in the study. This lacks intellectual understanding. Moreover, the study wasn't carried out.

Kim (2010) examined the factors that affected personal saving in the USA from 1950 to 2007. According to the findings of the study, the coefficients for lagging private savings, mortgages, and taxes were all determined to be negative. This would imply that the quantity of personal savings in the present time is lower than it was in the previous period, which was characterized by greater levels of individual savings. However, the findings of the research showed that the age dependence ratio had no impact on personal savings, despite the fact that the employment rate had a positive significance. The study also found that rising incomes hampered people's ability to put money down for the future. The research did not take into account all of the macroeconomic parameters that were supposed to be included in the ongoing examination. These variables include the age dependency ratio, foreign direct investment, money supply, gross domestic product, and money supply. This demonstrates a lack of conceptual comprehension. In addition, there is a hole in the literature since the study wasn't done in a Kenyan context.

The researchers agreed with Solow's theory that a rise in savings rates must come before a growth of the economy, but they disagreed with Keynes' contention that the opposite is true. The age dependence ratio, gross domestic product, money supply, foreign direct investment, and money supply are only a few of the macroeconomic variables that were not considered in the study. This lacks intellectual understanding. In addition, the research was not conducted in Kenya, thus there is still some uncertainty about the true extent of the problem.

The Error-Correction modeling approach was used by Nwachukwu and Egwaikhide (2007) in an effort to examine the variables affecting private savings in Nigeria between 1970 and 2005.

First, inflation rate, then public saving rate, then private saving rate, then terms of trade, degree of financial depth, and finally real per capita GNDI growth rate were expected to have the most impact on Nigeria's private saving rate. There is some evidence to imply a link between saving rate and having some spending money left over each month. Other research has demonstrated that a low real interest rate on bank accounts significantly reduces people's propensity to save. Not to mention the probe. The rate of private saving was also shown to be positively affected by variables such as the state of international commerce, the cost of repaying foreign debt, and the inflation rate. Macroeconomic factors such as the age dependency ratio, GDP, money supply, foreign direct investment, and money supply were ignored. This shows a severe lack of insight. The research also wasn't conducted in Kenya, so there's still some unanswered questions there.

Locally speaking, Arok (2014) looked at the variables influencing Kenya's gross domestic savings. In this investigation, macroeconomic considerations were seen as the most important ones. Economic expansion, real per capita income, deposit interest rate, money supply (M2), public deposits, and the current account balance were all considered. This study used secondary yearly data from 1971 to 2012 for its analysis. Short-term and long-term equilibria of the variables were studied by using co-integration and error-correction models for model estimation. According to the findings of the research, three factors had a significant bearing on Kenya's long-term gross domestic savings: the current account deficit, saves by the state, and real per capita income. Coefficient analysis also shows that rising real per capita income boosts domestic savings, but a widening current account deficit, low public savings, low deposit interest rates, and a surplus of broad money (M2) all have a negative impact. Economic growth (GGDP) is shown to have a one-way causal link with GDP, as shown by the study. The research did not take into account a number of important macroeconomic factors, including the age dependency ratio, gross domestic product, money supply, foreign direct investment, and money supply. A conceptual knowledge gap exists in this.

Kivindu looked at the variables influencing Kenya's gross domestic savings (2015). Inflation, the dependency ratio of the elderly, and technological progress were all factors included in the analysis. Data were gathered on a yearly basis from 1980 to 2014 to create a time series for this study. The inquiry used co-integration and the Vector Error Correlation Model for statistical analysis. The research did not take into account a number of important macroeconomic factors, including the age dependency ratio, gross domestic product, money supply, foreign direct investment, and money supply. This lacks intellectual understanding.

In their 2015 study, Ndirangu and Muturi looked into the variables affecting gross domestic savings between 1970 and 2013. Kenya's GDP, inflation rate, real interest rate, and age-dependency ratio were utilized as independent variables, and the error correlation model was used to ascertain their effects on the country's gross domestic savings. According to the study's results, GDP may account for variances in the GDS at a significance level of 10% or higher. Gross domestic savings were shown to be positively correlated with inflation and the age dependence ratio but negatively correlated with the real interest rate. The age dependence ratio, gross domestic product, and other macroeconomic indicators that were to be utilized in the current study were not all used in the previous study.

2.5 Conceptual Framework

Conceptual frameworks, as described by Plakhotnik and Rocco (2009), put the focus squarely on the research question at hand by situating the investigation within the appropriate body of knowledge. In this analysis, savings was the dependent variable, whereas GDP, FDI, money supply, inflation, and the dependence ratio were the independent variables.

