

**EFFECTS OF UNCERTAINTY ON DOMESTIC PRIVATE
INVESTMENTS IN KENYA**

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DECLARATION

This research project is my original work and has not been submitted to any institution for the award of a degree.

Signature

Date.....

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This research project has been submitted with my approval as the University supervisor.

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Date.....

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DEDICATION

I dedicate this to the Almighty God, my mother Florence Mmeri, and my late dad Pascal Mmeri.

ACKNOWLEDGEMENT

I want to appreciate Dr. Benedicto Ongeru my supervisor for the time and dedication to ensure that I finish my project in time. I am also grateful to Professor Anthony Wambugu for his unwavering support that made it possible for me to reach this far. I also acknowledge my friends for their support over the years. I also thank Martin Wafula, Josephat Kagiri Machagua and Jackton Okaro Ndege for their support.

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ACRONYMS AND ABBREVIATIONS

ARDL- Autoregressive Distributed Lag

GDP- Gross Domestic Product

PDI- Private Domestic Investment

INFL- Inflation

PRI- Political Rights Index

WUIKEN- World Economic Uncertainty Index

ABSTRACT

The domestic private investment serves as a prerequisite for the development and modernization of any economy. In Kenya, macroeconomic and political uncertainties play a significant role in influencing private domestic investments. That is informed by the fact that these investments allow investors to fund particular ventures, which creates jobs and increase government revenues through taxation, hence boosting the growth of the economy and improving the living standards of the people. However, private domestic investments are severely affected by both macroeconomic and political uncertainties in regards to how the government formulates political, economic, and regulatory policies that affect the business climate. Investors are risk-averse; hence they base investment decisions on prevailing and future conditions of the business environment. The research objective was to analyze effects of uncertainty on Kenya's domestic private investments. Domestic private investments served as dependent variables, while the independent variables were political rights index (political uncertainty proxy), world economic uncertainty index, real GDP, the real rate of interest, inflation, and real effective exchange rate served as proxies for economic uncertainty. To achieve that, the Autoregressive-Distributed Lag (ARDL) bounds technique was employed to establish a link between dependent and independent variables in the research. The model captures both short and long-run dynamics of this relationship amongst the variables. The research employed annual time series data from UNCTAD, World Bank, and the Central Bank of Kenya in a period spanning 1980 to the year 2019. The study results suggest that real GDP(RGDP) and real effective exchange rates (REER) have a significant and positive effect on private domestic investment (PDI). In contrast, inflation (INFL), Real interest rates(RINR), Political uncertainty(PRI), and WUIKEN (economic policy uncertainty and volatility in the stock markets) have a negative and significant effect on private domestic investments. Based on these results, the most significant factors affecting private domestic investments were found to be political uncertainty (PRI), real gross domestic investment (RGDP), and WUIKEN (economic policy uncertainty and volatility in the stock markets). Effectively, the study recommends that the government should enact policies that increase the ease of doing business and reduce economic and political uncertainty, such as a

reduction in the tax rate, stabilization of exchange rate and political environment in order to reduce investor uncertainty and skepticism and also enhance their confidence.

Keywords: Economic Uncertainty, Political Uncertainty, Private Domestic Investment

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Investment is described as the change in stock of capital at a given time. Poliakova (2020) defines it as a capital injection into the economy by both foreign and local investors that incorporate the creation or acquisition of business entities, restructuring, and the improvement of the enterprise. Economists narrow in on the rate of investment when determining the extent of economic progress in a nation. That is informed by the fact that it is an essential determinant of economic development. According to Solow (1957), developed countries have become wealthy as a result of their substantial per capita capital stocks. The level of investments also plays a decisive role in developing the economy in the long-run. Economies do rely on foreign and local investments in order to reduce their economic problems that run the gamut from poverty, social welfare, unemployment, and poor living standards. In Kenya, the level of investment has been modest as compared to the prerequisite 30% level, advocated by Lim (2013) & Ruiz-Nuñez & Wei (2015). For a country to modernize and develop.

The domestic private investments serve as a prerequisite for the development and modernization of any nation. That is necessitated by the fact that such investments allow entrepreneurs and investors to pool their resources in order to come up or fund a particular venture that either provides services or produce specific products based on market needs. As a result, that creates jobs, which boost economic growth. Private sector-led growth has a significant effect on the economy that far surpasses public investments (Coutinho & Gallo, 1991; Serven & Solimano, 1992) because, as compared to public investments, they are more efficient.

Investments are also dependent on factors such as political instability, macroeconomic volatility, and risks. Private domestic investments are forward-looking undertakings that depend on the investors' expectations in regards to posterity and credence of the expected returns. Such factors discourage investments and exacerbate uncertainty. For instance, political instability disrupts production and destroys business facilities put up by investors. The correlation between economic outcomes and national politics has a remarkable history in public debate and research. One pivotal method in which politics influence the economic decision-making process, such as investment, is via the channel of instability and uncertainty. Precisely, the uncertainties or incentives associated with a possible change in national leadership or government policies do

have implications for the behavior of both investors and politicians. Uncertainty exists on how the state shapes policies to stimulate domestic investments and formulate economic and regulatory policies. Election outcomes are incredibly relevant in corporate decisions. The reason is that they do have economic implications in the industry through laws such as trade and monetary policies, regulation, the nationalization or expropriation of private companies or taxation. Studying the effect of political uncertainties on investment decisions is an arduous undertaking because of endogeneity between uncertainty and economic growth. Elections across the globe do influence the corporate decisions on investment because some of the political decisions affect the operations or performance of the firms (Rubin, 2008).

The fluctuating exchange rates regime has some demerits. If price elasticities are too low, the effect of depreciation on the exchange rate could be perverse, implying that change in prices will not affect demand, which may be a disadvantage to local investors who import essential products or parts that they use in the production process. Another reason is that a fluctuating exchange rate is customarily associated with macroeconomic uncertainties and exchange rate risks. The exchange rate fluctuations can cause a substantial decrease in the valuation of the assets invested in the domestic economy. It also affects the future profitability of private domestic investments (Chakrabarti, 2001). The currencies of different countries fluctuate depending on several factors, such as the growth prospect of the country's economy, shocks induced by pandemics, and other natural disasters which affect economic activities, geopolitical risks, and interest rates in a floating (free market) exchange rate system. When the exchange rate of different currencies fluctuates wildly, it exacerbates economic uncertainty in addition to creating economic instability, which affects international trade and capital inflows.

Furthermore, the speculations on the future trajectory of exchange rate fluctuations can destabilize the economy in general; hence, imposing extreme losses in macroeconomic efficiency while at the same time inducing capital flights. In Kenya and African economies at large, the major factors that inhibit a surge in investment inflows are that these economies, like many others, are considered as high risk. They are also characterized by price elasticities, stagnant markets, lack of institutional and political stability, and mega corruption (Rogoff, 2003). Therefore, a stable political and macroeconomic environment is essential for domestic private investments. That is because investors need certainty about the macroeconomic conditions of a country before investing in order to mitigate risks that are associated with uncertainty (Hess, 2000). That implies that for Kenya and countries in sub-Saharan Africa at large, to attract private

domestic investments, they need to stabilize the macroeconomic conditions of their countries. Kenya, as well as the entire Sub-Saharan African region's economies, are unstable due to political instability. That makes it expensive to invest in these countries because of the rent-seeking behaviors of public officials. Furthermore, lack of political and institutional stability exacerbates the uncertainties as investors cannot be able to predict the future occurrences with certainty due to constantly changing government policies that come with different government regimes.

Athukorala (1998) examined the relationship between lending rates and Kenya's capital formation (gross fixed). He discovered that an increment in the domestic borrowing rate utilized to fund private investment boosts savings, which are then used in future lending. Individuals and the private sector can then re-invest the interests earned. Furthermore, Lidiema (2018), while examining the effects of borrowing by the government on private domestic investments in Kenya, discovered that domestic credit to private sector as a percentage of the GDP has a long-run and positive link with private domestic investments.

Iyoha (1999) says that when the state borrows from the domestic market, it crowds out the private sector, leaving them with less credit. Fayed (2013) examined the crowding out impact of government debt on private investments in Egypt. He discovered that government debt negatively affected the private sector by reducing the credit available from the local financial institutions. Furthermore, King'wara (2014) carried out a study in Kenya using interest rates and growth in GDP in a period spanning 1967 to 2007. He found out that the increment in the stock of domestic debt stock harmed both the current and future private investment levels in Kenya by increasing the cost of acquiring capital.

Additionally, it also had a significant and negative impact on the current resource flows in the economy. That implies that a converse relationship exists between domestic debt and private domestic investments in Kenya. When domestic debt grows exponentially, it discourages investments because, in future, government may raise taxes to service debt, which increases the cost of doing business. Also, financial institutions prefer lending to the government as opposed to micro small and medium enterprises (MSMEs) due to the fact that the government will repay the debt, which is not the case with MSMEs as they pose a higher risk of default on loans. So when the government borrows from the domestic financial institutions, it inhibits investors from acquiring loans to invest, which limits MSMEs growth. Investors look at several key factors before investing in any country. These factors are the cost of doing business (taxes, electricity

tariffs, ease of doing business), political and macroeconomic stability, and the potential for the economy to grow in the future. If there is a possibility of the government raising taxes in the future to service domestic debt, investors will shy away from investing in that country as that will affect the investor's future profit margins.

1.2 The Significance of Private Domestic Investment

Private domestic investment plays an indispensable role in sustainable development, economic growth, and poverty reduction. It also enhances job creation by increasing productive capacity of economy by bringing out innovations and technologies through capital accumulation. Furthermore, it also leads to improved standards of living and equitable distribution of income. That can be explained by the fact that more citizens are incorporated into the formal economy and engage in high-quality jobs that enhance their income streams. Moreover, the state is able to collect more income taxes from the private sector. Besides, some of the social externalities that come about as a result of unemployment, like drug abuse, crime, immorality, are reduced, improving social welfare. Furthermore, domestic private investment initiatives also attract foreign investment ventures who opt to commit their resources in nations where their domestic investors are blossoming.

Consequently, according to Athukorala (2003) & Patel (2018), private domestic investments also lead to technology transfer into the economy, increasing its production factors. As Ngoma, Bonga, & Nyoni (2019) state, the history of many developing economies showcases a robust positive correlation between a surge in private investments and economic growth. That is as a result of domestic private investments adding to the productive capacity on top of generating new opportunities for more efficient technologies and innovations. It also plays a critical role in gross capital accumulation, which eventually buttresses economic growth.

