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The role of political instability in stock market growth: the case of Africa

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ABSTRACT

Countries with unstable political environments often deal with economic problems. To ascertain whether this extends to specifically stock market performance, this study examines the impact of political instability on stock market growth. A fixed-effects panel regression method is used to analyze annual panel data of 16 African countries for the period of 1996 until 2021. The results of this analysis do not indicate a significant relationship between political instability and stock market growth. Therefore, no direct conclusions can be drawn from the results of the analysis. This is presumably attributable to a lack of comprehensive data.

Keywords: political instability, stock market development, African stock markets

JEL codes: G15, 016, P00

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CHAPTER 1 Introduction

Does political instability affect stock market development? The link between political instability and economic growth has often been observed. Countries that deal with an unstable political environment, more often the case than not, also deal with economic problems. Most examples of this phenomenon can be found in Africa or South America, where most countries have historically been and currently are dealing with this hardship. The negative effect of political instability on economic growth has been widely documented in the scientific literature, as well as the positive relationship between stock market development and economic growth. The aim of this paper is to find out if the negative relationship between political instability and economic growth can be in part explained by the effect on stock market development.

This paper studies the effect of political instability on stock market growth. Political instability refers to the potential for sudden and significant change in the leadership, policies, or condition of a country. It can manifest in several forms, such as protests, riots, civil wars, and terrorism and can have a variety of effects on economic, social and political outcomes. Understanding the consequences of socio-political instability is a complex issue and has attracted significant attention from scholars in economics. Given the historical and ongoing political challenges in emerging market economies, understanding the relationship between political instability and economic growth is crucial for policymakers and scholars. This paper aims to contribute to the research on this complex relationship by analyzing the impact of political instability on key economic indicators.

Previous papers have found significant negative correlation between political instability and economic growth. An example is the paper by Alesina et al. (1996) examine relationship between political instability and economic growth using cross-country data over the period from 1950 to 1982. They suggest that political instability can reduce investment, discourage the accumulation of human capital, and disrupt economic activity, leading to lower levels of productivity and economic growth. Moreover, Irshad (2017) investigates the effect of political uncertainty on corporate investing behaviours by analysing the change in stock prices. He looks at the case of Pakistan and use data of political events and stock prices from 1998 to 2012. The results of his empirical analysis indicate a negative relationship between political instability and stock returns. Another example is the research of Asteriou and Siriopoulos (2000), who investigate the effect of political instability on investment and economic growth, and specifically whether it has a negative impact on the development of stock markets. They look at the case of Greece and find that political instability has a negative effect on both stock market growth and economic growth.

There has been significant research about the relationship between political instability and economic growth. However, significantly less research has been conducted about the relationship between political instability and stock markets and how this relates to economic growth. Furthermore, most studies either look at country specific cases, or large cross-country datasets. There are not many studies that specifically look at African countries. Most economies in Africa are still developing, which means that they may be more vulnerable to political instability. Previous studies have shown that in emerging economies the impact of political risk is greater than in developed markets (Diamonte et al., 1996; Gupta, 1990). Therefore, the sample of African countries offers a great case to study the impact of political instability on stock markets. The research question of this paper is: How does political instability affect the stock market and thereby economic growth?

Political instability discourages investment, because firstly it creates uncertainty regarding the political and legal environment, and secondly it disrupts market activities. Political instability is a variable that is difficult to define and measure in a way which can be used in an econometric framework, but previous empirical studies have measured political instability by means of constructing an index which summarizes various variables capturing phenomena of social unrest or using an index from a database. In my analysis, I will use the Political Stability and Absence of Violence/Terrorism index from the World Bank's Worldwide Governance Indicators. It contains an annual index from 1996 to 2021, which measures perceptions of the likelihood of political instability and/or politically motivated violence in several African countries. The sample of African countries used in this paper consists of the following countries: Algeria, Botswana, Cote d'Ivoire, Egypt, Eswatini, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, South Africa, Tanzania, Tunisia, Zambia, and Zimbabwe.

The objective of this study is to examine the impact of political instability, measured by the political stability index, PII, on the stock market growth in Africa. African local stock market growth will be represented by the growth rate of the average annual stock market index in respective African countries. This variable will be called *growth* and is the dependent variable. The data originate from the World Bank Development Indicators. I will also add an index which captures other aspects of stock market development to control for their effect on *growth*. The *stock* index contains *size*, *liquidity* and *turnover* ratio. *Size* is measured by ratio of market capitalization divided by GDP. *Liquidity* is measured by the ratio of total value of trades divided by GDP. The *turnover* ratio equals the total value of trades divided by market capitalization. The data originates from the Global Financial Development Indicators from the World Bank. I will also use a measure of financial depth, *depth*, to evaluate if political instability is significantly correlated with stock market development even after controlling for financial depth. *Depth* will be measured by M3, the broad money supply, divided by GDP. This data originates from the World Development Indicators of the World Bank. To control for macroeconomic factors that might influence *growth,* five additional control variables will be included. These will be *investment, GDP growth, log*

GDP per capita, *inflation* and *exchange rate*. These will respectively represent investment growth, economic growth, the current level of economic development, economic uncertainty, and exposure to the foreign exchange market. This study will employ a regression analysis with the political stability index, PII, as the independent variable (x-variable) and the stock market growth, *growth*, as the dependent variable (y-variable). *Investment*, *stock*, *depth*, *GDP growth*, *GDP per capita*, *inflation* and *exchange rate* will be included in the regression as control variables.

I expect to find that political instability is negatively correlated with stock market growth, which should be visible in a significant negative coefficient for the political stability index in the regression. As several studies have found this result with both cross-sectional datasets and in country-specific cases, I think this will also be the case for this sample of African countries.

The remainder of this paper is structured as follows; chapter 2 discusses the relevant literature and previous research; chapter 3 discusses the dataset and variables; chapter 4 discusses the methodology for the empirical analysis; chapter 5 contains the results and discussion; and chapter 6 will provide the conclusion.

