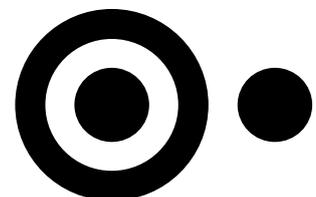


# **Institutional Factors and Financial Development in Sub- Saharan Africa for the period 2004-2018.**

***Control of Corruption, Rule of Law, Political  
Stability and Absence of Violence, and Voice and  
Accountability***

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## **Abstract**

The purpose of this study is to have an in-depth understanding of the importance of the institutional environment for financial development in 43 Sub-Saharan African countries during the years 2004-2018. Using new institutional economic theory (NIE) we study how the four institutional factors *Control of Corruption*, *Rule of Law*, *Political Stability and Absence of Violence*, and *Voice and Accountability* affect financial development. We also survey how the effect of institutional factors varies when there are either high, medium or low levels of corruption. Empirical results show a positive linear relationship between all institutional factors and financial development. However, when corruption levels are high the correlation between institutional factors and financial development varies and has a weak linear relationship. Inferential statistics results from a fixed effect regression model with robust standard errors shows; when we control for the financial environment, *Political Stability and Absence of Violence* is the only indicator for the institutional environment that has a positive significant effect on financial development. We thereby conclude that the institutional environment, mostly political institutions, are important for financial development.

*Key words: financial development, long-term economic growth, institutional environment, institutional quality, credit market, corruption, voice and accountability, rule of law, political stability and absence of violence.*

## Sammanfattning

Syftet med denna studie är att få en djupgående förståelse av institutionell miljö för finansiell utveckling i 43 Subsahariska afrikanska länder för åren 2004–2018. Med hjälp av den nya institutionella ekonomiska teorin undersöker vi hur de fyra institutionella faktorer *Kontroll av Korruption, Rättsstat, Politisk Stabilitet och Frånvaro av Våld* och *Röst och Ansvarsskyldighet* påverkar finansiell utveckling. Vi undersöker också hur effekten av institutionella faktorer varierar när det finns hög, medium eller låg nivå av korruption. Empiriskt resultat visar ett positivt linjärt samband mellan alla institutionella faktorer och finansiell utveckling. Däremot, när korruptions nivåerna är höga är korrelationen mellan institutionella faktorer och finansiell utveckling varierar och har ett svagt linjärt samband. Resultatet från inferentiell statistik med fixed-effektregressionsmodell med robust standardfel visar att; när vi kontrollerar för den finansiella miljön, kvarstår endast *Politisk Stabilitet och Frånvaro av Våld* som en indikator för institutionell miljö som har en positiv signifikant effekt på finansiell utveckling. Vi konstaterar därmed att institutionell miljö, särskilt politiska institutioner är viktiga för finansiell utveckling.

Nyckelord: *finansiell utveckling, långsiktig ekonomisk tillväxt, institutionell miljö, institutionell kvalitet, obligationsmarknader, korruption, röst och ansvarsskyldighet, rättsstat, politisk stabilitet och frånvaro av våld.*

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## **LIST OF ABBREVIATIONS**

CC-	Control of Corruption
CPI-	Consumer Price Index
EAGLEs-	Emerging and Growth-Leading Economies
EF-	Economic Freedom
ETHFRAC-	Ethnic Fractionalization
FD-	Financial Development
FDIi-	Foreign Direct Investment net inflow
FDIo-	Foreign Direct Investment net outflow
GE-	Government Effectiveness
IQ-	Institutional Quality
IV-	Instrumental Variable Regression
NIE -	New Institutional Economics
OLS-	Ordinary Least Squares Regression
PV-	Political Stability and Absence of Violence
RL-	Rule of Law
RQ-	Regulatory Quality
SSA -	Sub Saharan Africa
VA-	Voice and Accountability

# 1. INTRODUCTION

## 1.1 Background

Macroeconomic analytical studies are important for understanding the complexity in economic systems on aggregate levels, which also magnifies the knowledge of individual economic patterns. This is because without understanding economic performance functions and what brings about economic growth and development, legislative bodies would be unable to make accurate economic policies that lead to an expansion in economic activities which in turn helps in the overall betterment of the livelihood of masses (Acemoglu 2009). Modern economic growth parameters that include growth of productivity, demographic changes and labour force participation is used to understand the functioning of economic systems. Based on endogenous growth theory, growth in productivity which is also known as technological progress focuses on investments in human capital that brings about innovations which in turn continually accelerates technological progress (Romer 1986:1990; Berthélemy et al. 1996; Levine 1997; Acemoglu 2009). Thus, showing the need for innovations. However, for entrepreneurs and enterprises innovations to be actualized or realized bank credits are required, thus making the financial sector and its expansion important for economic performance because innovation leads to evolution of monetary and financial institutions, where the changes within these institutions force the economy into new productive channels, which with successive investment in long-term finance would lead to financial development. (Schumpeter [1911]1983; Levine 1999; 2000; Calderón & Liu 2002; Beck & Levine 2005). This, according to us, makes understanding the dynamics of financial development an interesting research topic.