Good infrastructure lowers the production costs for private investors. That also boomerangs on the price of goods and services by reducing them. In the long-run, a country's exports become cheaper and competitive in the global market, boosting their balance of trade and reducing the current account deficit. It also enhances the country's ability to import and invest in capital goods, states Sánchez-Juárez & García-Almada (2016). However, domestic savings and investment levels in the least developed nations are inadequate to facilitate economic growth and boost living standards by generating high-quality jobs (Cavallo (2018). The World Bank (2018) reports on the change in the nature of working states that a substantial percentage of the

additional savings and investments needed to boost economic growth and development should come from private sources.

Entrepreneurship and investments facilitate and enhance a virtuous circle of sustained economic growth. The result is accentuated productivity, hence, making it tenable to invest more in the future. As the process goes on, modern technologies are introduced via investment interlinkages and international trade, which results in the creation of high-quality jobs and tax collections when more formalized enterprises are incorporated into the economy. Efficient and cut-throat markets are crucial for the expansion of private domestic investments, the reason being that they promote and reward diversifications, innovations and accentuate firm's entries and exits, sequentially, levelling the business playing field for other participants. They also perform an integral part in exacerbating a more socially and geographically inclusive economic development. As a result, that increases job opportunities and living standards for the poor. Pooling private domestic investment is, consequently, a precursor to economic growth and poverty reduction through the generation of employment opportunities.

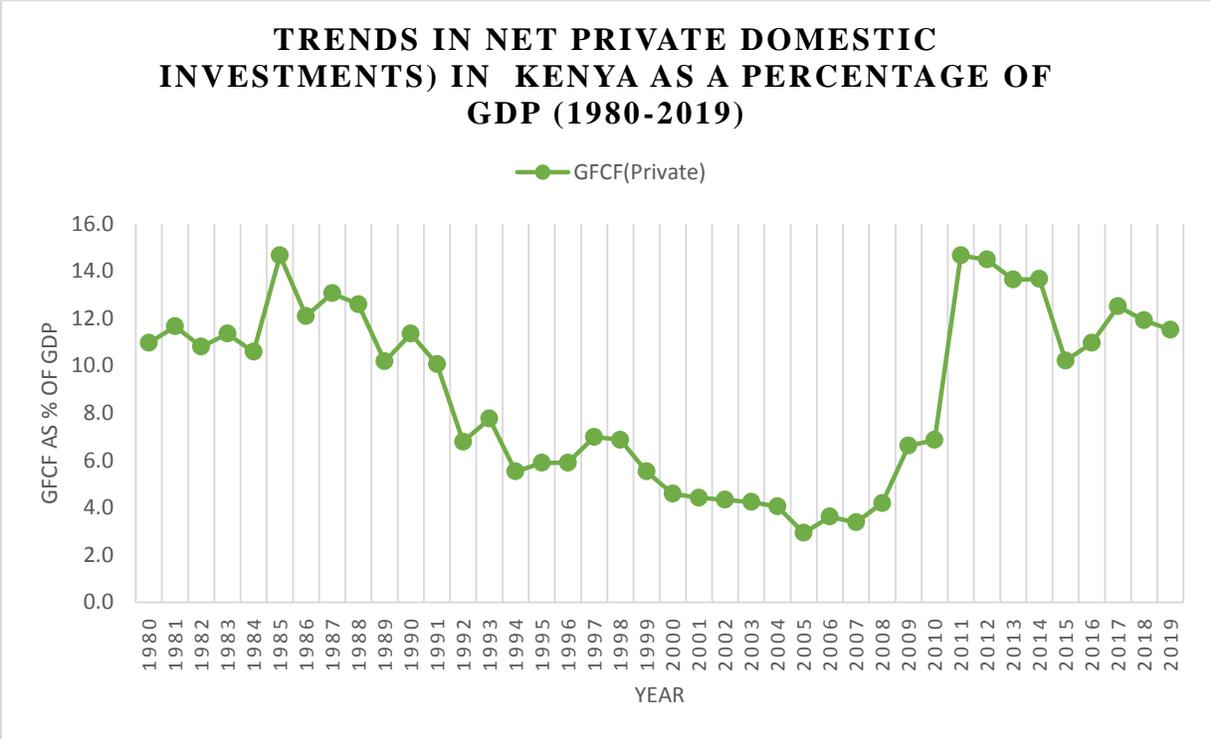
1.2.1 Trends in Kenya's Private Domestic Investments

A good climate for investments provides incentives and opportunities for companies to invest productively, which creates jobs, reduces poverty, and promotes the growth of the economy. According to Le, Q (2004), private investment are affected by the rate of return differential, economic uncertainty, and political risks. Private domestic investments have a significant and positive relationship with the economic growth in developing nations. On aggregate, private investments surpass public investments due to the adherence to fiscal discipline by the government via reforms and privatization initiatives in the public sector, market liberalization, and foreign trade as a result of enhanced globalization, which has led to the opening up of the domestic market to FDI. That also has strengthened the financial system's capability to mop up savings through banks and efficiently allocate the financial resources in the form of credit to the local businesses. The result is an upswing in private investments in Kenya's economy. The decline of public investments can be attributed to fiscal constraints, which are accompanied by the restructuring of the government and debt service bottlenecks.

The Kenyan government has put in place several policies that promotes and attracts private investments since it started to implement the Structural Adjustment Programs (SAPs) in 1986. These policies include tax incentives to local and foreign investors, streamlining of investment

laws and regulations, improving the business environment (infrastructure, rules, and procedures), strengthening the Export Promotion Council (EPC), Investment Promotion Centers (IPC), and the Export Processing Zones (EPZ) to enhance the monitoring and coordinating of investments in the country (National Development Plan, 1997 to 2001). Kenyan government formulated the Investment Climate Action Plan (ICAP) and the Private Sector Development Strategy (PSDS) In 2004 to support private investments in the country. These plans were formulated to improve infrastructure, address insecurity, rationalize the licensing procedures, and improve tax administration, business administration, and customs.

Figure 1: Private sector Investments as a % of GDP in Kenya.



Source: World Bank

From Figure 1 above, we can see that net private domestic investments in Kenya as a percentage of GDP had been on an uphill trajectory up until early 1990s when private domestic investments began to fall—picking up again on an upward trajectory in the early 2000s. That can be explained by the political instability and macroeconomic uncertainty that Kenya experienced in the last decade of the 20th Century due to the introduction of multiparty politics, post-election violence, and the introduction of austerity measures due to structural adjustment programs by the World Bank which discouraged private investments.

In the late 1980s, the World Bank and IMF introduced structural adjustment programs (SAPS). These programs resulted in the steep reduction of public and private investments in developing economies until it rebounded in the late 1990s. Mbaye (2014) and Waweru & Ochieng (2017) states that the rebound is attributed to the privatization of public entities, financial liberalizations, an efficient and lean public sector coupled with the fiscal discipline and broadening the countries tax base. In Kenya, the growth in private domestic investment recorded an upswing in 2006. That was due to the favorable policies initiated by the grand coalition government. However, it dropped gradually in 2007 due to post-election violence. Such fluctuations in domestic private investments caused by socio-political uncertainties had a detrimental impact on Kenya's economy. It impeded its long-term growth because, after post-election violence, Kenya registered a slump in economic growth from 7% growth in the year 2007 to 1.5% growth in 2008 and 2.6% growth in 2009, respectively.

1.3 Uncertainty

In economics, Keynes (1921, 1936 & 1937) and Knight (1921) introduced the concept of uncertainty. The two felt that there is a distinction between uncertainty and risks. In the case of risks, all the possible future occurrences are known by the individuals; hence they can be able to plan on how to tackle them beforehand, but when it comes to uncertainty, individuals do not know what will happen in the future; hence they cannot plan for them in advance. However, Knight (1921) defines uncertainty as the inability of individuals to predict the likelihood of events occurring. Keynes (1936) in his book on defined uncertainty as a state of long term expectations upon which individuals base their decision-making process. These individuals make their decisions on the future based on their level of confidence in the likelihood of their best forecasts turning out to be wrong. Hence, according to him, uncertainty depends on the weight of individuals' arguments about the future. These individuals attach low weight to the decisions that have a high level of uncertainty, and a high weight to the decisions with a low level of uncertainty. Therefore the level of uncertainty has an inverse relationship with the weight an individual attaches to his decision-making process.

Hence, when the level of uncertainty is very high, companies attach low weight to their decisions and become unwilling to invest and hire while consumers become wary of spending. The study will look at two types of uncertainty, namely economic and political uncertainty.

1.3.1 Economic Uncertainty

Decisions on economic investments do have three features. The first one is the irreversibility of the investment cost. The second one is that uncertainty over profits exists, and the third one is that investors can decide to postpone their decision(s) on investments when they need extra information to reduce their uncertainty (Dixit & Pindyck, 1994). Irreversibility of the investment cost means that once the firms invest, they cannot disinvest, so the expenditures on investments may become sunk costs because the value of capital invested may not be fully recoverable when resold. When there is high uncertainty in the economy, most firms desist from investing for fear of losing their capital because they cannot forecast their future profits with a degree of certainty due to unexpected policy changes and economic shocks.

Furthermore, investors hold on as they wait for new information about costs, prices, and other prevailing conditions in the market before committing their resources so that they can mitigate the level of risks associated with an investment in a particular country. Therefore, economic stability should be a priority for any country that wants to stimulate private investments. The relationship between real investments and uncertainties was modelled by Bloom et al. (2007) and Bernanke (1983). In such models, companies become ultimately cautious, holding back on their investment decisions in the presence of uncertainties.

1.3.2 Political Uncertainty

Political instability directly disrupts economic productivity or damper economic growth by threatening property rights and the business climate that are essential to progress. Ndiwulu (2011) investigated the impact of uncertainties on investment behaviour in Democratic Republic of Congo. He found out that political uncertainty had a negative impact on domestic investment. Alesina et al. (1996), together with Alesina & Perotti (1996) in their study on political instabilities, domestic investments, and economic growth, found out that political instability leads to economic growth retardation. Political risks arise from the activities of the state and other significant forces that threaten investments expected returns. Closely linked to political risks is political instability. It is described as a propensity for an imminent change in government, either via constitutional means such as the elections or through unconstitutional means such as revolutions, public uprising, or coups d'état. Income inequality fuels social discontent, hence increasing social unrest. It also increases policy uncertainty by threatening property rights, and that serves as a deterrent to the private investment in addition to dampening economic growth prospects. The intuition that forms the basis of the fundamental relationship

between investments and electoral uncertainty is simple: If a national election has the potential of resulting in an adverse outcome from an investor's perspective, the alternative of waiting to invest jacks up, the potential investors rationally delay their investments until the policies that caused the political uncertainties are resolved (Alesina & Perotti, 1996)). The work of Fernandez & Rodrik (1991), coupled with Pindyck & Solimano (1993), are distinguished examples of the existing literature that highlights the effect uncertainty, which is initiated by political machinations, leads companies to lower their investment appetite.