Determinants of Economic Growth

Independent Variables

Dependent Variable

Gross Domestic Product (GDP)
- $(GDP_{t+1} - GDP_t)/ GDP_t$

Money Supply
- Ln M2

Foreign Direct Investments
- $Ln(FDI_i - FDI_o)$

Savings
- Ln of Gross Deposit Liabilities

Inflation
- CPI

Age Dependency Ratio
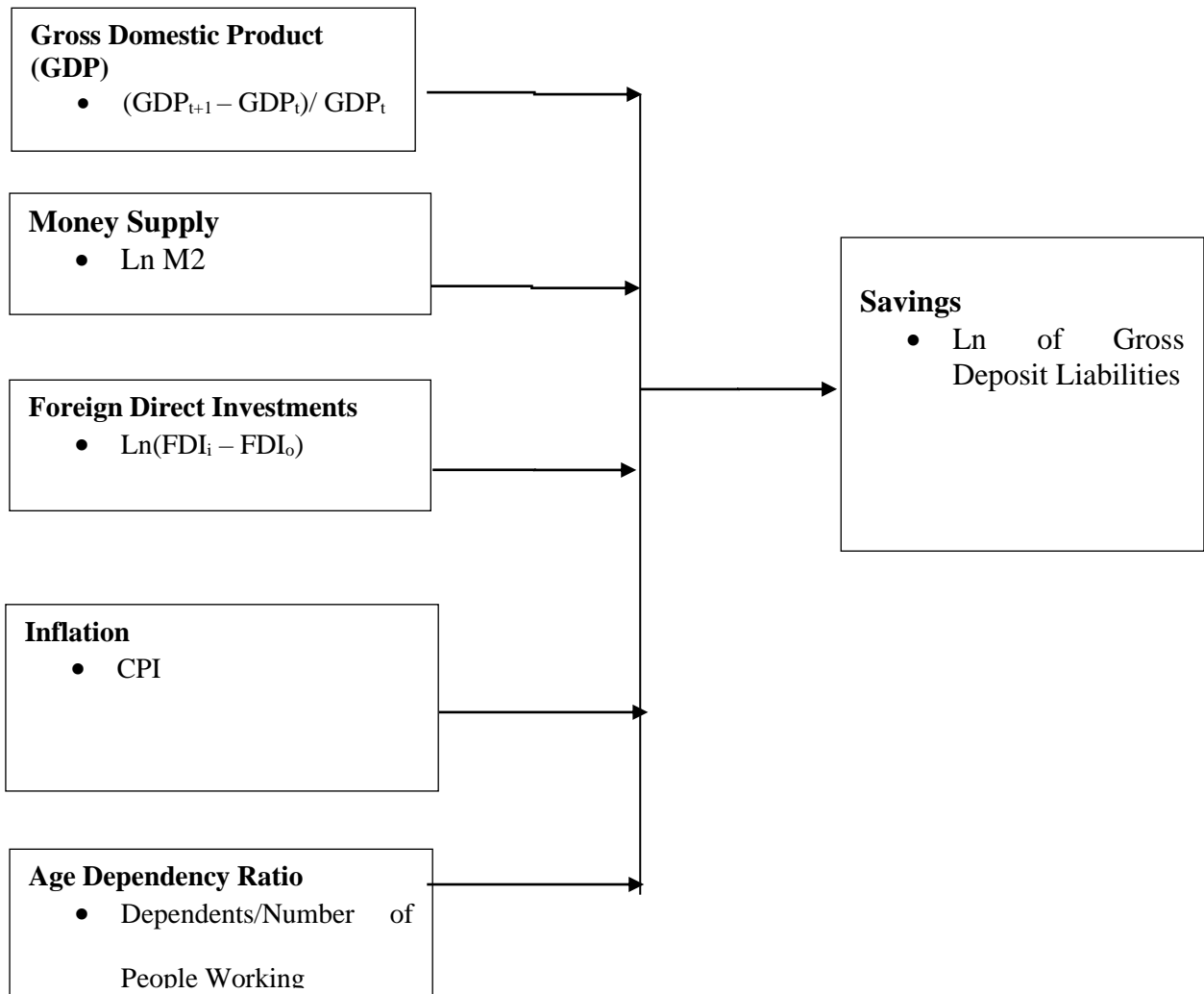- Dependents/Number of People Working

Figure 2.1: Conceptual Model

2.6 Summary of Research Gaps

The macroeconomic variables included in the current analysis, including the gross domestic product, money supply, foreign direct investment, inflation, and age dependence ratio, were not all employed in the publications that were examined. A conceptual knowledge gap is described here.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The sections elaborate on the study's methodology and overall structure. This chapter is divided into many subchapters, some of which are study designs, which elaborate on the design that is suitable for the research; target populations, which explain the interest population; and applicable method of sampling, if any. The specification of the data needed and the method for collecting it are also examined. The chapter also described the method the researcher will use to analyze the data.

3.2 Research Design

The researcher decided to adopt a causal research design because she felt it would provide the most insight into the relationships between the study variables and their potential outcomes. Therefore, the design is employed since it is appropriate for the study's goals because it explores connections between variables. This research followed a standard format since it drew its conclusions from a variety of pertinent ideas and used a wide range of published works as guides. A field environment is present here since the country is the unit of research being conducted here. The research plan, the variables, and the data collecting methods are all taken into account in this layout.

3.3 Data Collection

Because it has an effect on the dependability of the results, the technique that was utilized to gather the data is quite significant. The researcher is going to make use of secondary data in this particular instance. Information was gathered on deposit-related liabilities, GDP, CPI, money supply, the dependence ratio of the elderly, and FDI outflows and inflows. The information that was required for the research was gleaned from the data banks maintained by

the KNBS, and publications made available by the CBK. For this study, secondary sources of data were used. The research used longitudinal data, which were collected on an annual basis over the next three decades, starting in 1992 and continuing until 2021.

3.4 Data Analysis

Therefore, the data was tabulated and simplified so that students could more easily digest it. Add SPSS Version 25 for statistical panel data analysis after data structures. A correlation study using multiple linear regressions was being conducted. Correlation analysis is a statistical method for determining the strength and link between the study's independent and dependent variables. Regression analysing, was employed in assessing the significant of the link among research variable. To show the quantitative finding, table were used.

The study had like of confidence level at 95%. The outcome was statistically significant at the 0.05 level, which showed in order for the values to be significant, they need to be below 0.05. An inferential statistical methods was hence used to address the model's accuracy to predict quality of financial reports.

3.4.1 Diagnostic Tests

So as to guarantee accuracy of linear regression model, several assumptions were made. Other assumptions include that there is no multi-collinearity or even random observation samples, that there is no mean, that there is a linear regression model with a linear parameter, that there is spherical error with zero autocorrelation and homoscedasticity's, and that there is the option to assume that there is a normal error term distribution. According to the Gauss-Markov Theorem (Grewal et al., 2004), the linear non-biased estimators that continue to be the best are those that are based on the first five linear regression model assumption, also known as the OLS Regression estimator. These presumptions are very important when running a regression,

and if even one of them is violated, the estimates generated by the regression will be incorrect and wrong. Gall et al. (2006) once it was determined that homoscedasticity did exist, the modified Breach-Pagan test was performed. Next, we utilized Variance Inflation Factors (VIFs) to check for multicollinearity and assess the degree of interdependence between the predictor variables. According to Grewal et al. (2004), the primary reasons of multicollinearity include a lack of explanatory factors in the independent variables, a small sample size, and the use of inaccurate measurements. We used the Durbin-Watson statistic to look for autocorrelation.

3.4.2 The Model of Analysis

The study goals and the question of whether the independent variables affected the pace of economic growth were attained via the use of multiple linear regression analysis. The statistical analyses were conducted with a 95% level of confidence, hence the margin of error is 5%. The following model was employed;

$$Y_{(t)} = \alpha + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \epsilon$$

Where:

$Y_{i(t-1)}$ = Savings

α = Constant

$\beta_1 - \beta_4$ = Beta coefficients

X_{1t} = Economic Growth

X_{2t} = Money Supply

X_{3t} = Foreign Direct Investments

X_{4t} = Inflation

X_{4t} = Age Dependency Ratio

ϵ = error term

Table 3.1: Operationalization of the Study Variables

Category	Variable	Indicator	Measurement
Independent variable	Economic Growth	GDP Growth	$(GDP_{t+1} - GDP_t)/ GDP_t$
Independent Variable	Money Supply	M2	Ln M2)
Independent variable	FDI	Net FDI inflows	$Ln(FDI_i - FDI_o)$
Independent variable	Inflation	CPI	CPI
Independent variable	Age Dependency Ratio	Age Dependency Ratio	Dependants/Number of People Working
Dependent Variable	Savings	Aggregate Non-Deposit Liabilities	Ln Aggregate non-deposit liabilities

CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND INTERPRETATION

4.1 Introduction

This chapter narrows down to data analysis, presentation, outcomes, and explanation of the findings. The response rate, descriptive statistics, diagnostic tests, statistics, as well as the and explaining results of the research findings, make up the six sub components that make up this chapter. Statistical software (SPSS) Version 25 was utilized for data analysis. Tables were used to examine the results.national savings in Kenya?