CHAPTER 2 Theoretical Framework

2.1 Stock market development

Stock market development can be defined as to the process of growth and maturation of a financial market where stocks and other securities are traded. It shows the evolution of a stock market over time. Stock market development covers several aspects such as market size, liquidity, efficiency, and depth. It reflects the overall performance of stocks in a certain market. Stock market expansion is playing an increasingly central role in economic growth and global economics. Stock markets enable firms to acquire and allocate capital quickly and provide them with liquidity. They provide investment opportunities and help firms reduce risk, thus facilitating growth. Therefore, the development of stock markets can reflect the efficiency and maturity of a market and indicate economic development.

The first discussion of the importance of financial markets in economic development can be traced back to Schumpeter (1911), who states that they provide entrepreneurs with required credit to finance innovation. On the other hand, Robinson (1952) states that financial development is a reaction to economic growth and that financial development does not lead to economic growth.

Early studies on finance, in relation to development, were done by Gurley and Shaw (1955), Goldsmith (1969) and Hicks (1969) .These studies follow the rationalization of Schumpeter. Gurley and Shaw (1955) considered that the real aspects of development had been the center of attention in economic literature to the comparative neglect of financial aspects. They studied the nature and importance of the development of financial systems and the relationship between financial intermediaries, including stock markets, and economic growth. They review conventional economic theories of that time and propose some theoretical adaptations.

While the positive relationship between financial development and economic growth was documented by Goldsmith (1969), empirical studies following the seminal paper by King and Levine (1993a) sprouted up in the 1990s. King and Levine studied 80 countries over the period of 1960 to 1989, also controlling for other factors that determine economic growth. They find that financial development is a good predictor of economic growth.

For example, Levine and Zervos (1996) try to answer the question: Is the financial system important for economic growth? In their paper they perform cross-country growth regressions to examine if stock market development is associated with long-run economic growth. They find empirical evidence of the positive relationship between stock market development and economic growth. They write another paper

in 1998 to investigate if stock markets and banks promote long-run economic growth (Levine & Zervos, 1998). Their findings show that stock market liquidity and banking development are positively correlated with long-run economic growth.

Additionally, Demirgüç-Kunt and Maksimovic (1996) empirically explore the effect of stock market development on the financing choices of firms. They look at 30 countries from 1980 to 1991 and find that stock market development is negatively correlated to both the ratios of long-term and short-term debt to total equity of firms. They also find that the size of the banking sector and leverage are positively correlated. Furthermore, they also argue that initially stock market development only affects the policies of large firms.

As stock market development has increasingly been regarded as an important determinant of economic growth, a large number of countries had started to implement extensive broad capital market reforms to foster domestic capital development. However, de la Torre et al. (2007) observe that local capital market performance in many developing countries has been disappointing, despite their reform efforts. To shed light on this issue, they examine several capital market reforms while also including their activity in international markets. The find that capital market reforms are usually followed by an increase in market capitalization and local trading, and conclude that reforms positively affect domestic stock market development. Additionally, they find that reforms make local firms more attractive, by giving them to opportunity to access international markets.

More recently, Ho and Iyke (2017) have reviewed the theoretical literature and empirical evidence on determinants of stock market development. They group the determinants in two categories: macroeconomic factors and institutional factors. For macroeconomic factors, they find that real income and real income growth enhances stock market development and that the banking sector, interest rates and private capital flows can either enhance or hinder stock market development. Moreover, inflation and exchange rates have a negative impact on stock market development. For the institutional factors, the literature suggests that the effect of different legal origins and stock market integration can either be positive or negative. Factors that enhance stock market development are legal protection of investors, corporate governance, financial liberalization and trade openness.

2.2 Political instability

Political instability refers to the potential for sudden and significant change in the leadership, policies, or condition of a country. It can manifest in several forms, such as protests, riots, civil wars, and terrorism and can have a variety of effects on economic, social and political outcomes. Political instability discourages investment, because firstly it creates uncertainty regarding the political and legal

environment, and secondly it disrupts market activities. Social and political instability are variables that are difficult to define and measure in a way which can be used in an econometric framework, but previous empirical studies have measured political instability by means of constructing an index which summarizes various variables capturing phenomena of social unrest or using an index from a database. Researchers before have constructed indexes of political instability themselves using variables such as, but not limited to corruption, demonstrations, number of elections, democracy, assassinations, government changes, coups and strikes (Alesina & Perotti, 1996; Asteriou & Siriopoulos, 2000; Gupta, 1990; Hibbs, 1973). While others have used pre-constructed indexes from various institutions (Diamonte et al., 1996; Mauro, 1995).

An early study, that is also considered a seminal work in the field of political science, was ‘’Political order in changing societies’’ by Samuel P. Huntington (1968). In his book he explores the challenges of political stability in rapidly changing societies. A central concept in his work is that of ‘’political decay’’, which is when government fail to adapt to social and economic developments. Huntington argues that political instability happens the ‘’political gap’’ widens. This is the gap between the expectations of the people and the capacity of the government to fulfill these expectations. This research has provided a framework for exploring the dynamics between political instability and changing societies.

Another example of an early study on political instability is the one that was conducted by Douglas Hibbs (1973). In his book ‘’Mass political violence; a cross-sectional analysis’’ he reports the quantitative empirical research on differences across nations in levels of mass political violence in the period following World War II. The core of his research looks at riots, armed attacks, political strikes, political assassinations, deaths from political violence, and antigovernment demonstrations in more than a hundred nations. Hibbs specifies a causal model of mass-political violence. He provides indications of the influence of variables on each measure of violence and causal interpretations behind these relationships.