Political uncertainty, through the volatilities in physical capital accumulation, also affects investments and economic growth indirectly (Alesina & Perotti, 1996; Benhabib & Rustichini, 1996; Benhabib & Spiegel, 1997). The incentives to either disinvest or invest depends on the likelihood that the current regime's policies will remain stable in the future. Investors cannot commit their investments in an unstable political environment. Therefore, political uncertainty reduces the inflows of both foreign and domestic capital due to the uncertainties that are associated with continually changing policies and regimes.

1.6 Problem Statement

Economic growth and development, macroeconomic stability, unemployment reduction, and improved living standards are top priorities for enhanced growth and development strategic focus according to government. However, according to Aziz (2019), economic growth is untenable with low private domestic investments, which can only be gained to a great extent via the increment in domestic private investments by the local and multinational entities. Such investments play an essential role in long-term sustainable economic growth. As a result, the least developed and emerging countries have been enhancing the liberalization efforts of their financial markets to encourage both foreign and domestic investments. The liberalization of financial markets has exacerbated the access to investment capital for the Micro Small and Medium Enterprises (MSMEs) in Kenya and emerging nations in the Sub-Saharan Africa region. Private domestic investments have also heightened financial inclusivity, more so in the marginalized stratum of the country, such as women, youths, and the people living with disabilities (PWD). As a result, most of their business enterprises have prospered, hence improving the growth of the economy. However, domestic private investments are significantly influenced by both socio-political and economic uncertainties. Despite the remarkable efforts made by the state in improving the private domestic investment climate in Kenya, such investments have not been forthcoming as the government expected. Their response to non-fiscal

and fiscal incentives such as tax breaks, tax rebates as capital gains tax deductions have been quite low than what the government expected. Such a trend in domestic private investment levels is becoming a noteworthy source of concern to the government and policymakers (King'wara, 2014). Taking that into consideration, this research study aims at examining the effects that both economic and political uncertainties have on the private domestic investments in Kenya. This is because domestic private investments are significantly influenced by both political and economic uncertainties (Alesina et al. 1996; Chen & Funke, 2003; Chen & Funke, 2011; Keynes, 1936; Keynes, 1937). However, the literature on how uncertainties affect private domestic investments in Kenya is fairly limited. Most of the studies focus on the effects of interest rates and GDP on total investments (public and private). These studies also do not distinguish the role uncertainty plays in attracting domestic private investments. This, therefore, necessitates us to examine the role that uncertainties play in influencing private domestic investments.

1.7 Research Questions

The research questions that shall generate the study's objectives are;

- i.) Does political uncertainty affect Kenya's domestic private investments?
- ii.) Does macroeconomic instability affect Kenya's domestic private investments?

1.8 General Objective

The primary objective of the research is to investigate the effect of uncertainties on domestic private investments in Kenya.

The specific objectives are:

- i.) To find out how political uncertainty affects Kenya's domestic private investments
- ii.) To find out how macroeconomic instability affects Kenya's domestic private investments

1.9 Significance of the Study.

In Kenya, domestic private investments play a vital role in creating jobs, revenue generation, and alleviation of poverty. In spite of the remarkable attempts made by the Kenyan government in improving the business climate, private domestic investments have not been forthcoming as the government expected. The results of this research are therefore expected to contribute to the existing knowledge on the effects of macroeconomic and political uncertainty on private domestic investments in Kenya. The study results would also contribute to the formulation of appropriate policies geared towards improving domestic private investments in Kenya. The study results would also be utilized to illustrate possible new areas for further research.

1.8 Scope of the Study

The focus of this research is to investigate the effect of uncertainties on private domestic investment in Kenya from 1980 to 2019.

1.10. The organization of the study

Chapter one looks at the study's background on the effects of uncertainty on domestic private investments in Kenya; chapter two focuses on the literature on the impact of uncertainty on domestic private investments with an overview of the two, while the third chapter examines methodology. Chapter four entails model estimation, empirical findings, and the discussion of the outcomes. Chapter five discusses the conclusions and policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviews both the theoretical and empirical literature with an overview of the two. The first part looks at the theoretical literature on the effect of uncertainties on private domestic investments. The next part looks at the empirical literature, while the last section looks at the overview of the two.

2.2 Theoretical Literature Review

2.2.1 Investment Uncertainty Theory

Abel (1983), together with Abel & Eberly (1993) & Hartman (1972), developed this theory using a neoclassical model devoid of the costs associated with capital-stock adjustment. The theory was an extension of Tobin's Q (1969) investment model. This theory suggests that a firm's environment is characterized by irreversible investment decisions, namely perfect competition and the constant returns to scale in the output market. In such a case, uncertainties do affect the investments positively. The positive relationship comes from profit function convexity relative to the prices. That means that when we have constant returns and a perfect competition scenario in the output market, the profit function will become convex with respect to prices. That means an increment in price uncertainty raises the expected value of profit; hence it results in an increment in investment. The focus of this theory was on the correlation between uncertainty and capital productivity. Under convexity of such a relationship, the incentive to invest and produce goes up when uncertainty increase. That implies that a positive link exists between uncertainty, investment, and production. When there is uncertainty in prices in the market due to positive economic shocks, firms invest more to increase their production because they expect to increase their profit margins due to an increase in sales.

This theory suggests that investors have the alternative of delaying their investment decisions when there is a lot of uncertainty on the costs, prices, government policies, and the business climate associated with the country they want to invest in. Decisions on economic investments do have three features. The first one is the irreversibility of the investment cost. The second one is that uncertainty over profits exists, and the third one is that investors can decide to postpone their decision(s) on investments when they need extra information to reduce their uncertainty (Dixit & Pindyck, 1994). Irreversibility of the investment cost means that once the firms invest,

they cannot disinvest, so the expenditures on investments may become sunk costs because the value of capital invested may not be fully recoverable when resold. When the level of uncertainty in an economy is high, most firms desist from investing for fear of losing their capital because they cannot forecast their future profits with the degree of certainty due to unexpected policy changes and economic shocks. And lastly, investors hold on for new information about costs, prices, and the prevailing market conditions before committing their resources so that they can mitigate the level of risks associated with an investment in a particular country. Therefore, uncertainties exert a negative effect on the investments, as it raises the opportunity costs of investing.

2.2.4 Tobin Q Theory

This theory was developed by James Tobin in 1918. It relates a firm's decision-making on investments to the fluctuations in the stock market. Companies issue shares in the stock market to raise capital for investment projects, with the company's investment decisions reflected by the price of shares. When the investment ratio exceeds one, the firm will invest a lot of capital rapidly. If the rate equals unity (1), firms will be indifferent as to whether to invest or not to invest more capital. Nevertheless, if the ratio is <1 , the firm will sell the existing assets rather than acquire new ones. This theory states that investment decisions are the outcome of the firm's value in the market and the value of its asset's replacement. Expectations about the future economic variables are important in determining decisions on investments where the pay-offs extend far into the future (Malkiel et al., 1979). The market value of a firm as a proportion of the replacement value is referred to as the Tobin Q coefficient. Theoretical forecast states that a 'Q' coefficient higher than 1 (unity) increases investments while a 'Q' less than the unity results in a dwindling investment. If Q is one, then the firm will look into other factors to make investment decisions. That means that firms evaluate the level of uncertainty in the market before they make their decisions on whether to invest or not. If the firm's expectations are bullish (firms have positive expectations) about the market in the future in regards to a rise in share prices and interest rates on capital, these will invest a lot of capital. If the firms are not certain about the gains (payoffs) from their investments, the firms will be indifferent as to whether to invest or not to invest more capital. However, if these firms are certain that there will be no payoffs in future from their investments, the firms will sell their existing assets in order to cut their losses.

2.2.5. Flexible Accelerator Theory

Clark (1917) developed this theory. He assumed that a stable and constant relationship exists between the capital stock and output. The foundation of this model states that a firm's higher investment rate depends on the magnitude of the interval between our desired and the existing stock of capital. The hypothesis of this model states that firms desires to bridge the existing interval between the actual capital stock K and our desired capital stock K in each period. When the income and consumption increase in a country, more products have to be produced to meet the current demands. That means the country will require additional capital if the existing stock of capital has been exhausted. In such a scenario, consumption and income changes will induce investments. Hence, investments will be termed as induced investments because they depend on income and consumption. An accelerator is a numerical value that originated from the relationship between an increment in income, which necessitates an increment in investments. The net induced investment will have a positive value if the national income increases. While if the induced investments become zero, it will remain constant. The accelerator theory of investment states that investments are a function of economic growth and that the desirable stock of capital (K) is assumed to be directly linked with the levels of income (Y) in the long-run.

$$K_t = vY_t \dots \dots \dots (i)$$

Where

Y_t = represents an output level

K_t = represents capital stock

v = is the capital-output ratio ($\frac{K}{Y}$), which is presumed to be a constant.

When the income level at time t is Y_t , then the required stock of capital at time t will be $K_t = vY_t$.

When the income level at time $t-1$ is Y_{t-1} , then the stock of capital at time $t-1$ will be $K_{t-1} = vY_{t-1}$.

Hence, an increment in the stock of capital in period t will be;

$$K_t - K_{t-1} = vY_t - vY_{t-1} \dots \dots \dots (ii)$$

$$K_t - K_{t-1} = v(Y_t - Y_{t-1}) \dots \dots \dots (iii)$$

Because the annual stock of capital increment ($K_t - K_{t-1}$) in time t represent investments (I), equation (iii) is rewritten as below:

$$I_t = v(Y_t - Y_{t-1}) \dots \dots \dots (iv)$$

The change in income ΔY_t in year t from the previous year, $t-1$ is represented by $(Y_t - Y_{t-1})$

Increment in investments is expected to be a multiple v , which is known as capital-output ratio representing the magnitude of the accelerator (the positive effect of the growth in income on investment) of the change in income. Hence the level of net investments is proportional to the change in income, which implies that for the net investment to be positive, the income should increase. In this study, the income growth rate (ΔY_t) is assumed to be a proxy for the expectations about future returns and demand and for investments.