Researchers try to map and understand the factors that determine financial development and agree on the importance of institutions, mainly institutional environments and its quality (Vitola & Senfelde 2015; Khan et al. 2019). Institutions are defined as a set of social factors, rules, beliefs, values and organizations that jointly motivate regularity in individual and social behavior, according to Greif (2006), who applies New Institutional Economics (NIE) to historical analysis of medieval trade. The importance of institutions is mentioned in the following quote stated by a new institutionalist economist:

*“I wish to assert a much more fundamental role for institutions in societies; they are the underlying determinant of the long-run performance of economies”* (North 1990, p.171).

Institutions determine how well financial systems like banks can adequately give bank credit for innovations that benefit and promote financial development (Schumpeter [1911]1983; Law & Habibullah 2006; Acemoglu 2009; Huang 2010; Ülgen 2014; Kutan et al. 2017; Khan et al. 2019). The thought process behind this notion ranges from how to reduce transaction costs, secure property rights and all that is related to the credit giving process. Also, this is because without good economic conduct rent-seeking activities such as corruption can hinder economic performance. Rent-seeking activity occurs when actors engage in manipulative behavior that satisfies their interest without contributing to the productivity adhered to. This occurs when standards of ethics and values are distorted; this distortion also transpires in financial structures which can affect the financial system in both negative and positive ways.

Mauro (2002) states that there are three different levels of corruption and each level determines economic growth differently. His study shows low levels of corruption enhance economic growth while high levels of corruption are detrimental for economies. However, he states that there is a consensus that corruption irrespective of its level is detrimental for economic performance. Though Mauro looks specifically at economic growth, we use his findings as inspiration to see the effect corruption levels have on financial development, this because as mentioned earlier financial development is endogenous for economic growth. Evidence shows a negative statistical economic relationship between FD and corruption (Altunbaş & Thornton 2012; Sharma & Paramati 2020). Since corruption and financial development are linked and institutions are important for financial development, we are studying the effect of institutions on financial development, where we also examine corruption levels.

Our study will be focusing on the Sub-Saharan Africa (SSA) region. This is because SSA is a region with lower economic growth, high rate of corruption, poor financial freedom and poor governance, however, it is becoming one of the promising regions for economic activities, hence making it an interesting region to study. An increasing number of countries in SSA are showing signs of economic progress with structural reforms and the implementation of better economic policies that increase their economic performance (Ghura et al. 2001). There are a few countries of the SSA region that are a part of the emerging market economies, meaning that there are some countries of SSA that are becoming more engaged in global markets. We therefore hope to contribute to existing studies conducted on institutions and financial development, specifically on how four institutional factors (1) *Corruption*, (2) *Rule of Law*, (3) *Political Stability and Absence of Violence*, and (4) *Voice Accountability* affect financial

development in SSA. According to our knowledge there are more studies done on EAGLEs than on SSA. We also would examine how this effect differs based on corruption levels, this approach is completely new and hence our new contribution to the field. At the end of our research, we hope the results will be in alignment with previous research, as well as significant enough to be used as a supporting benchmark for accurate policy advice to help give new insight on policy analysis and implementation that surrounds both macroeconomic and microeconomics topics on sustained economic growth, corruption, institutional environment quality and FD.

It is crucial to mention that there are other determinants of financial development that focus on the financial environment impact on FD. Indicators used to measure them are the consumer price index which measures inflation fluctuations as well as foreign direct investment which is beneficial for increased investment as it leads to trade openness, which is a part of economic freedom (Khan et al. 2019). Inflation has an adverse effect on financial development as it leads to uncertainty in bank credit productive gains which can hinder bank credit giving and financial development expansion (Khan 2018). We include these indicators as controls because they are recommended by various researchers (Khan et al. 2019, pp. 4-5).