4.2 Descriptive Analysis

The research used a descriptive technique since it is more conducive to analysis and the discovery of relationships between variables, as well as the possibility of extrapolating findings from a sample to the whole population. Descriptive statistics like the mean and median were used to get a general idea of the data's core tendencies. As an indication of dispersion, we utilized the minimum and maximum statistic, as well as the standard deviation, variance, and range. Kurtosis and skewness, along with other measures of symmetry, were also used.

According to data in Table 4.1, commercial bank deposits ranged from KES 104.5 billion to KES 2.453 trillion at their highest and lowest values, respectively. It was KES 2.426 trillion in the range. Commercial bank deposits ranged from KES 806.65 billion (the mean) to KES 852.6 billion (the standard deviation). The median, another way to express central tendencies, was KES 208.9 billion. The disparity amounted to 8.2 x 1010 KES. The series is normally distributed, as shown by the skewness statistic's range of (-0.8, +0.8) and the kurtosis statistic's range of (-3, +3). Last but not least, the research shows that the commercial bank's deposit liabilities were struck.

Additional data in Table 4.1 show that economic growth ranged from -0.07% to 8.4%, with 8.4% being the highest value. It varied by 9.2%. The standard deviation number shows a variance in economic growth of 2.24%, and the mean economic growth value was 3.78%. The median, which was the other central tendency indicator, had a value of 4.03%. It varied by 0.1%. The series' data is normally distributed, as shown by skewness and kurtosis values that fall between the ranges of -0.8 to +0.8 and -3 to +3, respectively. The overall economic growth throughout the 37-year study period was negative 5%, according to the final results.

Table 4.1's additional research findings show that the maximum money supply value was KES 4.4 trillion and the lowest value was KES 25.29 billion. A range of KES 4.39 trillion was used. The standard deviation number shows that there is diversity in the money supply of KES 1.29 trillion, whereas the mean money supply value was KES 1.04 trillion. KES 395 billion represented the median, which was the other central tendency measure. The difference was 1.65*1012 trillion KES. The data series is normally distributed if the kurtosis statistic is between -3 and +3, even though the skewness value is outside the range of -0.8 to +0.8. Finally, the research's findings reveal the money supply hit KES 1 trillion for the latest 25% of the 37 years study period.

Table 4.1: Descriptive Statistics

		Savings	GDP Growth	M2	Foreign Direct Investments	CPI	Age Dependency Ratio
N	Valid	37	37	37	37	37	37
	Missing	0	0	0	0	0	0
Mean		806653582785.420200000000000	.037760757256729	1039501857898.361700000000000	203974437009.340940000000000	.112397889082181	.896520874511438
Median		208857000000.000000000000000	.040260457556369	395087055077.100000000000000	7600000000.000000000000000	.092341259239465	.875108060414775
Std. Deviation		852618493711.324700000000000	.022361403966898	1284542939179.511200000000000	598637249784.598000000000000	.088366474450370	.126337297131453
Variance		726958295818568200000000.000	.001	1650050562595937400000000.000	358366556829667200000000.000	.008	.016
Skewness		.947	-.377	1.362	5.176	2.186	.238
Std. Error of Skewness		.388	.388	.388	.388	.388	.388
Kurtosis		-.661	-.456	.611	28.964	5.949	-.919
Std. Error of Kurtosis		.759	.759	.759	.759	.759	.759
Range		2425470000000.000000000000000	.092051931841448	4389592165927.889600000000000	3552411553333.980000000000000	.444245531430717	.432999233191436
Minimum		104529999999.999980000000000	-.007994939599276	25293220000.000000000000000	388446666.020262400000000	.015543281605501	.683007109799317

Maximum		2530000000000.000000000000000	.084056992242172	4414885385927.890000000000000	3552800000000.000000000000000	.459788813036218	1.116006342990753
Percentiles	1	104529999999.999980000000000	-.007994939599276	25293220000.000000000000000	388446666.020262400000000	.015543281605501	.683007109799317
	5	106131999999.999980000000000	-.003566971374414	26737882000.000000000000000	406846771.252801200000000	.019206102117074	.696282919588143
	25	168259877721.083130000000000	.024690865572545	110116550000.000000000000000	871500000.000000000000000	.057402996193097	.805733477815480
	50	208857000000.000000000000000	.040260457556369	395087055077.100000000000000	7600000000.000000000000000	.092341259239465	.875108060414775
	75	1303231000000.000000000000000	.055421280484049	1631748416893.880000000000000	195200000000.000000000000000	.133979418491355	.998490622797460
	95	2522593000000.000000000000000	.070062267159900	3949285513931.483000000000000	1210550000000.003700000000000	.305308386179681	1.112646274215791
	99	.	.	.	.	.	.

30

In addition, Table 4.1's study results show that KES 3.55 trillion was the most and KES 388.44 million was the lowest amount of net FDI. It was in the KES 3.55 trillion area. The standard deviation number shows that there was variability in net FDI of KES 598.6 billion, with the mean net FDI value being KES 204 billion. KES 7.6 billion represented the median, which was the other central tendency measure. The difference was $3.58*1011$ trillion KES. Because the skewness statistic and kurtosis statistic are outside of the range of -0.8 to +0.8 and -3 to +3, respectively, the data in the series is not regularly distributed. The study's findings also reveal that net FDI negatively impacted KES1 trillion for the latest 5% of the 37 years study period.

Table 4.1's further findings show that the CPI ranged from 1.55% to 46%, with 46% being the highest value. A 44.43% range was used. The standard deviation value of the CPI variability is 8.8%, while the mean CPI value was 11.24%. The median, which was the other central tendency indicator, had a 9.23% value. It varied by 0.8%. Because the skewness statistic and kurtosis statistic are outside of the range of -0.8 to +0.8 and -3 to +3, respectively, the data in the series is not regularly distributed. Final results show that across the 37-year study period, the CPI was higher than 10% or 25%.