Therefore, investors look at the certainty of the economic growth prospects of a country before investing their capital. When an economy is growing rapidly due to the increase in income and consumption, its market size increases due to increased aggregate demand for goods and services. That means more products have to be produced to meet the current demands hence the need for additional capital if the existing stock of capital has been exhausted. In such a case, the magnitude of the interval between the desired and the existing stock of capital in that country is high; hence an increment in investments in that country because of the increase in the certainty that both the income and consumption of individuals will rise. The higher the increase in income and consumption, the larger the multiplier effect on investments in that country. That is informed by the fact that the larger magnitude of the interval between the desired and the existing stock of capital in that country, the higher the certainty of getting higher profit margins by investors. That explains the reason why capital moves from developed economies where it is in abundance into developing countries where it is much needed because of developing countries have a larger magnitude of the interval between the desired and the existing stock, which means that when investing capital in developing countries, there is certainty that it will attract higher interest rates than in developed countries.

2.2.6 Buffer Stock Theory

Buffer stock, according to (Deaton, 1991), is defined as a commodity in stock that is used to offset price fluctuations plus any unforeseen emergencies. Buffer stocks are kept for essential commodities, i.e., money, water, and grains. As Carroll et al., (1992) states, household savings are better at describing a buffer-stock than the Permanent Income Hypothesis/ Life Cycle (PIH/LC) version. In traditional models, tastes solely dictate consumption growth. The behavior of the buffer-stock occurs if consumers with substantial income uncertainties become very

impatient about what the future holds; hence they hold onto their assets mainly to safeguard their expenditure. In traditional models, the tastes and preferences of consumers solely determine consumption growth; in contrast, the buffer stock theory states that consumers set an aggregate consumption growth equal to aggregate growth in labor income, notwithstanding their tastes. That implies that consumers' rate of consumption is dependent on their growth in income. If consumers can be able to predict with a degree of certainty that their income will grow, for example, by 10%, then they will increase their consumption by either 10% or less. However, if they predict that their income will reduce in the future due to a high level of uncertainty, they will save more. In this model, the consumers hold onto their assets mainly to safeguard their expenditure against their incomes unknown fluctuations. Unemployment expectations are, hence, pivotal in general because the extreme fluctuations in household income are tied with unemployment spells. The stock-saving behavior of the Buffer-stock can emerge from a standard framework of dynamic optimization when consumers who are facing significant income uncertainties become impatient because if income were a guarantee, they would likely incur debt against their future income streams, so as to fund their consumption at present. Consumers with substantial income uncertainties become very impatient about what the future holds; hence they hold onto their assets mainly to safeguard their expenditure. This theory is linked to private domestic investments because demand creates its own supply. One of the critical aspects that investors look at before investing besides the cost and ease of doing business is the aggregate demand for their products in the market. When the aggregate demand is high, investors are certain of getting a handsome profit margin via increased sales. This theory states that if consumers with substantial income uncertainties become very impatient about what the future holds, they hold onto their assets mainly to safeguard their expenditure, which affects the aggregate demand and the propensity to invest in the market. Therefore, consumers' income uncertainties are directly linked with the uncertainties in investment by investors.

2.3 Empirical Literature.

The domestic private investments serve as a prerequisite for the development and modernization of any nation. That is necessitated by the fact that such investments allow entrepreneurs and investors to pool their resources in order to come up or fund a particular venture that either provides services or produce specific products based on market needs. As a result, that creates jobs, which boost economic growth. Private sector-led growth has a significant effect on the economy that far surpasses public investments (Coutinho & Gallo, 1991; Serven & Solimano,

1992) because, as compared to public investments, they are more efficient. Investments are also dependent on factors such as political instability, macroeconomic volatility, and risks. Private domestic investments are forward-looking undertakings that depend on the investors' expectations in regards to posterity and credence of the expected returns. Such factors discourage investments and exacerbate uncertainty. For instance, political instability disrupts production and destroys business facilities put up by investors.

Serven & Solimano (1993) examined economic adjustment uncertainties and investment performance in developing countries from 1970-1988 in their book *Striving for Growth after Adjustment: The Role of Capital Formation*. They stated that specific factors affect private investments in developing economies, more so in the Sub Saharan African region. The major ones are macroeconomic uncertainties, GDP growth, real rates of exchange, public debt, public investments, and real interest rates. Bwire (1993) investigated the relationship amongst private investments, domestic savings, and per-capita output growth in Kenya, and how they respond to macroeconomic uncertainties in a period spanning 1972 to the year 1992 using the two-stage least squares (2SLS) model. He discovered that the indicators of macroeconomic uncertainties (expected and current inflation rate, external debt burden), and other factors that are exogenous to the policy controls, i.e., drought negatively affected private domestic investments. However, the real interest rate, public sector investments, and the external debt ratio service payment to revenues from the exports were found to have a positive impact on investments.

George-Anokwuru (2017) examined the impact of interest rate volatility and domestic private investment in Nigeria in a period spanning 1980-2015 using the Ordinary Least Square Regression approach. He found out that an inverse relationship exists between interest rate volatility and domestic private investments in Nigeria. Also, Udoh & Egwaikhide (2008) examined inflation uncertainty, foreign direct investments, and volatility in exchange rate in Nigeria by employing GARCH approach from 1970 and 2005. The study found out inflation uncertainty and that exchange rate volatility exerted a negative and significant impact on foreign direct investments in Nigeria.

Many countries in the developing world, more so in Sub Saharan Africa, experience a high degree of exchange rate volatility. That translates into a high degree of uncertainty in investments because of high levels of uncertainty in profit margins. Servén (2003) used cross country time series data for 61 nations spanning 1970 to 1995 to examine the link between uncertainty in real exchange rate and private domestic investments in developing nations using

the generalized autoregressive conditional heteroscedasticity (GARCH) approach in a period spanning. He found out that volatility in exchange rate has a significant but negative effect on private investments after controlling for other private investment determinants. The magnitude of the impact was also found to increase with increasing levels of uncertainty.

Musyoki, Pokhariyal & Pundit (2012) investigated the impact of real exchange rate uncertainty on economic growth in Kenya in a period spanning 1993 to 2009. The study employed the computations of unconditional standard deviation and Generalized Autoregressive Condition of Heteroscedasticity (GARCH) to estimate the impact of real exchange rate uncertainty on economic growth. The study found out that the real exchange rate volatility had a negative effect on economic growth. Kiptoo (2007) examined real exchange rate volatility and misalignment in Kenya and its effects on investment and trade using an error correction model and multivariate cointegration approach in a period spanning 1993 to 2003. The study found out that an increment in the exchange-rate volatility exerted a negative and significant effect on domestic investments in the long run.

Alesina et al. (1996), using a sample of 113 nations from 1950 to 1982, investigated the effect of political uncertainty on economic growth and domestic investments using the Amemiya Generalized Least Squares (AGLS) approach. They found out that political uncertainty retards domestic investments and economic growth. Alesina & Perotti (1996) investigated the distribution of income, investment, and political instability in 71 nations from 1960–85 using a simple bivariate simultaneous equation approach. They discovered that sociopolitical uncertainty created a substantial drag on investment. Jaspersen et al. (1995; 2000) investigated the effect of political uncertainties and private investments in Africa and other developing countries across the globe using ordinary least squares time series approach in a period spanning 1990 to 1994. He found out that an increment in political uncertainty reduces the rate of private domestic investment in developing countries. Mwega and Ngugi (2006) examined the factors that inhibit FDI inflows in Kenya. They found out that political certainty provides a conducive business environment that encourages foreign direct investment in Kenya. Dupas & Robinson (2010), in their study on the hidden costs of political instability in Kenya during the 2007 election crisis, also states that the 2007 post-election socio-political uncertainty in Kenya affected the business environment dampening domestic private investments due to the looting and arson of private businesses.

According to Iyoha (1999), when governments accumulate so much domestic debt, it chokes the private sector off credit, creating uncertainty in the private sector because investors are unable to get credit. This phenomenon is referred to as crowding out effect (Bahal, 2018). Also, Fayed (2013) investigated the impact of crowding-out effect on private investments in Egypt and discovered that the government's domestic debt crowded out private domestic investments in Egypt. Furthermore, Kingw'ara (2014) also examined the effect of public debt uncertainties on private investment, the GDP growth, the interest rate from the year 1967 to the year 2007. He discovered an inverse relationship between domestic debts and private investments in Kenya. Domestic debt increases current and future investments by increasing its capital costs in addition to adversely affecting the current flow of available resources in the economy. Ajayi (1997) suggests that a rising debt-service critically limits the ability of an economy to fund its critical imports and development projects. This occurs in two ways, first, via the effect of illiquidity that comes about due to resource limitation. These resources are supposed to be utilized for debt service, domestic consumption, and investments. Secondly, it serves as a disincentive for private investments as a result of the anticipation in future tax increments to repay and service debts. Alesina & Perotti (1996), Barro (1991; 1995), and Fischer (1993) presented the evidence of a substantial inverse relation between economic growth and inflation. Fischer argues that inflation rates serve as a proxy for poor macroeconomic policy in general. Roubini & Sala-i-Martin (1991), in their study on trade regimes, financial development, and growth of the economy, suggests that inflation negatively affects the economic performance of a country. They further argue that inflation may be a proxy for the state's failure in the sluggish economic growth because, for the governments that allow higher inflation rates, their economies tend to grow much slower.

Bhutto et al. (2018), examined the non-economic determinants of private investments in Pakistan in a period spanning 1969 to 2016 using the ARDL approach, states that economic stability, without macroeconomic uncertainties, is the most significant determining factor of private domestic investments. They also state that economy's openness serves as a determinant of investments when domestic firms brace themselves for an increase in competition from foreign multinationals. Bhutto included a dummy variable to capture economic liberalization in the 1990s period, which showcases the adverse effects of liberalization uncertainties that the economy had on private investment. He found out that an increment in imports had an adverse effect on private domestic investments. It also led to the exchange rate uncertainties, which

depreciated the local currency. He also took cognizance of the fact that an inverse relationship exists between private domestic investments and inflation. Also, Alber & Bushra (2019) also investigated the impact of macroeconomic policy reforms uncertainties on private domestic investments in the energy sector in 21 Middle East and North Africa (MENA) nations in a period spanning 1990 to 2016 using the vector autoregressive (VAR) approach. They found out that a positive relationship exists that links private domestic investment to a stable private sector credit regime, real rate of exchange, economic growth, real interest rate, foreign exchange reserves, the lagged-investment ratio, and domestic savings. However, the lagged values of real interest rates, external debt, and public investments had an adverse effect on private investments.