Along with other studies, these early studies laid the foundational framework in which future studies conduct their analyses. A popular example might be the study by Fearon and Laitin (2003) which examines ethnicity, insurgency and civil war in the post-Cold War era. They show that internal war is mainly caused by the accumulation of earlier conflicts originating from the 1950s and 1960s, instead of macroeconomic or -political distress after the end of the Cold War. They also find that ethnically diverse countries were no more likely to experience civil violence in the studies period. Factors that increase the risk of civil war are poverty, political instability, rough terrain and large populations.

‘’Corruption and growth” (Mauro, 1995), in which is examined if corruption leads to economic decrease, is also a seminal study. He analyzes a cross-national data set containing indices of corruption, the amount

of red tape, the efficiency of the judicial system and several measures of political instability. The findings indicate that corruption leads to a decrease in economic growth, by lowering investments.

2.3 Empirical studies on political instability and stock market development

The effect of political instability on stock markets can be roughly grouped into two segments. Firstly, political instability discourages investment, because it creates uncertainty regarding the political and legal environment, and consequently deteriorate investor confidence. Investors prefer a stable environment that provides a predictable framework. When uncertainty arises because of regime change or political conflict, investors become hesitant. This leads to market volatility and downward pressure on stock prices. Secondly, political instability disrupts market activity, resulting in economic instability. Disruptions in regulation or governance can lead to unstable economic conditions that negatively impact corporate performance.

Research on the effect of political instability on economic factors often directly looks at the effect on economic growth as a whole. The majority of these studies have found a significant negative relationship between the two variables. Following studies that look at economic growth, there has been a growing amount of research on the effect of political instability on financial markets. An example is the paper by Asteriou and Siriopoulos (2000), who study the relationship between political instability and stock market growth, as well as economic growth in Greece. They construct an index of political instability and subsequently look at GDP growth and the growth rate of the Athens Stock Exchange index. They find that political instability has a negative effect on both stock market growth and economic growth in Greece. While most previous research has looked at a cross-sectional dataset, Asteriou and Siripoulos argue that there are substantial advantages of using time-series data.

Another paper also finds evidence of this relationship in Pakistan. Irshad (2017) looks at political instability and stock market fluctuations in relation to stock market returns. He investigates the effect of political uncertainty on corporate investing behaviors by analyzing the change in stock prices in Pakistan. He looks at political events and stock market returns and volatility. The results of his ARDL model indicate a negative relationship between political instability and stock returns.

The relationship between political instability has even been more extensively studied using cross-country datasets. Finding similar results as the previous papers with a cross-country dataset, Diamonte et al. (1996) also uncover a clear distinction between emerging market and developed markets. As they quantify the importance of political risk in stock markets, they find that political risk is a more important determinant of stock returns in emerging stock markets than in developed stock markets.

On a similar note, Lehkonen and Heimonen (2015) reason that semi-democracies are more prone to political risk than autocracies or full democracies. They study the relationship between democracy, political risk and stock market performance and find evidence that the level of democracy of a country affects stock market returns interacting with political risk. Additionally, they see a parabolic relationship between democracy and political risk. They reason that semi-democracies are more prone to conflicts and political risks and that therefore their stock market might perform more poorly.

The concept of stock market growth is tied to economic growth as they both reflect a positive development in an economy. There is extensive confirmation that stock market development leads to economic growth (Goldsmith, 1969; King and Levine, 1993a; Levine and Zervos, 1996). Alesina et al. (1996) examine relationship between political instability and economic growth using cross-country data over the period from 1950 to 1982. They use a fixed-effects regression model and find that an increase in political instability leads to a decrease in GDP. They suggest that political instability can reduce investment, discourage the accumulation of human capital, and disrupt economic activity, leading to lower levels of productivity and economic growth. Many other papers find the same result, adding to an extensive basis of literature supporting this negative association between political instability and economic growth (Asteriou & Siriopoulos, 2000; Gupta, 1990).

2.3 The case of Africa

There is a number of papers which have studied the relationship between political instability, stock markets, and economic growth with a sample of one or more African countries. Adjasi and Biekpe (2006) investigate stock market development and economic growth in 14 African countries. Their results mostly indicate that stock market development positively affects economic growth in African countries. However, they also conclude that low-income African countries and less developed stock markets need to grow and develop more to elicit economic gains from stock markets.

Another paper that shows that African stock market integration in the wider economy may not be as straightforward as with developed markets is written by Adjasi and Yartey (2007), who also look at the role of the stock market in a sample of African countries. Their analysis shows that the stock market has been an important source of finance for funding the growth of large corporations in some African countries. However, they find little systemic evidence that this has benefited economies as a whole, through greater aggregate savings and investment or increased productivity of investment.

Looking at the specific case of Kenya, Aduda et al. (2012) investigate the determinants of the Nairobi stock exchange for the period of 2005 to 2009. They find that institutional quality, democratic

accountability and corruption are important determinants of stock market development. This suggests that the resolution of political risk can be an important determinant of stock market development for the Nairobi stock exchange.

For the African case there are a few papers that empirically study the effect of political instability and economic growth. Fosu (2002) investigates the relationship by examining production functions and abortive coups, successful coups and coup plots with dataset of 31 sub-Saharan African countries. He finds that abortive coups and coup plots have a negative impact on economic growth, abortive coups having the largest impact.

Likewise, Asongu and Nwachukwu (2018) assess if stock market performance is affected by political institutions, using data of 14 African countries. They conclude that democratic regimes foster higher levels of financial development than aristocratic nations do. They additionally find that stock market development is positively affected by democracy and good governance.

2.5 Hypothesis

Overall, research about both the effect of political instability on economic growth and on stock market development largely imply a negative relationship between the two. For the case of Africa, theoretical and empirical results imply this relationship, but generally do not find definitive evidence. As most studies have found similar results with cross-country datasets and in several country specific datasets, I think that a negative relationship will also be found in the case of this particular sample of African countries.
The hypothesis of this paper is: political instability has a negative impact on stock market growth.