The age dependency ratio's greatest value was 111.6%, while its lowest value was 68.3%, according to the study results in Table 4.1. It varied by 43.3%. The standard deviation number shows that there is fluctuation in the age dependency ratio of 12.63%, while the mean age dependency ratio was 89.65%. The median, which was the other central tendency measurement, had an accuracy of 87.5%. It varied by 1.6%. Because the skewness and kurtosis statistics are within the range of -0.8 to +0.8 and -3 to +3, respectively, the data in the series is regularly distributed.

4.3 Correlation Analysis

There was a 95% confidence interval and a two-tailed test in this research. The following table (Table 4.2) illustrates this. At the 5% level of significance, the only variable that does not substantially link with national savings is the consumer price index (CPI), as shown in Table 4.2. This research shows a statistically significant relationship between GDP growth, money supply, net FDI, and the dependency ratio based on retirement age. The current research also discovered a link between national savings and the age dependency ratio. Further research demonstrates a favorable association between national savings and GDP growth, money supply, and net FDI at the 5% level of significance. Age dependence ratio is positively associated with national savings at the 5% level of significance, as shown in Table 4.2 of the research.

Table 4.2: Correlation Analysis

		LnSavings	GDPGrowth	LogM2	LnForeign Direct Investments	CPI	Age Dependency Ratio
LnSavings	Pearson Correlation	1	.473**	.875**	.884**	-.221	-.842**
	Sig. (2-tailed)		.003	.000	.000	.189	.000
	N	37	37	37	37	37	37
GDPGrowth	Pearson Correlation	.473**	1	.324	.436**	-.254	-.291
	Sig. (2-tailed)	.003		.050	.007	.130	.080
	N	37	37	37	37	37	37
LogM2	Pearson Correlation	.875**	.324	1	.939**	-.372*	-.994**
	Sig. (2-tailed)	.000	.050		.000	.023	.000
	N	37	37	37	37	37	37
LnForeign Direct Investments	Pearson Correlation	.884**	.436**	.939**	1	-.377*	-.911**
	Sig. (2-tailed)	.000	.007	.000		.022	.000
	N	37	37	37	37	37	37
CPI	Pearson Correlation	-.221	-.254	-.372*	-.377*	1	.366*
	Sig. (2-tailed)	.189	.130	.023	.022		.026
	N	37	37	37	37	37	37
Age Dependency Ratio	Pearson Correlation	-.842**	-.291	-.994**	-.911**	.366*	1
	Sig. (2-tailed)	.000	.080	.000	.000	.026	
	N	37	37	37	37	37	37

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.4 Diagnostic Tests

Prior to using linear regression, the best linear unbiased estimators were tested (BLUE). Multiple-collinearity, homoscedasticity, normalcy, and autocorrelation tests were used in this study. To find out the data used in the study were normal, Kolmogorov-Smirnov test and Shapiro-Wilk test were used. The independent variables included in the study were tested for homoscedasticity using the Breusch-Pagan method, and multi-collinearity was established using the VIF and Tolerance statistic. The study tested for autocorrelation using the Durbin-Watson d statistic.

4.4.1 Normality Test

Table 4.4 displays the results of the tests conducted to ascertain whether or not the research variables exhibit a normal distribution. The null hypothesis, which asserts that the relevant variables really adhere to a normal distribution, is challenged by the alternative hypothesis.

Table 4.3: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Ln Savings	.248	37	.000	.846	37	.000
GDP Growth	.137	37	.075	.957	37	.157
Log M2	.082	37	.200*	.948	37	.086
Ln Foreign Direct Investments	.127	37	.138	.922	37	.013
CPI	.196	37	.001	.784	37	.000
Age Dependency Ratio	.089	37	.200*	.958	37	.171

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

In Table 4.3, significance levels for the Shapiro-Wilk and Kolmogorov-Smirnov tests of the economic growth, money supply, and age dependency variables are higher than 0.05. Hence alternative hypothesis accepted and the null hypothesis rejected. Age dependence and the money supply therefore have normal distributions.

According to Table 4.3, the FDI variable's Shapiro-Wilk test significance value is less than 0.05. However, the FDI variable's Kolmogorov-Smirnov value of significance is higher than the (0.05). The Kolmogorov-Smirnov test is used in addition to the Shapiro-Wilk test because it is more accurate and more reliable when dealing with huge amounts of data. Based on the significance level determined by the Kolmogorov-Smirnov test, the alternative hypothesis is accepted, whereas the null hypothesis is rejected. The FDI variable therefore has a normal distribution.

Table 4.3 shows that neither the Shapiro-Wilk nor the Kolmogorov-Smirnov tests for the savings or CPI variables had significance values higher than 0.05. There is no consistent distribution of the savings and CPI variables. The series of data for the variables were standardized so as to perhaps adjust for the non-normality of the data.

4.4.2 Test for Homoscedasticity

The heteroscedasticity test of Breusch-Pagan was modified and used.

Table 4.4: Test for Homoscedasticity

Chi-Square	df	Sig.
.199	1	.656

a. Dependent variable: Ln Savings
b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.
c. Predicted values from design: Intercept + GDPGrowth + LogM2 + LnForeignDirectInvestments + CPI + AgeDependencyRatio

The data used in the study exhibit homoscedasticity, which null hypothesis; and, heteroscedasticity as the alternate hypothesis. Because value of significance is achieved (P=0.656) is higher than study critical value (=0.05), in reference to the research findings,. As a result, all of the data series for the study's predictor variables are homoscedastic.

4.4.3 Test for Multicollinearity

Table 4.5: Multicollinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	GDP Growth	.731	1.367
	Log M2	.005	182.109
	Ln Foreign Direct Investments	.070	14.264
	CPI	.840	1.190
	Age Dependency Ratio	.008	127.453

a. Dependent Variable: Ln Savings

In order to establish the absence of multicollinearity, tolerance figures should be larger than 0.1 and VIF figures should be between of 1 to 10. The results show that all economic growth and CPI tolerance values are greater than 0.1, whereas the range of the VIF is between 1 to 10. Therefore, the variables do not exhibit multicollinearity. While the VIF value does not fall between 1 and 10, the tolerance values for the money supply, FDI, and age dependence ratio are all less than 0.1. As a result, the variables' multicollinearity is evident. Multicollinearity is treated through standardization. Therefore, to account for multicollinearity, the variables were normalized.