2.4 Overview of the Literature

The theoretical and empirical literature on the effect of economic and political uncertainties on private domestic investments private investment in Kenya and the Sub Saharan African region is quite diverse. Clark's (1917) flexible accelerator theory of investment states that a stable and constant relationship exists between the capital stock and output. The foundation of this model states that a firm's higher investment rate depends on the magnitude of the interval between our desired and the existing stock of capital. Dixit & Pindyck (1994) and Pindyck (1988) investment uncertainty theory suggests that investors have the alternative of delaying their investment decisions when there is a lot of uncertainty on the costs, prices, government policies, and the business climate associated with the country that they want to invest in. Decisions on economic investments do have three features. The first one is the irreversibility of the investment cost. The second one is that uncertainty over profits exists, and the third one is that investors can decide to postpone their decision(s) on investments when they need extra information to reduce their uncertainty. From the review of the existing empirical literature, most of the studies on the effect of uncertainties of private domestic investments in Kenya tend to focus solely on either political uncertainty or economic uncertainties but not both at a go. The study adopted the flexible accelerator model to capture the effects of both macroeconomic and political uncertainty on private domestic investments in Kenya. The model incorporates the characteristics of the flexible accelerator model, the structural, and the neoclassical models to highlight the effect of political and macroeconomic uncertainties on private domestic investment in Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter examines the methodology that was utilized in the study. The first part looks at the theoretical model; the second part looks at the empirical model. The third part looks at the measurements and definitions of variables, followed by model specification, diagnostic tests, and lastly, the data source and type of the data used.

3.3 Theoretical Model

The accelerator theory shows the relationship between the desired and the actual capital stock, which is determined by the level of income growth (the theory states that investments are a function of economic growth). Our desirable stock of capital (K) is assumed to be directly linked with the levels of income (Y) in the long-run.

$$K = \alpha Y_t \dots \dots \dots (v)$$

Whereby α is a constant. Differentiating our equation with respect to the time t, we get;

$$\Delta K_t = \alpha + \Delta Y_t \dots \dots \dots (vi)$$

With Δ as the difference operator.

To have an equation that showcases the relationship between investment and our desired level of capital stock, capital identity's conventional accumulation is used to get Investment, I_t ;

$$K_t = (1 - \partial)K_{t-1} + I_t \dots \dots \dots (vii)$$

∂ Showcase capital depreciation. We restructure equation (iii) as follows to get;

$$K_t = K_{t-1} - \partial K_{t-1} + I_t \dots \dots \dots (viii)$$

Rearranging equation (iv);

$$K_t - K_{t-1} = I_t - \partial K_{t-1} \dots \dots \dots (ix)$$

We assume $\partial = 0$, to solve for I_t ;

$$K_t = I_t \dots \dots \dots (x)$$

Substitute equation (vi) into equation (ii) we get;

$$I_t = \alpha + \Delta Y_t \dots \dots \dots (xi)$$

The equation (xi) above represents an investment function. In order to account for the slow adjustment of capital stock to the desired stock of capital, we introduce the lags to the dependent variable into the equation that yields the following equation;

$$I_t = \rho I_{t-1} + \beta_1 \Delta Y_t + \beta_2 \Delta Y_{t-1} + \varepsilon_t \dots \dots \dots (xii)$$

Where; ρI_{t-1} represents the lagged investments, B_1 and B_2 represent the variable coefficients, while ΔY_{t-1} represents the lagged values output growth rate, and ε_t is the error term. The final equation now becomes;

$$I_t = \rho I_{t-1} + \beta_1 \Delta Y_t + \beta_2 \Delta Y_{t-1} + X_t + \varepsilon_t \dots \dots \dots (xiii)$$

Where

X_t represents variables that are applicable in developing countries, such as real GDP, inflation, and real interest rate.

3.4 Model Specification and Estimation

The research utilized the neoclassical flexible accelerator model of investment, same as Wai & Wong (1982). The reason being that the model is very appropriate amongst investment theories. This part looks into the model specification for domestic private investment determinants identified in the review of the literature. The empirical model used in this study comes from the extension of Jorgensen's neoclassical flexible accelerator model of investment, which states that investments are a function of economic growth. Therefore, the study includes other variables in the model affecting private domestic investments that are applicable to developing nations in Sub-Saharan Africa. The study's estimation of macroeconomic uncertainties is based on the unexpected components of WUIKEN, RINR, REER, and INFL. Political uncertainty was measured by the PRI Index. The empirical model translates to;

$$PDI = f(WUIKEN, PRI, INFL, RINR, RGDP, REER) \dots \dots \dots (xiv)$$

Hence, estimating parameters of β , and including the error term, it now becomes;

$$PDI = \beta_0 + \beta_1 WUIKEN + \beta_2 PRI + \beta_3 REER + \beta_4 INFL + \beta_5 RINR + \beta_6 RGDP + \varepsilon \dots \dots \dots (xv)$$

To analyze empirically the relationship of the variables in the study (PDI, WUIKEN, PRI, INFL, RINR, RGDP, and REER), the study employed the autoregressive distributed lag (ARDL).

Below is the ARDL model;

$$\begin{aligned} \Delta PDI_t = & \alpha_{01} + \beta_{11} \ln PDI_{t-1} + \beta_{12} \ln RGDP_{t-1} + \beta_{13} \ln PRI_{t-1} + \beta_{14} \ln WUIKEN_{t-1} + \\ & \beta_{15} \ln INFL_{t-1} + \beta_{16} \ln RINR_{t-1} + \beta_{17} \ln REER_{t-1} + \sum_{i=1}^p \alpha_{1i} \Delta \ln Y_{t-1} + \\ & \sum_{i=1}^q \alpha_{2i} \Delta WUIKEN_{t-1} + \sum_{i=1}^q \alpha_{3i} \Delta PRI_{t-1} + \sum_{i=1}^q \alpha_{4i} \Delta INFL_{t-1} + \end{aligned}$$

$$\sum_{i=1}^q \alpha_{5i} \Delta RINR_{t-1} \sum_{i=1}^{pq} \alpha_{6i} \Delta REER_{t-1} + \sum_{i=1}^p \alpha_{7i} \ln RGDP_{t-1} + \varepsilon_{it} \dots \dots \dots (xvi)$$

Δ denotes first difference operators, and the constant term is denoted by a_{01} . Parameters β_{11} to β_{21} represent the long run coefficients of estimates while α_{1i} to α_{10i} represents the short-run coefficients. The ε_t is the disturbance.

Table 1: Variable Definitions and Expected Signs

3.5 Variable Definitions and Expected Sign

Variable Name	Variable Notation	The Description of the Variable	The Expected Sign	Data Source
Dependent Variable				
PDI	Private Domestic Investment	Private Domestic Investments as a percentage of GDP.	Positive (+)	World Bank Economic Indicators
Independent Variables				
RGDP	The growth of the Gross Domestic Product that is adjusted for inflation	Real GDP growth rate	Positive (+)	UNCTAD/ World Bank
RINR	Real Interest Rate	interest rate (Inflation-adjusted)	Negative (-)	World Bank Economic Indicators
INFL	Inflation	Annualized rate of inflation	Negative (-)	The Central Bank of Kenya
REER	Real Effective Exchange Rate	Annualized Real Effective Exchange Rate with 2005 as our base year.	Negative (-)	UNCTAD

PRI	Political rights index	It evaluates three categories, namely the functioning and participation of the state, political pluralism, and the electoral process with the index ranging from 1 (showing robust rights) to 7 (showing weak rights).	Positive (+)	The Global Economy Database
WUIKEN	Smoothed World Uncertainty Index for Kenya, Annually.	The index represents economic policy uncertainty, volatility in the stock markets, risks, and lower GDP growth. It tends to increase as we near the election period. The index is calculated by text mining the country reports from the Economist Intelligence Unit, which generates reports of a country's economic policies and politics.	Negative (-)	World Uncertainty Index rankings, Ahir, Bloom, & Furceri (2018)

Source: Author.

3.7 Diagnostic tests

3.7.1 Normality test

Testing for normality is an important step for deciding the statistical methods for data analysis because the normality of variables is an underlying presumption in most statistical procedures. If the time series data is not normally distributed, that affects the interpretations and the inferences of the variable coefficients. The assumption of the ARDL test is that the variables are normally distributed. Hence to confirm the assumption, this research utilized the Shapiro-Wilk(1965) normality test to check for normality in the variables. The skewness and kurtosis test for normality was also applied. That was informed by the fact that the Shapiro Wilk test has more power, when compared to Anderson-Darling normality test and Kolmogorov-Smirnov normality test.

3.7.2 Test for Multicollinearity

Multicollinearity is the state of high intercorrelation amongst the independent variables. If not solved, it can lead to unreliable statistical inferences about the data, affecting the stability of

estimates of parameters obtained. Therefore, Zainodin et al. (2011) suggest that the multicollinearity test should be done when analyzing time-series data. This study utilized Variance Inflation Factor (VIF) to examine multicollinearity.

3.7.3 Unit Root Test

In time-series, most macroeconomic data tend to be non-stationary, showcasing a deterministic trend. Hence, it was necessary to carry out a unit root test in order to investigate if the variables under study are stationarity. Fuller's (1976) Augmented Dickey Fuller is one of the best stationarity tests as it incorporates the variables lagged values. Also, it can handle more complex models in addition to producing robust results as compared to the Dickey-Fuller tests. The lag length was chosen by Akaike Information Criterion (AIC) by Akaike (1987).

3.7.4 Test for Structural Breaks Presence.

More accurate forecasts can be drawn from time series models that test for structural breaks presence, i.e., political and economic uncertainties, natural disasters. Glynn, Perera, and Verma (2007) and Perron & Zhu (2005) state that structural breaks tests have gained relevance in recent times to account for sudden change or shifts in variable trends due to shocks. Such a drift affects the estimation of the parameters resulting in unrealistic estimated parameters that cannot be utilized efficiently to forecast. This study utilized Bai & Perron's (2003) structural breaks test that identifies multiple breaks in time series, unlike the Chow and Quandt-Andrews structural break test, which identify one structural break at a time.

3.7.5 Cointegration Test.

According to Toda and Philips (1993), ignoring cointegration leads to model misspecification when it exists. The study administered an ARDL bounds cointegration tests by Pesaran, Shin & Smith (2001) to ascertain whether long-run relationship existed amongst variables. The test is far superior to Engle-Granger (1990) test in that it can be utilized in multivariate cases that are interlinked by either one or more cointegrating vectors.

3.7.6 Breusch-Pagan heteroscedasticity test

Linear time-series models assume that residuals are normally distributed and that the variance of the residuals from the regression is dependent on independent variables and are also homoscedastic (have constant variance). That is, the residuals do not vary a lot as the values of the independent variables change. To test for this, the study used the Breusch-Pagan heteroscedasticity test.