CHAPTER 3 Data

3.1 Variables

Stock market growth is an aspect of stock market development that indicates the overall performance and expansion of a stock market. Stock market growth, or stock market return, will be captured in the variable growth and is defined as 'the growth rate of annual average stock market index' was collected from the World Bank's World Development Indicators for a sample of 16 African countries from 1996 to 2021. These countries are Algeria, Botswana, Cote d'Ivoire, Egypt, Eswatini, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, South Africa, Tanzania, Tunisia, Zambia, and Zimbabwe. The annual average stock market index is constructed by taking the average of the daily stock market indexes.
The variable PII contains the political instability index and is collected from the World Bank Governance Indicators. The index measures perceptions of the likelihood of political instability and/or politically motivated violence in the 16 African countries from 1996 to 2021. The estimate gives a country's score on an aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. This dataset has three missing values for PII, for the years 1997, 1999 and 2001. These datapoints will be replaced by the average value of the following year and the previous year.

3.2 Control variables

To evaluate if political instability is significantly correlated with stock market growth, control variables are needed. I will use seven control variables: *investment, stock, depth, GDP growth, GDP per capita, inflation* and *exchange rate*. These will help isolate the specific relationship between the main variables of interest by holding constant the influence of other factors within the financial system or broad economy which may influence growth.

The variable *stock* encapsulates the aspects of stock market development other than growth. Stock market development is multifaceted and can be measured in many ways. However, most studies have primarily used market size, liquidity, and depth to analyze stock market development. When markets grow, they provide more opportunities for investment and diversifying risk. Firstly, I will use *size*, which is defined as the total value of all listed shares in a stock market as a percentage of GDP, to measure market size. Secondly, a simple definition of liquidity is the ability to trade a significant quantity of a security at a low cost in a short time (Holden et al., 2013). Investments in liquid assets are more attractive to investors because they have less disincentives to invest in longer-run projects with higher return and because they have lower transaction costs (Levine, 1991; Levine & Zervos, 1996; Bencivenga et al., 1995). I will measure the liquidity of the stock market in two ways. One of two units of measurement will be captured in the variable *liquidity*, which is the total value of all traded shares divided by GDP, to measure the value of equity transactions relative to the size of the whole economy. This measure complements the measure

of stock market size, because markets may be large but inactive (Levine & Zervos, 1996). The second measurement, *turnover*, is the total value of trades divided by market capitalization, or turnover ratio. This measures the value of equity transactions relative to the total size of the equity market and complements the measure of stock market development as well, as markets may be small but liquid. The average of these three variables will comprise the variable stock. This can also be described by the equation: stock = $\left|\frac{size+liquidity+turnover}{3}\right.$. The data for *liquidity, size, and turnover* originate form the World Bank's Global Financial Development Database.

I will also use the measure of *depth*, to evaluate if political instability is significantly correlated with stock market development even after controlling for financial depth. Financial depth measures the scope and complexity of the financial system of a country and is closely related to stock market development. Financial depth facilitates stock market growth by creating access to capital and improving market liquidity and efficiency. It captures how developed the financial system of a country is. To measure depth, previous literature typically uses a measure of broad money. Following Asteriou and Siriopoulos (2000), in this paper *depth* will be measured by M3, the broad money supply, divided by GDP. The data for *depth* originate from the World Bank Development Indicators.

To control for macroeconomic factors that have an impact on our dependent variable *growth*, several additional control variables are added to the regression. Firstly, *investment* will capture the level of investment, and is defined as average annual growth of gross fixed capital formation based on constant local currency. To capture the current level of economic development, both *GDP growth* and *log GDP per capita* will be introduced. They are respectively measured by the annual percentage growth rate of GDP at market prices based on constant local currency and the log transformation of GDP divided by midyear population. The effect of macroeconomic uncertainty will be captured in the variable *inflation*. It is measured by the annual growth rate of the GDP implicit deflator and it shows the price change in the economy as a whole. Furthermore, e*xchange rate* is included to account for foreign exchange exposure for each local currency. It is defined as the exchange rate determined by national authorities, or the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar). The data used to construct *investment GDP growth, GDP per capita, inflation* and *exchange rate* all originate from the World Bank Development Indicators.

3.3 Descriptive statistics

This chapter discusses the descriptive statistics and variables correlations. The corresponding tables 1 and 2 are included at the end of the chapter. The variable PII has a low standard deviation

which tells us that the values are clustered around the center. Furthermore, the mean value for the political instability index is negative, indicating that the sample countries were quite politically unstable. The minimum observed value of -2.26 is close to the lowest possible value of the index of -2.5, while the maximum observed value is only 1.2. Stock market growth has been positive, with a mean of 11.06 and has a high standard deviation. Furthermore, it is interesting that the minimum and maximum value of size are very far apart. Meaning that in some countries the size of the stock market has been abnormally small, while in another country the stock market capitalization has been more than three times as large as GDP. Average GDP growth has been arguably high at an average of 3.83. Furthermore, GDP per capita has a large standard deviation, indicating that there is a large disparity between the levels of economic development of the sample countries. Mean inflation is also quite high, with a very high maximum of 225.39%. Finally, exchange rates have both very low and very high values.

The most important correlation for this research the between the two variables *growth* and *PII*. This correlation is 0.09. Firstly, this number is quite small which might indicate that the effect of political instability on stock market growth is quite small. Secondly, the estimated relationship is positive which is contrary to what is expected. Also interesting to note is that *investment GDP growth* and *inflation* seem to have the strongest relationships with stock market growth.