4.4.4 Tests for Autocorrelation

Table 4.6: Autocorrelation Test

Model	Durbin-Watson
1	.725[a]

a. Predictors: (Constant), Age Dependency Ratio, GDP Growth, CPI, Ln Foreign Direct Investments, Log M2

b. Dependent Variable: Ln Savings

Shenoy and Sharma (2015) state that when using the Durbin-Watson test, results outside the typical range of 1.5 to 2.5 should be treated with suspicion. However, Field (2009) found that a Durbin Watson d-statistic of 3 or below indicates the need for more study. Table 4.6 displays

the calculated Durbin Watson d-statistic for this study, which comes in at 0.725. This shows that the research has statistical significance since the value is greater than 3. As a result, the Durbin Watson d-statistic calculated for this study does not adhere to the standards set out by Field (2009). As a result, the variables that were used in this investigation did not have any intrinsic serial autocorrelation. Autocorrelation may be mitigated with the use of lagged transformations. Autocorrelation was mitigated by applying delayed adjustments to the independent variables.

4.5 Regression Analysis

The unique relationship between national saving and economic growth, money supply, foreign direct investment (FDI), consumer price index, and age dependency ratio was discovered by a 5% significance level regression analysis. The values that were found to be statistically significant in this study were compared to the results of the questionnaire and the ANOVA model. The resultant F-Value was also compared to the significance level of the F-Value. The model coefficients with p-values (p-value 0.05) that warrant attention are shown below. In addition, we assessed the accuracy of our t-values by comparing them to the industry norm. These findings are shown in Table 4.7. The researchers had to resort to converting the data into a normal distribution since neither the savings rate nor the CPI used in the study had a normally distributed set of values. Furthermore, as a multi-collinearity correction measure, the variables for the money supply, FDI, and age dependence ratio were normalized. Finally, lagged transformations were used to correct autocorrelation because the predictor variables used in the study showed autocorrelation.

The R2 value derived from the results of the present research is 0.885, which indicates that 88.5% of national due to changes in the model exhibiting; economic growth, money supply,

foreign direct investment, consumer price index, and the age dependency ratio. This suggested that there were additional elements at play. The coefficient of determination, R2, demonstrates that variations in the independent components cause variations in the dependent variable (national savings). The results of the present research show an R2 value of 0.885, which implies that changes in the model accounting for economic growth, money supply, foreign direct investment, consumer price index, and the age dependency ratio are responsible for 88.5% of the nation's savings. This led us to the conclusion that 11.5% of the observed differences in national savings may be attributed to exogenous factors. Changes in national savings of 11.5% can't be explained by the model's assumptions.

The model including economic growth, money supply, FDI, CPI, and the age dependency ratio did not significantly affect national savings, according to the study's null hypothesis. The other possibility is that the model significantly affects national savings. The results showed a (P=0.000) significance level, which is much lower than the required (0.05) level of significance. Since this is the case, we must reject the null hypothesis is correct. Since the observed F Value of 35.480 is more than the F-Critical value of 2.534, the null hypothesis is likely false and the study's result should be accepted. This showed that the age dependency ratio, the money supply, FDI, economic growth, and the money supply all had substantial effects on the amount of money saved by the country. This means that forecasts of national savings may be made using the model.

Table 4.7: Multiple Linear Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925[b]	.855	.831	.40250773

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.741	5	5.748	35.480	.000[b]
	Residual	4.860	30	.162		
	Total	33.601	35			

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.099	.148		-.671	.508
	LAGS(GDPGrowth,1)	.413	3.510	.010	.118	.907
	LAGS(ZLogM2,1)	2.785	.920	2.755	3.028	.005
	LAGS(ZCPI,1)	.090	.073	.093	1.223	.231
	LAGS(ZLnForeignDirectInvestments,1)	.247	.258	.249	.957	.346
	LAGS(ZAgeDependencyRatio,1)	2.122	.763	2.099	2.780	.009

a. Dependent Variable: Zscore: Ln Savings

b. Predictors: (Constant), LAGS(ZAgeDependencyRatio,1), LAGS(GDPGrowth,1), LAGS(ZCPI,1), LAGS(ZLnForeignDirectInvestments,1), LAGS(ZLogM2,1)

Contrarily, the results of the current study showed that economic growth, FDI, and CPI have no discernible impact on national savings because their respective significance values (p=0.907, 0.231, 0.346) are higher than the study's critical value (0.05), and their respective t values (t=0.118, 1.223, 0.957) do not fall within the t critical value of 2.0286. The research also found that no one factor had a statistically significant beneficial effect on national savings. Thus, the model shown below was created;

$$Y_t = 2.785X_1 + 2.122X_2$$

Due to outcome of the current study, the beta coefficient for the money supply is 2.785, meaning that when the money supply rises by 100%, national savings rise by 278.5%. The new study's findings also indicate that the age dependence ratio has a beta co-efficient of 2.122, meaning that when it rises by 100%, national savings rise by 212.2%.

4.6 Interpretation and Discussion of Findings

The objective of the study was to evaluate the macroeconomic variables that influence Kenyan national savings. In particular, the study intended to determine how Kenya's national savings were impacted by economic development, money supply, FDI, CPI, and the age dependency ratio.

The outcome of the current analysis showed that, at the 5% significance level, only inflation did not significantly correlate with national savings. Economic growth, money supply, net FDI, the age dependency ratio, and national savings were all shown to have significant relationships

with one another at the 5% level of significance in the present research. More research reveals, at the 5% level of significance, a positive substantial link among national savings growth of economy , money supply, and net FDI. The age dependency ratio, however, has a substantial negative association with national savings at the 95 % Confidence interval, according to the study's further findings.

Additional study findings include the fact that the model, which incorporates economic growth, money supply, FDI, CPI, and the age dependency ratio, greatly explains national savings and can also accurately predict national savings. According to the final results, the only variables that significantly affect national savings are the money supply and the age dependence ratio. They both have a favorable, significant link with national savings, according to additional study results. However, the present research found that FDI, inflation, and GDP growth all had negligible effects on national savings. The study's findings also revealed that there is little correlation between the aforementioned macroeconomic conditions and national savings.

The theory of the reliance ratio suggests that countries with a larger share of either children or pensioners would be less able to preserve money. The age dependency ratio has a significant negative link with national savings, according to the results of the current study, which supports the dependence ratio theory. The age dependency ratio has a substantial positive link with national savings, according to the current study's findings, which runs counter to the reliance ratio theory.

Kim (2010) shown that economic expansion has a detrimental effect on savings. Kim (2010) went on to say that people save less during prosperous economic times and more during difficult economic times because they anticipate the latter and must take precautions for the future. Additionally, Paxson (1997) noted a conflict between per capita income and saving. The current study's findings, which show a positive significant association between economic

growth and national savings as well as a positive insignificant relationship with national savings, do not support the claims made by Kim (2010) and Paxson (1997).