3.7.6 Stability Test

The study utilized Cumulative sum (CUSUM) test, and cumulative sum of squares (CUSUMSQ) tests developed by Page (1962) to check parameter stability. Brown et al. (1975) state that the inferences drawn from the estimates in the study are invalid if the coefficients are not stable hence the need to conduct the test to confirm that the study did not have statistically significant errors in the study period.

3.8 Data types and Sources

The research utilized annual time-series data that spans from 1980 to 2019 extracted from World Bank, UNCTAD, and Central Bank of Kenya. Stata and Eviews were used for data analysis.

CHAPTER FOUR

MODEL ESTIMATION, EMPIRICAL FINDINGS, AND DISCUSSION

4.1 Introduction

This chapter looks at empirical results and interpretation of the time-series data that was adopted. First, the study looks at the descriptive statistics, which summarizes the variables under study. Next, we look at the outcomes of the diagnostic test and, lastly, the results of the ARDL estimation techniques employed in this study.

4.2 Summary of Descriptive Statistics

Table 2: Descriptive Statistics Summary

Variable	Obs	Mean	Mean Std. Dev.	Min	Max	Skewness	Kurtosis
PDI	40	13.4525	4.944616	7.5	22.9	0.1903	0.0003
RGDP	40	3.970454	2.284123	-.79949	8.405699	0.3183	0.1566
INFL	40	10.17207	7.396963	.9332055	41.98877	0.0000	0.0001
REER	40	55.64488	31.59497	7.420188	103.4104	0.4544	0.0001
RINR	40	7.454902	6.514768	-8.009867	21.09633	0.8742	0.8333
WUIKEN	40	0.06175	0.0637333	0	0.26	0.0085	0.2480
PRI	40	4.875	1.158857	3	7	0.8941	0.0022

Source: Author's calculation.

Table 2 entails a summary of the variables under study from 1980-2019. They are private domestic investments (PDI), Real GDP, Inflation (INFL), Real effective exchange rate (REER), Real Interest rate (RINR), World Uncertainty Index for Kenya (WUIKEN), and Political rights Index (PRI). Skewness showcases the symmetry of the data. That is informed by the fact that normally distributed data is symmetric with a skewness tending towards zero (Mean = Median = Mode). A positive coefficient shows that the variable is skewed towards the right, while a negative coefficient shows that the variable is skewed towards the left. From the table, we can deduce that PDI, RGDP, REER, RINR, WUIKEN, PRI with a coefficient of 0.1903, 0.3183, 0.0000, 0.4544, 0.8742, 0.0085, 0.8941, respectively, are positively skewed towards the right, which means that their distribution's tail on the right side is further extended in comparison with

the left (Mean > Median > Mode). The skewness for inflation (INFL) is 0.0000, which means there is a perfect symmetry between the right and the left-hand side of the distribution. Kurtosis estimates the heaviness of the tails in the distribution. In a normal distribution, the kurtosis is between 0 and 3. Datasets with extremely high kurtosis have very heavy tails (many outliers), while those with low kurtosis have light tails. In the study have a positive kurtosis of 0.0003, 0.1566, 0.0001, 0.0001, 0.8333, 0.2480, 0.0022, 0.0147, 0.0012, respectively, which are closer to zero. That indicates that the variables have a light-tailed distribution that is within the normal distribution range.

Table 3: Shapiro Wilk Test

Shapiro-Wilk test					
Variable	Obs	W	V	z	Prob>z
PDI	40	0.88205	4.662	3.240	0.00060
RGDP	40	0.95645	1.722	1.143	0.12649
INFL	40	0.78846	8.362	4.469	0.00000
REER	40	0.89568	4.124	2.981	0.00143
RINR	40	0.96842	1.224	0.425	0.33542
WUIKEN	40	0.85088	5.894	3.733	0.00009
PRI	40	0.95764	1.674	1.085	0.13906

Source: Author's calculation.

Shapiro-Wilk normality test in table 3 above indicates that at 5% level of significance ($\alpha=0.05$) If the Prob>Z (p=value) is <0.05, we reject H_0 that the variable is normally distributed, while if the p-value > 0.05, it indicated that the variable is normally distributed; hence we fail to reject the H_0 . According to the results in the table above per the results above, private domestic investment (PDI), inflation (INFL), real effective exchange rate (REER), and World Uncertainty Index for Kenya (WUIKEN) have Prob>z (p-values) 0.00060, 0.00000, 0.00143 and 0.00009, respectively, which are less than 0.05; hence we reject H_0 and conclude that these variables are not normally distributed. However, real GDP (RGDP), real interest rates (RINR), and political rights index (PRI) have p-values 0.12649, 0.33542, and 0.13906, which are > 0.05; hence we fail to reject H_0 and conclude that these variables follow a normal distribution.

4.3 Multicollinearity Test

The assumption in classical regression is that there is no link between the independent variables. Multicollinearity was tested through the use of the variance inflation factor (VIF) and tolerance limits. The rule of thumb in interpreting Variance Inflation Factors states that a VIF value exceeding 10 indicates an extreme correlation, which warrants further investigation as it may be a cause for concern in the study (Glen, 2015 & Thompson et al., 2017).). Table 4 indicates that the independent variables in the study were moderately correlated since all the variables has a value ranging between 7-1 with a mean VIF of 4.53; hence, multicollinearity is not a problem in the study.

Table 4: VIF Multicollinearity Test

Variable	VIF	1/VIF
REER	6.20	0.161275
WUIKEN	5.96	0.167787
RINR	5.62	0.178002
INFL	3.96	0.252678
PRI	3.94	0.253696
RGDP	1.52	0.657746
Mean VIF	4.53	

Source: Author's calculation.

4.4 Unit Root Tests

Table 5: ADF Stationarity Test

Variable.	Unit root test at level.		Differencing Order.	Unit root test at order 1	
	Statistic	Comment		Statistic	Comment.
PDI	-1.241	Non-stationary	1	-3.165***	Stationary
RGDP	-3.519**	stationary	1	-6.924 ***	Stationary
INFL	-4.647***	Stationary	1	-10.228***	Stationary
REER	-0.645	Non-stationary	1	-5.797***	Stationary
RINR	-4.330***	Stationary	1	-9.162***	Stationary
WUIKEN	-2.214	Non-stationary	1	-6.742***	Stationary
PRI	-1.608	Non-stationary	1	-5.255 ***	Stationary

Source: Author's calculation.

Asterisk (*) =Significance at 1 % level ***, Significance at 5 % level **, and Significance at 10% level *.

The study employed the ADF unit root test to test the hypothesis that;

H_0 : The series is non-stationary. H_1 : Series is stationary.

We reject H_0 if test statistic (absolute value) is found to be greater than McKinnon's critical values (1%, 5%, and 10%) at different significance levels indicated by the asterisk (*). All the variables in this study were found to be stationary at I (1) at all significant levels. Therefore, we reject H_0 and conclude that the series is stationary.

Table 6: Criteria for Lags Selection

Sample: 1984 - 2018					Number of observations = 35			
lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-508.561				14699.8	29.4606	29.568	29.7717
1	-353.921	309.28	49	0.000	37.2054	23.4241	24.2831	25.9126
2	-304.381	99.08	49	0.000	-51.5266	23.3932	25.0039	28.0592
3	-225.835	157.09	49	0.000	29.56	21.7048	24.0672	28.5484
4	506.467	1464.6*	49	0.000	1.0e-14*	-17.341*	-14.2269*	-8.31996*

Source: Author's calculation.

According to the rule of thumb, we select the minimum value for the lag selection. In our case, we choose Schwarz-Bayesian Information Criterion (SBIC) because it gives us the minimum value (-8.31996*) for the lags.

4.6 Bai & Perron Structural Break Test

Table 7: Bai & Perron Structural Break Test

Bai-Perron Multiple breakpoint tests
 Sample: 1980 2019
 Included observations: 40
 Breaking variables: C
 Break test options: Trimming 0.15, Max. breaks 5,
 Sig. level 0.05

Sequential F-statistic determined breaks:			
			1
Break Test	F-statistic	Scaled F-statistic	Critical Value**
0 vs 1 *	259.9357	259.9357	8.58
1 vs 2	9.735763	9.735763	10.13

* Significant at 0.05% level.

** Bai-Perron critical values.

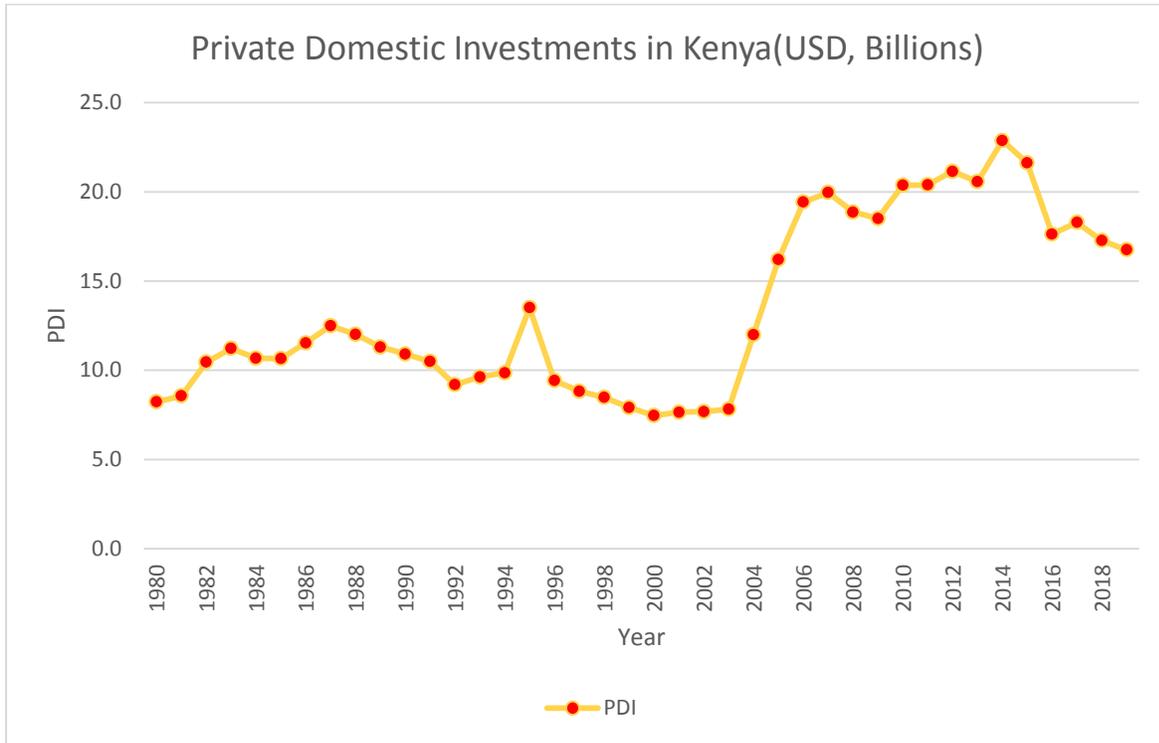
Break dates:

	Sequential	Repartition
1	2005	2005

Source: Author's calculation.