Table 1

Descriptive statistics for the regression variables including the control variables. The descriptive statistics include number of observations, mean, standard deviation, minimum value and maximum value.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
PII	416	- 0.36	0.84	- 2.26	1.2
Growth	229	11.06	25.22	- 54.94	169.81
Investment	339	4.89	12.22	- 29.68	84.28
Size	244	39.3	61.39	0.01	322.71
Liquidity	241	8.77	19.58	0.00	124.37
Turnover	207	14.05	28.58	0.02	276
Stock	209	27.12	54.85	0.46	573.91
Depth	412	47.71	29.66	9.06	159.33
GDP growth	416	3.83	4.1	-17.67	21.45
GDP per capita	416	2794.52	2208.82	214.64	11645.98
Inflation	415	9.56	18.15	- 27.05	225.39
Exchange rate	402	154.92	388.11	0.01	2297.76
Year	416	2008.5	7.51	1996	2021

Table 2

Correlation table. This table shows the linear association between all pairwise combinations of the variables, except the year variable. Correlation values have a value between -1 and 1. The further away from zero, the stronger the relationship between the variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Growth	1											
2. Investment	0.23	1										
3. PII	0.09	0.07	1									
4. Size	0.08	-0.09	0.17	1								
5. Liquidity	0.05	-0.05	0.04	0.92	1							
6. Turnover	-0.01	0.10	0.30	0.30	0.56	1						
7. Stock	0.06	-0.06	0.11	0.97	0.97	0.5	1					
8. Depth	-0.11	-0.11	0.17	0.17	0.05	0.05	0.14	1				
9. GDP growth	0.33	0.44	-0.06	-0.21	-0.16	0.03	-0.18	-0.2	1			
10. GDP per capita	0.01	-0.13	0.6	0.46	0.26	-0.09	0.37	0.5	-0.21	1		
11. Inflation	0.18	0.25	-.036	-0.17	-0.01	0.24	-0.08	-0.48	0.11	-0.44	1	
12. Exchange rate	-0.01	-0.05	-0.21	-0.17	-0.14	-0.17	-0.18	-0.29	-0.05	-0.21	-0.05	1

CHAPTER 4 Method

The methodology that I will use to empirically examine the relationship between stock market growth and political instability is based on the following formula:

$$Y_{it} = \alpha_i + \beta X_{it} + \upsilon_i + \epsilon_{it}$$

where:

Y_{it} denotes the dependent variable for country i at time t;

α_i denotes the unknown intercept for each country;

β denotes the correlation coefficient;

X_{it} denotes the set of predictor variables for country i at time t:

υ_i denotes the within-county error term, and

ϵ_{it} denotes the overall error term.

After inserting our variables, we get the following model:

$$\begin{aligned} growth_{it} = {} & \alpha_i + \beta_1 PII_{it} + \beta_2 investment_{it} + \beta_3 stock_{it} + \beta_4 depth_{it} \\ & + \beta_5 GDP\ growth_{it} + \beta_6 GDP\ per\ capita_{it} + \beta_7 inflation_{it} \\ & + \beta_8 exchange\ rate_{it} + \upsilon_i + \epsilon_{it} \end{aligned}$$

where $growth_{it}$ denotes stock market growth; PII_{it} denotes the political instability index; and $investment_{it}$, $stock_{it}$, $depth_{it}$, $GDP\ growth_{it}$, $GDP\ per\ capita_{it}$, $inflation_{it}$ and $exchange\ rate_{it}$ are control variables.

To analyze the collected data, I will use a fixed-effects model. This is a panel regression model that estimates the linear relationship between a dependent variable and one or more independent variables. The fixed-effects model controls for the individual characteristics of countries that may influence the dependent or independent variables. These fixed effects are constant across countries or change at a constant rate over time. The fixed effects model provides a less biased estimation than the Ordinary Least Squares regression by eliminating the influence of these fixed characteristics on the predictors. The panel regression is estimated by using least-squares. This method minimizes the sum of the squared differences between the predicted values by the linear regression and the actual observed values. Then it calculates the coefficients that best fit these results. The fixed-effects panel regression model will be estimated using the statistical software Stata.

CHAPTER 5 Results & Discussion

The objective of the empirical analysis of this paper is to examine the relationship between political instability and stock market development, where stock market development is measured by the average annual growth rate of the stock index and political instability is measured by an index ranging from -2.5 to 2.5. As the model was estimated using an ordinary least squares regression, the coefficients can be interpreted as follows: one unit of increase of the political instability index is associated with an increase of the coefficient in stock market growth, while holding all other variables constant.

The results of the model are summarized in table 3. The first column presents the panel regression results of the main equation, where only political instability is included as an independent variable aside from the constant. The political instability variable does not enter with the anticipated sign, indicating that it has a positive rather than a negative association on stock market development. However, the estimated effect is insignificant, which means we cannot draw relevant conclusions from it. The R^2 of the first model is 0.00, which means it contributes to explaining practically no part of the relationship between the two variables of interest.

In the second column are included the results of the regression estimation with the full set of control variables. In contrast to the first model, political instability now has the anticipated negative sign after controlling for the effects of macroeconomic factors and stock market properties on the regression's dependent variable. The investment, stock, depth, GDP growth and inflation variables all enter with the anticipated positive sign, as theory and research indicate that these variables positively affect stock market growth. Contrarily, GDP per capita and exchange rate enter the model with the opposite effect than expected. Furthermore, the coefficients and t-statistics of these variables are very low and do not contribute significantly to the models R^2. The GDP growth variable is significant at the 95% confidence level. The coefficient of the PII variable is negative with a value of -.67, yet still insignificant. It is interesting to note, however, that the sign has flipped relative to the first model. This can be explained by the fact that the overall trend of *growth* is positive, so that the first model attributes this positive trend to PII, as there are no other variables. When other variables are added to account for positive *growth*, an effect that is closer to reality is revealed for *PII*. As *PII*'s t-statistic is still too low, we cannot draw conclusions about the relationship between political instability and stock market growth. Adding the control variables has raised the R^2 of the model to 0.17. This means that 17% of the change in stock market growth within countries can be attributed to the variables included in the model.