According to Metin-Ozcan et al. (2003), savings are greatly impacted by the M2 to GDP ratio. Broad money (M2), according to Arok (2013), has a long-term negative effect on domestic savings. Finding a positive correlation between the money supply and national savings, this study agrees with Metin-Ozcan et al. (2003) but disagrees with Arok. (2013).

According to Chaudhry, Faridi, Abbas, and Bashir (2010), remittances were favorably correlated with short-term saving. As stated by Chaudhry, Faridi, Abbas, and Bashir (2010), the present study's findings showing FDI has a substantial positive connection with national savings are in line with their argument. The present research somewhat backs up the assertion stated by Chaudhry, Faridi, Abbas, and Bashir (2010) that FDI has a minimal positive connection with national savings.

According to Chaudhry, Faridi, Abbas, and Bashir (2010), the consumer price index had a considerable long-term positive impact on national saving. According to Imran et al. (2010), consumer price inflation had an effect on national saving. The current study's conclusion that the CPI has both a negligible positive association and a connection to national savings partially supports the claims made by Chaudhry, Faridi, Abbas, and Bashir (2010) while refuting those made by Imran et al. (2010).

Metin-Ozcan et al. (2003) state that the age dependence ratio significantly affects financial resources. The present study's findings corroborate those of Metin-Ozcan et al. (2003), who found a negative significant connection between the age dependence ratio and national savings.

Age dependency ratio has been shown by Rehman et al. (2010) to positively relate to savings rate. The present study's findings dispute the claim made by Rehman et al. (2010) that the age

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dependence ratio is significantly correlated negatively with national savings. Rehman et al., 2010.The results of the present research corroborate the assertion that there is a strong positive relationship between the age dependence ratio and a country's savings.

According to Masson et al. (1998), nations with a high proportion of the people that are workings age within the highest rate of saving as compared to nations lowest working age rates of population . The outcome of the current analyzing support Masson et al(1998) .'s assertions the age dependencies ratio which has substantial negative link with the national saving. The findings of the current outcome, neverthless, contradict Masson et al(1998) .'s show age dependency ratio reveal a positive significant associations in national savings.

According to Issahaku (2011), the age dependency fraction has little to no effect on saving. Kim (2010) also discovered that the dependency fraction had little bearing on savings. The present study's results reveal that the age dependence ratio has a negative substantial association but a positive inconsequential relationship with national savings, in contradiction to the statements stated by Issahaku (2011) and Kim (2010).

In 2010, Abbas and Bashir set out to identify the long-term drivers of national savings in Pakistan. The analysis found that the consumer price index, interest rate, exports, worker remittances, loans, and consumer and government expenditure were the elements that had the greatest long-term impact on national savings rates. The current study's findings indicate the macroeconomic factors in the model greatly explain national savings and that the model can also significantly forecast national savings are in line with those of Abbas and Bashir's (2010) study. Findings from the 2010 study by Abbas and Bashir further revealed that workers remittance were positively significantly related with saving rates in the short run. Abbas and Bashir's (2010) result that FDI has a substantial positive connection with national savings is supported by the present research. Furthermore, the present analysis largely verifies the

conclusion of Abbas and Bashir's (2010) study, which found that FDI has a negligible positive association with national savings.

In their 2010 study, Chaudhry, Faridi, Abbas, and Bashir looked at both the short- and long-term factors that affect national savings in Pakistan. According to the study, government spending, worker remittances, and the consumer price index all have a considerable beneficial impact on national saving over the long term. The current study's result that the CPI has a negligible positive association with national savings as well as a relationship with it somewhat supports the finding of Chaudhry, Faridi, Abbas, and Bashir's (2010) study. Additionally, the current study's showing that FDI significantly positively correlates with national savings concurs with the finding of a study by Chaudhry, Faridi, Abbas, and Bashir (2010). Additionally, the results of the current analysis, which indicate that FDI has a negligible positive association with national savings, somewhat corroborate those of Chaudhry, Faridi, Abbas, and

The study by Chaudhry, Faridi, Abbas, and Bashir (2010) also showed that worker remittance had a long-term, positive, substantial link with savings. The results of the current analysis, which show a substantial positive link between FDI and national savings, are consistent with those of the study conducted in 2010 by Chaudhry, Faridi, Abbas, and Bashir. Additionally, Chaudhry, Faridi, Abbas, and Bashir's (2010) study demonstrating that FDI has a negligible positive association with national savings is somewhat supported by the current study's findings.

In 2007, Nwachukwu and Egwaikhide made an effort to look at the factors that influence private savings in Nigeria. Private saving rate was shown to be favorably influenced by inflation in the study's findings. The results of the present analysis, which suggest that CPI has

a little positive correlation with national savings, corroborate the results of a study by Nwachukwu and Egwaikhide (2007) to some extent.

In 2014, Arok examined the factors that affect Kenya's gross domestic savings. Gross domestic saving in Kenya was shown to be positively influenced by, and a major determinant of, real per capita income. This study's findings that GDP expansion is linked to increased national savings are in line with those of Arok's (2014) research. Additionally, the current study's showing that economic growth and national savings are positively but negligibly correlated somewhat supports Arok's (2014) study result.

Further research by Arok (2014) showed that wide money (M2) has a long-term negative impact on domestic savings. The current study's findings, which show that the money supply and national savings are significantly positively correlated, are different from those of Arok's (2013) study.

(2015) Ndirangu and Muturi investigated the factors that affect gross domestic savings. The study's findings demonstrated that fluctuations in Gross Domestic Savings were strongly explained by changes in GDP. The results of the current analysis, which show a positive significant association between economic growth and national savings, concur with those of Ndirangu and Muturi's (2015) study. The results of the current analysis do not agree with those of Ndirangu and Muturi's (2015) study, which found a positive but insignificant association between economic growth and national savings.

The outcome of the study by Ndirangu and Muturi (2015) also showed that the rates of inflation and as well as age dependency ratio were discovered to have a favorable impact on the domestic saving. The current study's result that the CPI has a negligible positive association with national savings and a link with it somewhat supports the findings of Ndirangu and Muturi's (2015)

study. Additionally, the current study's finding that age dependency ratio showed negative significant correlation does not agree with Ndirangu and Muturi's (2015) study findings, whereas the current study's finding that the age dependency ratio reveal significant link with national savings.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This part derives inferences based on the information offered in the preceding chapter. It is also acknowledged that this study has not been without its share of challenges. In addition, this section offers guidance for influential decision-makers and other interested parties. Finally, the study suggests avenues of inquiry that other scholars may wish to explore in the future.