The mid-section of the table above highlights the actual sequential Bai& Perron structural break test results: The sequential test results showcase that there exists only one breakpoint(with an asterisk*): Hence we reject the H_0 of no structural breakpoint in favor of the alternatives of 1 breakpoint and conclude that there is only one estimated break in the year 2005.

Figure 2: A Line lot showcasing the presence of a structural break in PDI in 2005



Source: World Bank and Authors calculations.

4.7 ARDL Bounds Cointegration Test

H ₀ : no levels relationship						F = 2106.099		
						t = -57.349		
Critical Values (0.1 to 0.01), F-statistic, Case 3								
	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]
	L_1	L_1	L_05	L_05	L_025	L_025	L_01	L_01
k_6	2.12	3.23	2.45	3.61	2.75	3.99	3.15	4.43
Critical Values (0.1-0.01), t-statistic, Case 3								
	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]
	L_1	L_1	L_05	L_05	L_025	L_025	L_01	L_01
k_6	-2.57	-4.04	-2.86	-4.38	-3.13	-4.66	-3.43	-4.99
accept if t > critical value for I(0) regressors								
reject if t < critical value for I(1) regressors								

Source: Author's calculation.

The results show that the value of $F_s = 2106.099$, which is greater than the critical value of upper bound $F_{ub} = 3.61$ at a 5% level, is null for no cointegration can be rejected. That means there is cointegration between the variables PDI, RGDP, INFL, REER, RINR, WUIKEN, and PRI.

4.8 ARDL Results.

Table 8: ARDL Estimates

ARDL (4,4,4,4,4,3) regression						
Sample: 1984 - 2018				Number of obs = 35		
				F(33, 1) = 11732.47		
				Prob > F = 0.0073		
				R-squared = 1.0000		
				Adj R-squared= 0.9999		
Log likelihood = 119.20683				Root MSE = 0.0475		
D.PDI	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ADJ (ECT)	-0.8893369	0.0155074	-57.35	0.011	-1.086377	-0.692297
PDI						
L1.						
LONGRUN						
RGDP	1.148992	0.0432452	26.57	0.024	0.5995101	1.698474
INFL	-0.109748	0.0095543	-11.49	0.055	-.2311467	.0116508
REER	0.2493065	0.0058929	42.31	0.015	0.1744299	0.3241832
RINR	-0.5123098	0.0228552	-22.42	0.028	-0.8027125	-0.2219072
WUIKEN	-167.371	2.626599	-63.72	0.010	-200.7451	-133.9969
PRI	-5.558784	0.1429602	-38.88	0.016	-7.375266	-3.742303
SHORTRUN						
PDI	-0.708575	0.0194323	-36.46	0.017	-0.9554853	-0.4616647
RGDP	-0.710617	0.0400264	-17.75	0.036	-1.219201	-0.2020328
INFL	-0.2246611	0.0096406	-23.30	0.027	-0.3471564	-0.1021658
REER	-0.6222277	.0145977	-42.63	0.015	-0.8077092	4367462
RINR	-0.2675464	0.0115687	-23.13	0.028	-0.4145404	-0.120552
WUIKEN	48.4762	2.071782	23.40	0.027	22.15171	74.80069
PRI	5.266236	.0652616	80.69	0.008	4.437009	6.095464
Constant	36.81435	.3869516	95.14	0.007	31.89766	41.73103

Source: Author's calculation.

The Log-Likelihood value measures the goodness of fit for any model. The Log-Likelihood coefficient can either be positive or negative. The higher the absolute log-likelihood value, the better is the model. In this study, the log-likelihood value 119.20683 is very high, which

indicates that the ARDL model used is fit. The Root Mean Square Error (RMSE) is a square root of residual variance. It is an absolute measure of how the data fits the model. That is how close the data points observed are to the predicted values in the model. It is a good estimate of how accurate the model forecast the response. It is the most significant criterion used to determine the fitness of the model. The lower the values of RMSE, the better fitness of the model to the data. In our case, the Root MSE coefficient 0.0475 is very low; hence we can deduce that the ARDL model is fit to estimate the variables in the study.

From the figure above, the adj R^2 values showcase that 99.9% % of the variations in PDI were as a result of RGDP, INFL, REER, RINR, WUIKEN, and PRI. ECT is an error correction term or speed of the adjustment to converge back to its long-run equilibrium). It should be negative and between 0 and 1. According to the linear ARDL results above, the ECT is negative, and with a p-value of 0.011, which is <0.05 , is also significant *ceteris paribus*. That reflects the presence of cointegration and the ability to correct the short run errors for returning to the long-run balanced positions. The short-run coefficients estimate shows the dynamic adjustment of the variables in the study. The short-run coefficients for PDI (-0.708575), with a p= 0.017 value of, was found to be significant only at 5% level *ceteris paribus*. The short-run coefficients for Real GDP (-0.710617), with a p=value of 0.036, were found to be significant only at 5% level *ceteris paribus*. The short-run coefficients for INFL (-0.2246611), with a p= 0.027 value of, was found to be significant only at 5% level *ceteris paribus*.

The short-run coefficients for REER (-0.6222277), with a p= 0.015 value of, was found to be significant only at the 5% level *ceteris paribus*. The short-run coefficients for RINR (-0.2675464), with a p= 0.028 value of, was found to be significant only at the 5% level *ceteris paribus*. The short-run coefficients for WUIKEN (48.4762), with a p= 0.027 value of, was found to be significant only at 5% level *ceteris paribus*. The short-run coefficients for PRI (5.266236), with a p= 0.008 value of, was found to be significant only at 5% level *ceteris paribus*.

In the long run, the estimated parameters for the relationship of variables in the ARDL model showcase that *ceteris paribus*, a 1% increase in RGDP leads to an increase in the PDI by 1.15%, and with a p-value of 0.024, is significant at 5% level. These findings agree with Oshikoya (2001), Blejer & Khan (1984), and Serven & Solimano (1993), who stated that an increment in real GDP increases private investments in developing countries. In addition to that, studies by Bosco & Emerence (2016) shows that growth in GDP impacts private Investments in both the long-run and short-run in Rwanda. Futhermore, Lesotlho (2006) examined the determinants of

private investments in Botswana. He found out that real GDP had a positive and significant effect on private investments.

The study also found out that a 1% increment in INFL, leads to a decline in PDI by 0.11 % *ceteris paribus*, and with a p-value of 0.055, is significant at 10% level. These results agree with Abbas (2004), who studied the determinants of private investments in Iran. He discovered that a negative relationship exists between inflation and private investments and that a 1 % increment in inflation, in the long-run, resulted in a 1% decrease in investments in the shortrun.

The study also found out that a 1% increment in REER, leads to an increment in PDI by 0.25 % *ceteris paribus*, and with a p-value of 0.015, it is significant at 5% level. These results agree with Ogun, Egwaikhide & Ogunleye (2009), who examined how the real effective exchange rate affects domestic investments in sub-Saharan Africa. They found out that there is a positive and significant relationship between REER and PDI. The study also found out that a 1% increment in RINR, leads to a decline in PDI by 0.51% *ceteris paribus*, and with a p-value of 0.028, it is significant at 5% level. These results agree with Serven (1998) that higher real interest rates on deposits have an adverse effect on private investments.

The study also found out that a 1% increment in WUIKEN leads to a decline in PDI by 167.37 % *ceteris paribus*, and with a p-value of 0.010, it is significant at 5% level. These results agree with Bloom et al. (2009), Bloom et al. (2018), Chen & Funke (2011), and (Dixit & Pindyck (1994) that an increment in economic policy uncertainties dampens private domestic investments. Surges in economic policy uncertainty increment systematic risks associated with investment, and therefore capital costs in the economy. As a result, the higher economic policy uncertainties lowers investment, as investors become risk-averse more so due to the irreversibility of the investment cost.

The study also found out that a 1% increment in PRI leads to a decline in PDI by 5.56% *ceteris paribus*, and with a p-value of 0.016, it is significant at 5% level. These results agree with Alesina et al. (1992), Benhabib & Spiegel, 1992), Mauro (1995), and Pindyck & Solimano (1993) that the intuition that forms the basis of the fundamental relation between investment and electoral uncertainty is simple: If a national election has the potential of resulting in an adverse outcome from an investor's perspective, the alternative of waiting to invest jacks up, the potential investors rationally delay their investments until the policies that caused the political uncertainties are resolved. The incentives to either disinvest or invest depends on the likelihood

that the current regime’s policies will remain stable in the future. Investors cannot commit their investments in an unstable political environment. Therefore, political uncertainty reduces the inflows of both foreign and domestic capital due to the uncertainties that are associated with continually changing policies and regimes.