The third column of table 3 presents the model including only a limited set of control variables, as including a high number of vaguely relevant control variables may generate invalid results. Therefore,

variables that do not considerably contribute to the R^2 of the model have been left out of the regression equation. Consequently, the final model consists of the following variables: political instability, investment, stock market development, depth, GDP growth and inflation. Both political instability and the control variables all enter with the anticipated signs. The political stability index enters with a negative coefficient of -6.06. In other words, if the political instability index increases with 1.0 (on a scale of -2.5 to 2.5) then stock market growth decreases with 6.06% within a given country. Nevertheless, its t-statistic is still too low. Hence, the effect is insignificant so that we cannot draw scientific conclusions about the relationship between political instability and stock market development. The third model's R^2 has minimally decreased so that, rounded to two decimals, it is still 0.17. Thus, 17% of the change in stock market growth can be attributed to the 6 variables left in the model. This final R^2 of 0.17 is quite low when compared to other papers that study this relationship. This low value can be explained by the unpredictable nature of stock markets and the fact that there are a lot of factors that can contribute to stock market growth.

To test for cross-sectional dependence, it is advised to run a Breusch-Pagan LM test for independence. However, the dataset used in this paper has too few common observations across the panel to compute full rank VCE. Therefore, it is not possible to run a Breusch-Pagan test. There has also been attempted to tun a Pasaran CD test, also to test for cross-sectional dependence, however a similar problem arises. The panel is too unbalanced, so that there are insufficient observations to successfully perform this test. A modified Wald statistic is calculated for groupwise heteroskedasticity in the residuals of the fixed-effect regression model. The null hypothesis of the χ^2 test is rejected. This indicates that the errors exhibit groupwise heteroskedasticity. Furthermore, to test for serial correlation I conduct a Woolridge test for auto correlation. With a P-value of 0.03, the null hypothesis of no first order autocorrelation is rejected. As I could not find any evidence for correlation across panels, I aim to solve the heteroskedasticity problem by using robust standard errors.

The insignificant results mean that this paper is unable to contribute to the existing literature by emphasizing that the commonly found negative relationship between political instability and stock market development or growth is also present in the immature African stock markets. Using datasets that consist of largely non-African countries, several papers have found a negative relationship between political instability and stock market development and economic growth. Alesina et al. (1996) provides empirical evidence of this negative relationship using a dataset of multiple countries. Additionally, Diamonte et al. (1996) find that the relationship is stronger in emerging markets than it is in developed markets. Likewise, Lehkonen and Heimonen (2015) reason that semi-democracies are more prone to conflicts and political risks and that therefore their stock markets might be more susceptible to political risk. Subsequently, Irshad (2017) and Asteriou and Siriopoulos (2000) confirm that this negative relationship

also holds for the frontier market of Pakistan and the emerging market Greece, respectively. In Africa it has proven to be more difficult to explicate the connection between political instability and stock market growth.

When looking at African countries, Fosu (2002) finds that coups have a negative impact on economic growth in sub-Saharan African countries through the deterioration in marginal productivity of capital. So, it seems that political instability does influence economic growth. However, literature also indicates that stock markets in some African countries are to a lesser extent tied to the broad economy. For example, Adjasi and Biepke (2006) find that that low-income African countries and less developed stock markets need to grow and develop more to elicit economic gains from stock markets.

A possible reason for not finding significant results might be that most of the dataset used in this paper consists of frontier markets or standalone markets, except for South-Africa and Egypt, that are emerging markets. It could be possible that political instability is a less relevant factor of stock returns in underdeveloped markets. In relation to the findings of Diamonte et al. (1996), who report that political instability is a less important determinant of stock returns in developed markets than in emerging markets, this diminished linkage might extend to underdeveloped markets. Underdeveloped stock markets are characterized by relatively low market capitalization, limited liquidity, and inadequate regulatory frameworks. These factors contribute to stock markets that may be less responsive to political instability compared to emerging markets. The limited depth, size and maturity of the African stock markets could be an explanation why the model's political instability coefficient was insignificant.

Secondly, African economies are characterized by their volatility. The stock markets in these economies can experience periods of rapid growth and decline. These fluctuations can mask the long-term impact of political instability on stock market growth. In this paper, control variables such as inflation, exchange rate and GDP growth were added to take this into account. However, it might be possible that there may be variables that we did not account for, which could have contributed to the results of this paper.

Finally, while it is crucial to collect a comprehensive dataset, political instability and stock market indicators data availability is limited for African countries with underdeveloped stock markets. Therefore, there may be inherent limitations in the quality, accuracy, and coverage of the data. Possible limitations could have affected the robustness of our findings and potentially explain the lack of significant results. Future research, with datasets that have more comprehensive data for more countries during a longer time period might yield stronger results.

Table 3

Fixed-effects panel regression results. The table displays the results of three regressions, that each estimate the effect of political instability on stock market growth.

Dep. Variable		Regressions	
Growth	1	2	3
Constant	11.82 (26.30) ***	- 7.44 (- 0.13)	- 24.32 (- 0.93)
PII	4.36 (1.69)	- 7.21 (- 0.50)	- 6.06 (- 0.54)
Investment		0.13 (0.29)	0.12 (0.29)
Stock		0.02 (1.66)	0.02 (1.81)
Depth		0.25 (0.78)	0.21 (0.86)
GDP growth		2.14 (2.23) **	2.13 (2.41) **
Log GDP per capita		- 2.35 (- 0.51)	
Inflation		0.93 (0.90)	0.98 (0.99)
Exchange rate		- 0.00 (- 0.16)	
Observations	229	114	114
R^2	0.00	0.17	0.17

*Note: The sample consists of 16 African countries from 1996 to 2021 (annual data). Control variables include growth rate of investment, stock market development (average of size, liquidity and turnover ratio), financial depth, growth rate of GDP, logarithm of GDP per capita, inflation and exchange rate. In parentheses values of the t-statistic. * p < 0.1, ** p < 0.05, *** p < 0.01.*

CHAPTER 6 Conclusion

In this paper I have examined the role of political instability in stock market growth. Previous research has shown that political instability negatively affects economic growth, as well as stock market growth. However, less clear results have been found for specifically stock markets and political instability in Africa. It is especially interesting looking at African countries as most African countries have been considerably politically unstable post-colonization and more recently experiencing many coups, regime changes and struggles in their shift to (semi-)democracies. This becomes even more interesting when bearing in mind that a great deal of African countries are rapidly industrializing and growing with the potential to become important global economies. The purpose of this study was to ascertain the effect of political instability on stock market growth in Africa.