5.2 Summary

This study set out to analyze the macroeconomic factors that affect Kenyan national savings. The study primarily attempted to discover how economic growth, money supply, FDI, CPI, and the age dependency ratio affected Kenya's national savings. As part of the current investigation's time series study, data were collected for one analytical unit over a number of time periods.

The research study uses descriptive statistics to examine Kenya's macroeconomic indicators, current situation, and level of national savings. The study applied both linear regression analysis and correlation analysis to identify the effects of the macroeconomic factors. Only inflation, according to the results of the present.

Study findings and national savings were not significantly connected. The current study's findings also demonstrated a high association between national savings, age dependence ratio, money supply, and net FDI. Additional research demonstrates the strong and beneficial relationships between national savings and the money supply, net FDI, and economic growth. The age dependency ratio, however, reveals a considerable negative link with national savings, according to the study's further findings.

The model, which takes into account economic growth, money supply, FDI, CPI, and the age dependency ratio, also explains and predicts national savings pretty well, according to other study findings. The final findings demonstrate that the money supply and the age dependence ratio are the only factors that significantly influence national savings. According to additional study findings, they both have a good, significant association with national savings. The current study's findings, however, suggested that national savings are not greatly impacted by economic growth, FDI, or inflation. The study's findings also demonstrated that there is generally no correlation between national savings and the aforementioned macroeconomic factors

5.3 Conclusion

The conclusions of the study were drawn in accordance with its goals and outcomes. The study found that macroeconomic parameters can be used to forecast national savings and have an impact on them. This result is based on the study's discovery that the model, which combines economic growth, money supply, FDI, CPI, and the age dependency ratio, greatly explains national savings and may also be used to predict national savings.

Similar to previous research, the current study finds that national savings and economic growth are somewhat correlated but not causal. The results of the research also demonstrate a significant link between national savings and the money supply. The new analysis also finds that national savings are substantially associated but unrelated to net foreign direct investment. Additionally, the current study comes to the conclusion that there is no relevant connection between inflation and national savings. The age dependency ratio exhibits a sizable negative correlation with national savings but a sizable positive correlation with savings overall.

5.4 Recommendations for Policy and Practice

The findings of the research will be useful in a great number of future investigations that will be carried out on the subject of national savings.

Legislators, policy makers at the Treasury, and government agencies all get recommendations from the committee. Key government institutions and authorities will utilize the study's findings as they formulate policies and procedures to stimulate the economy. Policymakers and other decision-makers will be able to utilize the study's results to inform the creation of laws and regulations that will benefit the economy as a whole. These laws and regulations will help strengthen the economy.

Since it has been established that the macroeconomic variables explain to a great extent national savings, that they significantly influence national savings, and that they can be utilized to predict national savings, the policy recommendations are that policy makers should focus and utilize the macroeconomic factors when attempting to shore up the savings level, with a particular focus on money supply. This is because money supply has been shown to be the most important factor in explaining national savings.

The findings of this research led the researchers to provide some suggestions for the management of financial institutions on the need of taking into account various macroeconomic factors when deciding which approaches to use for liabilities management. Financial institutions can hunt for additional non-deposit liabilities when the economy is not doing well, despite the fact that deposit liabilities are their main source of funding.

5.5 Limitations of the Study

It is easier to lay the foundation for understanding the topic problem under examination by using theories and earlier empirical facts. However, not enough research has been done in the past on the variables that affect Gross Domestic Savings. Moreover, if a similar research were to be conducted accounting for other forms of savings, such as market capitalization on the Kenyan capital market, it is uncertain if the present finding would still be accurate. This is

because time and money constraints meant that the study could only be conducted within the setting of bank deposits. However, it's feasible that the present conclusion is correct.

Primary sources were used sparingly in favour of secondary ones in this inquiry. The current study's data were gathered, organized, and imported into SSPSS version 25 from a Microsoft Excel spreadsheet for the sake of synchronization. This method was used to get the synchronized information. Since the information was not used in its original form, extra processing and changes were required. The time needed to gather and synchronize the data over time was a direct result of this. The researcher had to analyse the data and do more editing before compiling it, which resulted in approaching delays that were felt. Furthermore, it was difficult and expensive to gather information on the age dependence ratio and the level of national savings. This meant that gathering the data took a lot of effort and money.

However, despite these limitations, the quality of the present research was not compromised. Overcoming these barriers over the course of the study or highlighting instances when the inquiry was concluded while using many aspects.

5.6 Recommendations for Further Study

This study focused on bank deposits, but it might be expanded to include other forms of savings, such as the size of the capital market in Kenya, to verify the reliability of the results. Other variables may also intervene, modify, or mediate the link between the macroeconomic conditions and national savings. This might be because other factors have the potential to mediate the relationship. It is feasible to identify and investigate them if further research is conducted on the subject. The research was only carried out in the environment of Kenya; more research may be carried out outside of the context of Kenya, in the region of Africa, or in worldwide domains to determine whether or not the research results will remain true.

In-depth surveys, focus groups, and planned interviews with bank employees may have supplemented the secondary data on which this research was conducted. It's possible that these

main data sources might provide conclusions that are at odds with those of the present investigation. Descriptive statistics, multiple linear regression analysis, and correlation analysis all played roles in this study's data analysis. Possible future study methodologies include factor analysis, cohort analysis, cluster analysis, neural network analysis, granger causality analysis, content analysis, and discriminant analysis.

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APPENDICES

Appendix 1: List of Commercial Banks in Kenya as at 30th December 2020

1. Absa Bank Limited
2. African Banking Corp. Ltd
3. Bank of Africa Kenya Ltd
4. Bank of India
5. Bank of Baroda (K) Ltd
6. Stanbic Bank Ltd
7. Chase Bank (K) Ltd (In Receivership)
8. Citibank N.A.
9. Consolidated Bank of Kenya Ltd
10. Co-operative Bank of Kenya Ltd
11. Credit Bank Ltd
12. Development Bank (K) Ltd
13. Diamond Trust Bank (K) Ltd
14. Dubai Bank Ltd (In Receivership)
15. Dubai Islamic Bank (Kenya) Ltd
16. Ecobank Limited
17. Spire Bank
18. Equity Bank Ltd
19. Family Bank Ltd
20. Guaranty Trust Bank
21. First Community Bank Ltd
22. Guardian Bank Ltd
22. Gulf African Bank Ltd