4.9 Post Estimation Tests

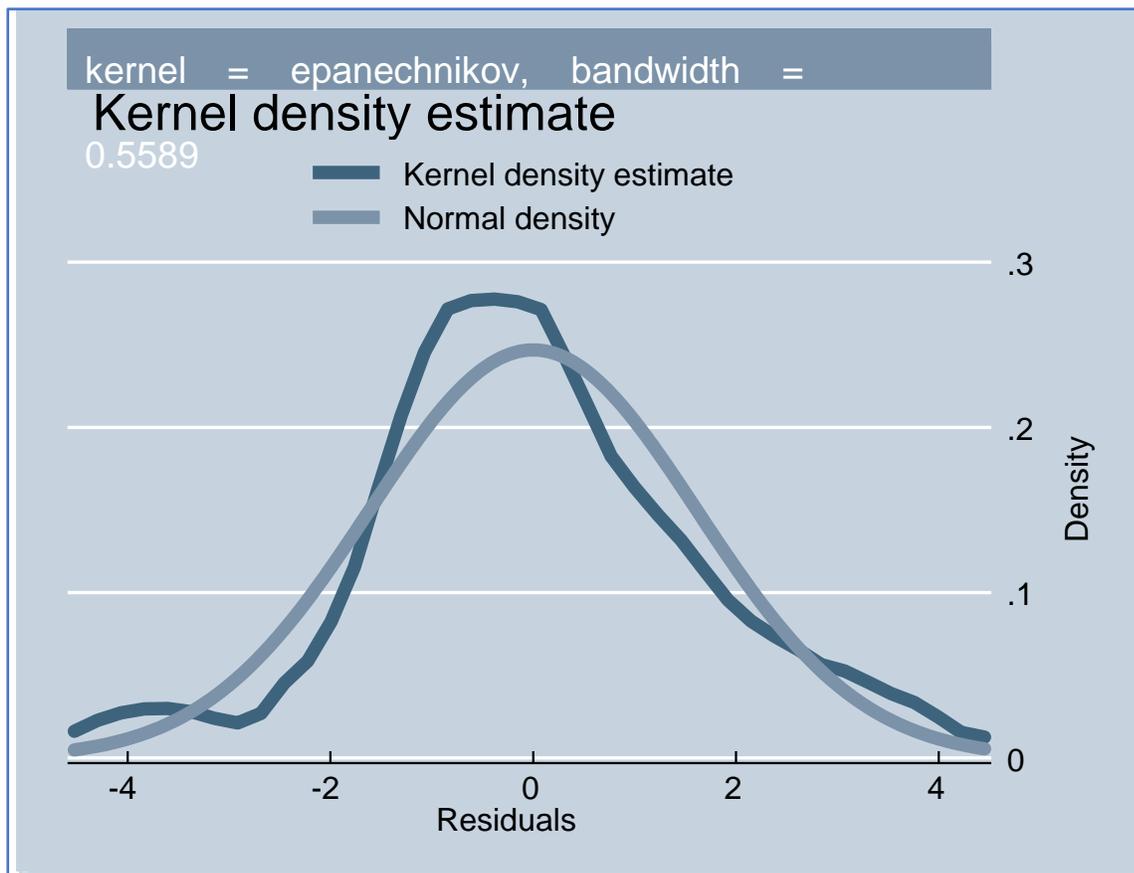
Table 8: Shapiro-Wilk test

Shapiro-Wilk W test for normality of Residuals					
Variable	Obs	W	V	z	Prob>z
r	38	0.97374	0.998	-0.005	0.50184

Source: Author’s calculation.

From the table above, we can see that the p-value (Prob > chi2) 0.50184 for the normality of residuals is > 0.05. The H_0 is that the residuals are normally distributed. Hence, we deduce that the residuals are normally distributed.

Table 9: Distribution of residuals against a normal curve



Source: Author’s calculation.

Table 10: Breusch-Pagan heteroscedasticity test

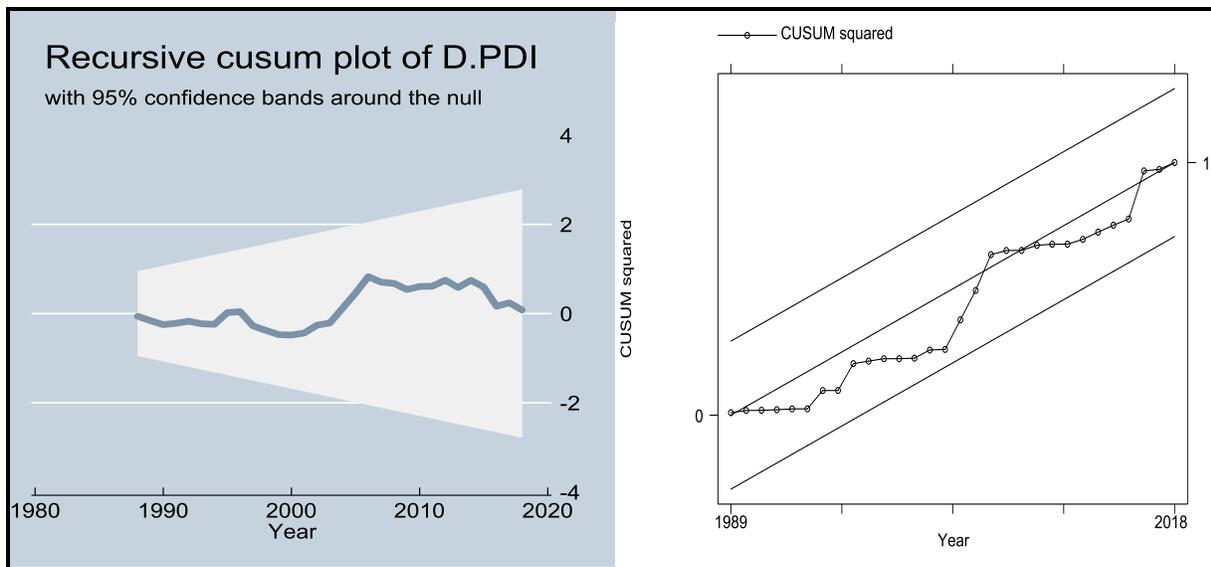
Breusch-Pagan / Cook-Weisberg heteroscedasticity test
H ₀ : Constant variance
Variables: The fitted values of private domestic investment
chi2(1) = 1.92
Prob > chi2 = 0.1654

Source: Author's calculation.

The H₀ for this test is that there is constant variance. Since the p-value 0.1654 > 0.05, we fail to reject H₀ and conclude that there is constant variance

CUSUM & CUSUMQ Parametre Stability Test

Figure 3: Linear ARDL CUSUM & CUSUMQ



Source: Author's calculation.

The figure above explains that the linear ARDL model attains cumulative sum and cumulative sum of squares parameter stability test. The CUSUM and CUSUMQ plot lines are within the 0.05 significance line boundaries. Hence we confirm that the long-run coefficients of regressors are stable (the linear ARDL model parameter estimates are stable).

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

The chapter summarizes study results in terms of the conclusion, policies relevance, recommendations, and limitations of the study on the effects of uncertainty on domestic private investments in Kenya.

5.2 Summary

This study intended to examine how economic and political uncertainty affects private domestic investments in Kenya using an ARDL approach. According to the results in the study, the ECT (adjustment term) was from short-run to long run was found to be is negative, and with a p-value of 0.011, which is <0.05 , it is also significant at the 5% levels. That reflects the presence of cointegration and the ability to correct the short run errors for returning to long-run balanced positions. Short-run coefficients estimates showcase the dynamic adjustment of the variables in the study. The short-run coefficients for PDI (-0.708575), with a 0.017 p-value, were found to be significant only at 5% level. That means that RGDP, REER, INFL, INTR, PRI, and WUIKEN are cointegrated.

In the long run, the estimated parameters for the relationship of variables in the ARDL model showcase that *ceteris paribus*, a 1% increment in RGDP leads to an increment in the PDI by 1.15%, and with a p-value of 0.024, is significant at 5% level. The study also found out that a 1% increment in INFL, leads to a decline in PDI by 0.11 % *ceteris paribus*, and with a p-value of 0.055, it is significant at the 10% level. In addition to that, a 1% increment in REER also leads to an increment in PDI by 0.25 % *ceteris paribus*, and with a p-value of 0.015, it is significant at 5% level.

The research also found out that a 1% increment in RINR, leads to a decline in PDI by 0.51% *ceteris paribus*, and with a p-value of 0.028, it is significant at 5% level. A 1% increment in WUIKEN leads to a decline in PDI by 167.37 % *ceteris paribus*, and with a p-value of 0.010, it is significant at the 5% level. Furthermore, the study also found out that a 1% increment in PRI

leads to a decline in PDI by 5.56% ceteris paribus, and with a p-value of 0.016, is significant at 5% level.

Conclusions

From the findings, this study concludes that real GDP (RGDP) and (REER) have a significant and positive impact on private domestic investment (PDI). In contrast, inflation (INFL), Real interest rates (RINR), Political uncertainty (PRI), and WUIKEN (economic policy uncertainty and volatility in the stock markets) have a negative and significant effect on private domestic investments. Based on the outcome of the results, the most significant factors affecting private domestic investment were found to be political uncertainty (PRI), real gross domestic investment (RGDP), and WUIKEN ((economic policy uncertainty and volatility in the stock markets).

5.3 Policy Recommendations

Private domestic investments play an essential role in economic development in Kenya. The study recommends the following policies based on the outcome of the study: the country should enact policies such as reducing the tax and interest rates in order to boost the aggregate demand, which boosts economic growth and development in order to attract more private domestic investments because of the broad market. It should also enact policies that reduce the cost of business and enhance the ease of doing business in order to encourage foreign domestic investments (FDI). That involves coming up with expansionary fiscal policies to upgrade and develop our physical infrastructure and human resource development through investment deepening in education and healthcare.

The Central Bank of Kenya should strive to maintain a desirable exchange rate regime. The central government should also stabilize the exchange rates by adopting sound monetary and fiscal policies. That will also stimulate more involvement by the private sector in economic growth, increasing private domestic investments. In addition to that, the government should also enact monetary policies that enable the central bank to have sufficient backup of foreign exchange reserves to prevent exchange rate volatility and shocks due to an acute shortage in foreign exchange if the national currency rapidly devalues.

The central bank should also enact monetary policies that regulate money supply in the economy in order to keep inflation in check. It should also aim to reduce the commercial bank's interest rates to enable more MSMEs and local entrepreneurs to access affordable loans for their investments.

The Kenyan government should also aim at stabilizing the political environment to prevent civil unrest and post-election violence in times of election and acts of terrorism, which destroys the economy by interfering with the production process and lowering investor confidence. The government should also avoid frequent switch of macroeconomic policies, which affects macroeconomic performance hence exacerbate uncertainty for investors. Uncertainties about trade regimes, wages, interest rates, future prices, exchange rates, taxes, and other regulatory policies increment the risk averseness of investors. Hence the government should enact stable macroeconomic policies that promote private domestic investments that do not often change in order to reduce investor skepticism and enhance their confidence.

5.4 Limitations of the Study

This study did not capture the more accurate data on political uncertainty due to the electoral process and acts of terrorism due to data limitations. Also, there were aspects of economic uncertainty that were not included in the study due to the unavailability of data and data limitations.

5.5 Suggestions for Further Research

This research recommends that extensive studies to be done at the cross-country level in order to compare whether both economic and political uncertainty has any effect on private domestic investments in different counties in Kenya. The study should also be extended in the East African region in order to examine whether both economic and political uncertainty have any effect on trade in the Eastern African region. The type of governance and its effect on private domestic is also an area that requires an examination to investigate whether the different political regimes since independence have any impact on private domestic investment inflows. Furthermore, extensive studies need to be done on the impact of corruption (rent-seeking behaviours of public officials) and how it affects private domestic investments in Kenya.

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