The empirical analysis was conducted using a dataset of 16 African countries looking at the period from 1996 to 2021. A panel regression analysis method was used to examine the relationship between political instability and stock market growth, while several macroeconomic indicators and stock market characteristics were included as control variables to consider their effect on stock market growth. As previous literature has largely suggested a negative relationship between political instability and stock market growth, my hypothesis was that I would find the same result with this sample of African countries from 1996 to 2021. The results of the regression displayed a negative coefficient for political instability, as previous literature has also indicated. However, the p-value of this coefficient was insignificant. Consequently, the results of the model are not interpretable. In conclusion, no evidence was found to support the hypothesis that political instability has a negative effect on stock market growth.

The unique contextual factors of Africa, underdeveloped stock markets, economic fluctuations, data limitations, and methodological considerations all contribute to understanding why the findings of this paper may differ from previous literature. Future research should address these limitations and explore additional factors that may influence the dynamics between political instability and stock market development in Africa.

REFERENCES

Adjasi, C. K. D., & Biekpe, N. B. (2006). Stock market development and economic growth: The case of selected african countries. *African Development Review, 18*(1), 144-161. https://doi.org/10.1111/j.1467-8268.2006.00136.x

Aduda, J., Masila, & Onsongo. (2012). The determinants of stock market development: The case for the nairobi stock exchange. *Journal of Financial Studies & Research, 2011*, 1-38. https://doi.org/10.5171/2011.200170

Alesina, A., Özler, S., Roubini, N., & Swagel, P. (1996). Political instability and economic growth. *Journal of Economic Growth (Boston, Mass.), 1*(2), 189-211. https://doi.org/10.1007/BF00138862

Alesina, A., & Perotti, R. (1996). *Income distribution, political instability, and investment*. Elsevier BV. https://doi.org/10.1016/0014-2921(95)00030-5

Asongu, S., & Nwachuckwu. (2018). *Political regimes and stock market performance in africa*. SSRN. https://doi.org/10.2139/ssrn.2792273

Asteriou, D., & Siriopoulos, C. (2000). The role of political instability in stock market development and economic growth: The case of greece. *Economic Notes - Monte Paschi Siena, 29*(3), 355-374. https://doi.org/10.1111/1468-0300.00037

Bencivenga, V. R., Smith, B. D., & Starr, R. M. (1995). Transaction costs, technological choice and endogenous growth. *Journal of Economic Theory, 67*, 153-177.

de la Torre, A., Gozzi, J. C., & Schmukler, S. L. (2007). Stock market development under globalization: Whither the gains from reforms?*Journal of Banking & Finance, 31*(6), 1731-1754. https://doi.org/10.1016/j.jbankfin.2006.11.008

Demirgüç-Kunt, A., & Maksimovic, V. (1996). Stock market development and financing choices of firms. *The World Bank Economic Review, 10*(2), 341-369. https://doi.org/10.1093/wber/10.2.341

Diamonte, R. L., Liew, J. M., & Stevens, R. L. (1996). Political risk in emerging and developed markets. *Financial Analysts Journal, 52*(3), 71-76. https://doi.org/10.2469/faj.v52.n3.1998

Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, insurgency, and civil war. *The American Political Science Review, 97*(1), 75-90. https://doi.org/10.1017/S0003055403000534

Fosu, A. K. (2002). Political instability and economic growth: Implications of coup events in sub-saharan africa. *The American Journal of Economics and Sociology*, *61*(1), 329-348. https://doi.org/10.1111/1536-7150.00162

Goldsmith, R. W. (1969). Financial structure and development (Ser. Studies in comparative economics, 9). Yale University Press.

Gupta, D. K. (1990). The economics of political violence : the effect of political instability on economic growth. Praeger.

Gurley, J. G., & Shaw, E. S. (1955). Financial structure and economic development. *Economic Development and Cultural Change*, *45*(4), 257-268. https://doi.org/10.1086/450226

Hibbs, D. A. (1973). Mass political violence: a cross-national causal analysis (Ser. Comparative studies in behavioral science). Wiley.

Hicks, J. (1969). A theory of economic history. Oxford University Press.

Ho, S., & Njindan Iyke, B. (2017). Determinants of stock market development: A review of the literature. *Studies in Economics and Finance (Charlotte, N.C.)*, *34*(1), 143-164. https://doi.org/10.1108/SEF-05-2016-0111

Holden, W., Jacobsen, S., Subrahmanyam, A., Holden, C. W., Jacobsen, S., & Subrahmanyam, A. (2013). *The empirical analysis of liquidity*. Now Publishers. https://doi.org/10.1561/0500000044

Huntington, S. P. (1968). Political order in changing societies. *Verfassung Und Recht in Übersee*, *3*(2), 257-261. https://doi.org/10.5771/0506-7286-1970-2-257

Irshad, H. (2017). Relationship among political instability, stock market returns and stock market volatility. *Studies in Business and Economics*, *12*(2), 70-99. https://doi.org/10.1515/sbe-2017-0023

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, *108*(3), 717-737. https://doi.org/10.2307/2118406

Lehkonen, H., & Heimonen, K. (2015). Democracy, political risks and stock market performance. *Journal of International Money and Finance*, *59*, 77-99. https://doi.org/10.1016/j.jimonfin.2015.06.002

Levine, R. (1991). Stock markets, growth, and tax policy. *The Journal of Finance (New York)*, *46*(4), 1445-1465. https://doi.org/10.1111/j.1540-6261.1991.tb04625.x

Levine, R., & Zervos, S. (1996). Stock market development and long-run growth. *The World Bank Economic Review*, *10*(2), 323-339. https://doi.org/10.1093/wber/10.2.323

Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics, 110*(3), 681-712. https://doi.org/10.2307/2946696

Robinson, J. (1952). The model of an expanding economy. *The Economic Journal (London), 62*(245), 42-53. https://doi.org/10.2307/2227172

Ross Levine, & Sara Zervos. (1998). *Stock markets, banks, and economic growth*. The World Bank. https://doi.org/10.1596/1813-9450-1690

Schumpeter, J.A. (1911) The Theory of Economic Development. Harvard University Press, Cambridge.