## **1.2 Research Aim and Research Question**

The aim of this research is to explore the importance of institutions and its environment for financial development. Hence, we attempt to answer the following research question:

- *How does the institutional factors: Rule of Law, Political Stability and Absence of Violence, Voice and Accountability, and Corruption affect Financial Development?*
- Sub-research question: *How does the impact of institutional factors on Financial Development differ when level of corruption changes?*

## **1.3 Limitations and Operationalization**

There are some countries from the SSA Region that were left out and the reason for this is that there is either no data available or limited data available for the countries on the FD index and control of corruption. See Appendix table 1 with a list of countries to see which countries were included and which countries were not. Also, previous studies (Khan et. al 2019; Chong & Calderon 2000) all focused on institutional quality (IQ), which is an index created from institutional factors, where institutional factors are indicators for various types of institutions. Due to the feasibility of our research, we cannot create an index, but rather use indexes of institutional factors which are also World Bank Governance Indicators used in creating

institutional quality index. Although there are various institutional factors, we only focus on four of them; *CC*, *RL*, *PV* and *VA*. Lastly, we conduct a fixed-effect regression that includes and controls for the variables *CPI*, *FDI<sub>i</sub>*, *FDI<sub>o</sub>* and *EF* which examine the financial environment's role on financial development. This is done to have as good estimates as possible, however because our study is solely on the institutional environment, we do not address financial environments in the theoretical considerations, also the number of observations differs when controlling for financial environment thereby reducing our panel-data from 43 countries to 35 countries for that specific regression.

## **1.4 Disposition**

Onwards our thesis is arranged into six sections. Section 2 consists of previous research surrounding the aim of this paper. Section 3 takes on the theoretical considerations. Section 4 focuses on the methodological considerations. Sections 5 and 6 consist of the empirical results and analysis, respectively. Section 7 consists of a conclusion with policy recommendations.

## **2. PREVIOUS RESEARCH**

This section contains previous research conducted by various authors showing: the importance of and impact which institutional environment has on financial development, majorly institutional quality and governance role for financial development, these studies altogether present a good foundation for this study.

### **2.1 Importance of Institutional Quality**

According to Chong & Calderon (2000), institutional quality (IQ) is essential for economic conduct that brings about a productive economy because they help us know how to rightfully and properly economically engage in society which brings about good economic performance. The researchers argue that when rules about how we are to engage constantly change or are neglected, governments become inefficient and less reliable, thus detrimental to economic performance. When corruption is high, *RL* is not adhered to and there is limited or lack of property rights and high transaction costs. This leads to mixed signals in the market which in turn brings about low economic performance and productivity. If institutional quality measures of low corruption, high levels of *RL*, stable government regulation and efficiency are adequate, long-term economic growth becomes attainable. Chong & Calderon (2000) make solid arguments for the vital role good IQ has for good economic performance in societies.

## **2.2 Impact of Institutional Quality on Financial Development**

Khan et al. (2019) amongst others (Law & Habibullah 2006; Kutan et al. 2017) explore the impact of IQ on financial development in emerging and growth-leading economies (EAGLEs). Khan et. al (2019) constructed an IQ index based on six institutional factors namely: rule of law (RL), voice and accountability (VA), political stability and absence of violence (PV), government effectiveness (GE), regulatory quality (RQ) and control of corruption (CC). The two IQ measurements used are from World Government Indicators and International Country Risk Guide. Conducting pooled OLS regression, they find that only VA, PV, GE and RL are institutional factors that affect financial development in EAGLEs, VA has a high negative significant effect on financial development, CC though positive is insignificant. Making use of fixed effects with ethnic fragmentation as an instrumental variable they conclude that IQ has a causal effect on financial development in EAGLEs, where PV, RQ and RL are strong institutions for good ethnic relations that increase IQ. The authors emphasize the role of IQ for expansion of financial capabilities and good financial environment, as countries with weak institutions have low financial and economic growth. They conclude that EAGLEs with weak institutions have less financial development because of high corruption as well as lack of accountability and transparency in both their financial systems and general institutions.

## **2.3 Institutions, Governance and Financial Development**

Law & Azman-Saini (2012) use the banking sector and stock market development indicators to examine the effect of IQ on FD in both developing and developed countries. They use real GDP per capita in their empirical method as it promotes FD, where it depends on the varying levels of economic development. IQ is important for FD, because good institutions are required to ensure financial markets channel their resources to finance productive activities such as better property rights and legal systems, which in turn improves FD. The authors use both the private sector credit and stock market capitalization in the analysis in order to study the effect IQ has on FD, where they use an average of the six institutional indicators: VA, PV, GE, RQ, RL and CC. They found that the effect of IQ on FD is healthy for the banking sector's development, however not as important for the stock market capitalization. The results show that in countries where institutions are lower or equal to the threshold for IQ, IQ will exert a negative effect on stock market development, which means that as IQ improves, FD will be lessened. When IQ is above the threshold, the effect of IQ and FD will be positive.

The pattern in the study was that most low-income countries fall below the threshold and most high-income countries fall above the threshold level. The fixed effects estimator results confirm the nonlinear relationship between stock market capitalization and institutions. The authors therefore conclude that institutions and governance enhance the banking sector development. And that both the banking sector and the stock market respond differently to institutions and governance.