24. Habib Bank A.G. Zurich

25. HFC Ltd

26. Imperial Bank Ltd (In Receivership)

27. I & M Bank Ltd

28. Jamii Bora Bank Ltd

29. KCB Bank Kenya Ltd

30. Mayfair Bank Ltd

31. Middle East Bank (K) Ltd

32. M Oriental Bank Ltd

33. National Bank of Kenya Ltd

34. NCBA Bank Kenya

35. Paramount Universal Bank Ltd

36. Prime Bank Ltd

37. Sidian Bank

38. Standard Chartered Bank (K) Ltd

39. SBM Bank (Kenya) Ltd

40. Transnational Bank Ltd

41. UBA Kenya Bank Ltd

42. Victoria Commercial Bank Ltd

Source: Kenya Bankers Association Website (2020)

Appendix II: Data Collection Form

Year	Variable	Savings		Economic Growth		Money Supply		FDI				Inflation	Age Dependency Ratio
	Proxy	Aggregate Non-Deposit Liabilities	Ln Aggregate Non-Deposit Liablities	GDP Growth	GDP	M2	Ln M2	FDI Inflows	FDI Outflows	Net FDI	Ln Net FDI	CPI	Dependants/Number of those Working
2021													
2020													
2019													
2018													
2017													
2016													
2015													
2014													
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Appendix III: Research Data

Year	Savings	Ln Savings	GDP Growth	M2	Log M2	Foreign Direct Investments	Ln Foreign Direct Investments	CPI	Age Dependency Ratio
2021	2.53E+12	28.55924	-0.00307	4.4149E+12	29.116	3.259E+11	26.50986	0.06110909	0.683007
2020	2.10202E+12	28.37392	0.053657	3.8976E+12	28.99137	1.738E+11	25.88117	0.05404815	0.697758
2019	2.52177E+12	28.55598	0.063185	3.6763E+12	28.93294	1.452E+11	25.70138	0.0523586	0.712833
2018	1.96192E+12	28.30494	0.048057	3.3384E+12	28.83651	1.295E+11	25.58695	0.0468982	0.727753
2017	2.05352E+12	28.35058	0.058789	3.0625E+12	28.75025	9.503E+11	27.58004	0.08005723	0.742346
2016	2.3121E+12	28.46918	0.057185	2.9478E+12	28.71209	3.145E+11	26.47425	0.06297158	0.756799
2015	1.9207E+12	28.28371	0.053571	2.5397E+12	28.56307	3.883E+11	26.68504	0.06582174	0.7713
2014	1.272E+12	27.87161	0.058787	2.0073E+12	28.32783	2.891E+11	26.39004	0.06878155	0.785272
2013	1.12E+12	27.74435	0.045632	1.7413E+12	28.18565	4.196E+11	26.76257	0.05717494	0.799162
2012	1.24E+12	27.84613	0.061083	1.5222E+12	28.05118	3.5528E+12	28.89876	0.09377767	0.812305
2011	2.44163E+12	28.52369	0.084057	1.2775E+12	27.87595	2.166E+11	26.10132	0.14022494	0.823155
2010	1.08541E+12	27.71298	0.033069	1.0441E+12	27.67414	4.193E+11	26.76185	0.03961389	0.83062
2009	1.33446E+12	27.91955	0.002323	8.9652E+11	27.52179	2200000000	23.81431	0.09234126	0.838123
2008	1.1378E+12	27.76012	0.068507	7.7588E+11	27.37726	7790000000	25.07869	0.26239817	0.842592
2007	6.38399E+11	27.18223	0.064725	6.443E+11	27.19142	4120000000	24.4417	0.0975888	0.845313
2006	3.89097E+11	26.68709	0.059067	5.5081E+11	27.03466	1080000000	23.10281	0.14453734	0.849058
2005	4.18276E+11	26.75941	0.051043	5.0116E+11	26.94018	940000000	22.96398	0.10312778	0.855558
2004	1.43129E+11	25.68701	0.029325	4.4166E+11	26.8138	920000000	22.94247	0.11624036	0.863807
2003	1.0453E+11	25.37274	0.005469	3.9509E+11	26.70237	750000000	22.73817	0.09815691	0.875108
2002	1.25539E+11	25.55588	0.037799	3.5953E+11	26.60807	720000000	22.69735	0.01961308	0.888084
2001	1.84684E+11	25.94191	0.005997	3.4034E+11	26.5532	760000000	22.75141	0.05738598	0.899159
2000	2.08857E+11	26.06492	0.023054	3.2442E+11	26.50529	590000000	22.49822	0.09980025	0.905554
1999	1.81302E+11	25.92343	0.032902	3.0465E+11	26.44243	530000000	22.39097	0.05742001	0.919711
1998	1.79902E+11	25.91568	0.004749	2.9597E+11	26.41354	460000000	22.24932	0.06722437	0.931445

1997	2.01751E+11	26.0303	0.041468	2.4625E+11	26.2296	320000000	21.88642	0.11361845	0.941584
1996	3.0467E+11	26.4425	0.044062	1.9649E+11	26.00386	310000000	21.85467	0.08864087	0.952886
1995	1.0631E+11	25.38963	0.026328	1.5231E+11	25.74921	170000000	21.25389	0.01554328	0.967521
1994	1.8881E+11	25.96401	0.003532	1.2365E+11	25.54075	98700000	20.71018	0.28814389	0.987719
1993	1.87484E+11	25.95696	-0.00799	9.6579E+10	25.29363	756000000	20.44355	0.45978881	1.009262
1992	1.97164E+11	26.0073	0.014383	6.9471E+10	24.96417	62300000	20.25006	0.27332364	1.030875
1991	1.90512E+11	25.97298	0.041921	5.8099E+10	24.78542	52843280	20.08543	0.20084496	1.050286
1990	1.75271E+11	25.8896	0.041082	4.8393E+10	24.60262	502011160	20.03413	0.17781814	1.065788
1989	1.61249E+11	25.80622	0.04026	4.2856E+10	24.4811	476910602	19.98284	0.13789317	1.081582
1988	1.48349E+11	25.72283	0.039455	3.9667E+10	24.40378	453650771.9	19.93155	0.12264963	1.094675
1987	1.36481E+11	25.63945	0.038666	3.5694E+10	24.29825	430411818.3	19.88025	0.08637673	1.104993
1986	1.25563E+11	25.55607	0.037893	2.6898E+10	24.01533	408891227.4	19.82896	0.02534276	1.112273
1985	1.15518E+11	25.47269	0.037135	2.5293E+10	23.9538	38446666	19.77767	0.13006566	1.116006