Yartey, C. A. (2007). *Stock Market Development in Sub-Saharan Africa: Critical Issues and Challenges* SSRN. doi:10.2139/ssrn.1012992 Retrieved from http://www.econis.eu/PPNSET?PPN=1781550352

APPENDIX A Sensitivity analysis

It is possible that the results are dependent on the time period of our analysis. Therefore, I examine the results for every separate year in the period as a sensitivity analysis. An OLS regression is ran for every year from 1996 to 2021 to check if the results are consistent with our previous findings. The regression analyses for the years 2010, 2011, 2013, 2019 and 2020 estimate coefficients of political instability. The coefficients are respectively 9.25, 8.48, 7.52, 5.88 and -5.82, of which only the latter has significant p-value (95%). These results show slight similarity to our broad model, where the first model without control variables has a positive insignificant coefficient for political instability. The regression for the year 2020 is an exception, indicating the negative sign in line with the final model and also the significant relationship that I expected to find. In conclusion, this sensitivity analysis indicates unclear results, which is in line with the original model estimation.

Table 4

Robustness test: analysis period. The table displays the results of yearly OLS regressions, that each estimate the effect of political instability on stock market growth limited to a period of one year.

Dep. variable			Regressions		
Growth	1996	1997	1998	1999	2000
Constant			97.70	- 14.90	- 5.50
PII			0 (omitted)	0 (omitted)	0 (omitted)
Investment			0 (omitted)	0 (omitted)	0 (omitted)
Stock			- 1.09	0.26	0.36
Depth			- 0.79	- 0.10	0 (omitted)
GDP growth			0 (omitted)	4.46	0 (omitted)
Inflation			0 (omitted)	0 (omitted)	0 (omitted)
Observations			3	4	2

R^2			1	1	1

Table 4 *(continued)*

Dep. variable			Regressions		
Growth	2001	2002	2003	2004	2005
Constant	- 14.29	- 4.63	40.92	9.44	55.36
PII	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)
Investment	0 (omitted)	0 (omitted)	0 (omitted)	- 2.24	0 (omitted)
Stock	0.49	0.31	- 0.93	0.42	0.15
Depth	0 (omitted)	0 (omitted)	0 (omitted)	0.22	- 0.28
GDP growth	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)
Inflation	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)	- 3.05
Observations	2	2	2	4	4
R^2	1	1	1	1	1

Table 4 *(continued)*

Dep. variable	Regressions				
Growth	2006	2007	2008	2009	2010
Constant	12.99	45.83	- 16.93	- 142.44	48.30 (1.34)
PII	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)	9.25 (0.88)
Investment	2.06	- 1.33	- 0.63	3.03	0.50 (1.65)
Stock	0.22	- 0.09	- 0.03	0.89	- 0.01 (- 0.36)
Depth	0.03	0.36	0.18	0.62	- 0.28 (- 1.15)
GDP growth	0 (omitted)	0 (omitted)	2.93	4.10	0.49 (0.12)
Inflation	- 3.21	- 1.16	0 (omitted)	1.46	- 1.13 (- 0.96)
Observations	5	5	2	6	9
$\overline{R^2}$	1	1	1	1	0.92

Table 4 *(continued)*

Dep. variable	Regressions				
Growth	2011	2012	2013	2014	2015
Constant	30.66 (1.13)	- 5.51	26.62	- 49.62	- 15.58
PII	8.48 (1.56)	0 (omitted)	7.52	0 (omitted)	0 (omitted)
Investment	0.19 (0.23)	0.28	- 3.99	0.67	2.07
Stock	- 0.02 (- 0.60)	0.23	0.39	0.08	0.22
Depth	- 0.27 (- 1.17)	- 0.12	- 0.96	0.40	0.18
GDP growth	0.80 (0.38)	0 (omitted)	14.36	2.32	0 (omitted)
Inflation	- 2.04 (- 1.43)	- 5.51	0 (omitted)	5.59	- 2.96
Observations	9	5	6	6	5
$\overline{R^2}$	0.85	1	1	1	1

Table 4 *(continued)*

Dep. variable	Regressions					
Growth	2016	2017	2018	2019	2020	2021
Constant	- 12.93	- 82.52	13.26	- 21.05	- 6.22 (- 3.03)*	
PII	0 (omitted)	0 (omitted)	0 (omitted)	5.88	- 5.82 (- 6.17)**	
Investment	0.75	- 5.74	1.01	- 1.40	0.42 (4.84)**	
Stock	0.75	- 0.15	0.01	0.06	0.07 (5.36)**	
Depth	0.04	1.08	- 0.15	0.08	- 0.08 (- 3.26)*	
GDP growth	- 0.82	0 (omitted)	0 (omitted)	3.08	- 1.03 (- 5.55)**	
Inflation	0 (omitted)	- 82.52	- 0.19	1.17	- 6.22 (- 3.03)*	
Observations	5	5	5	7	9	
$\overline{R^2}$	1	1	1	1	0.99	

*Note: The sample consists of 16 African countries (annual data). Control variables include growth rate of investment, stock market development (average of size, liquidity and turnover ratio), financial depth, growth rate of GDP and inflation. In parentheses values of the t-statistic. (omitted) indicates that the corresponding variable was omitted due to collinearity. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.*