### **3.THEORETICAL CONSIDERATION**

This section consists of a theory that explains the institutional environment. The New Institutional Economic (NIE) theory explains institutions, how they are classified, as well as how institutional factors are indicators for various institutional groups.

#### **3.1 Institutions and Financial Development**

Studying institutions is important in order to understand why some countries are rich and other countries are poor. Researchers argue that the dynamic of financial development can also be attributed to the institutional environment. This is because according to the social rules of rational investment behavior hypothesis, distortion in monetary flow brings about productive gains if only economic behavior does not distort the productivity capacity of the productive gains (Gaffard 2009, pp. 16). In other words, if there is a presence of social rules and an active functional monetary and bank policy there becomes possibilities for financial expansion. Therefore, different types of institutions, as well as legal and regulatory environment of financial systems which promote reduced transaction costs, good regulation, good contractual agreement, good governance, property rights and security altogether indicate the importance of institutional environment for financial development (Acemoglu 2009, pp. 136; Huang 2010, pp. 3-6). Institutional environment also depends on the type of institutions where improvement on institutional quality development and economic freedom which determines financial access and efficiency are crucial for financial development (Huang 2010, pp. 101-121).

Institutions are more commonly known as the “rules of the game”, where organizations are the players. An organization usually consists of a group of people bound together by a common objective, and they are governed by rules, which can also be referred to as institutions (North et al. 2004). People tend to look for a sense of belonging or community where people of similar cultures, norms or objectives can come together to help each other.

Focusing on understanding what institutions' roles are and how they have evolved over time in shaping economic behaviour, where institutions are a guide to human interactions that structure political, social and economic behaviors (North 1990). Institutions provide the foundation of a market where property rights can be seen as a fundamental institution of the market as well as money; these institutions encourage specialization in the production processes by causing money lending opportunities, which in turn cause innovative ideas, thus leading to efficiency in the market altogether. Property rights are defined as the right to use and derive an income from and sell an asset (Furubotn & Richter 1991; Greif 2006).

Institutions consist of both formal and informal rules. Formal rules consist of constitutions, legislation and property rights and are found in societies in the form of legal systems where property rights assume private ownership as the norm. Formal rules enforce property rights making it possible for innovators to continue to innovate (North 1990). Informal rules consist of customs, traditions, sanctions and codes of conduct, and these morals are used in order to avoid conflicts and to keep order in the society and with the people of the community one is living with (North 1990; Kozenkow 2011). When formal rules are not present the community comes together with rules of conduct in order to preserve order, which can include a set of rules outlining the norms, rules and responsibilities of individuals and organisations. Thus, rules of behavior are followed whether there are formal rules present to enforce this behavior or not (North 1990; Grief 2006).

### ***3.1.1 New Institutional Economic Theory (NIE)***

The main ideas of NIE are built on contributions from several authors to understand the study of institutions and identifying the attributes of interacting individuals (Greif 2006). NIE differs from institutional theory, because NIE analyses the reasons why institutions have appeared the way they did and not in a different manner (Arrow 1978; Williamson 2000). One of the weaknesses of NIE is that it is very focused on institutional factors and not much on culture, which has a significant effect on institutional factors, what type of institutions are formed and how they evolve over time. Transaction costs are one of the main concepts of NIE, where it is defined by the cost of using the price mechanism of the cost of defining, protecting and enforcing property rights, and are important for investors as it is a key determinant of net returns (North 1990; Ankarloo 2002).

### **3.1.2 Institutional Factors**

Institutions can be grouped into *political, legal, economic* and *social* institutions and together they form a wholesome image of what institutions are and how institutional quality can be measured (Kuncic 2014). The institutional factors chosen for this thesis are found in the institutional groups mentioned above.

According to Kuncic (2014), *legal institutions* are one of the most common types of institutions as legislation can vary between public legal institutions to private legal institutions, where norms are central for the formation of legislation. *Social institutions* are mostly known as informal institutions and are based on the concept of norms and *political institutions* are known as the voters, electoral rules, political parties, and rules of the state (Kuncic 2014). *Economic institutions* can be intersected with legal institutions and are needed in order to have a properly working market where property rights, contracts, monetary value and accounting are included (Kuncic 2014).

Informal institutions like norms are central for the formation of legislation. They are important for property rights and to enforce legislation as well as forming the legal base for the legal systems (Kuncic 2014). Legal institutions are important for political reforms that bring about liberalization of financial institutions such as banks (Huang 2010). Such reforms help increase democracies that foster and protect property rights and contractual agreement, thus directly impacting financial development.

Economic and political institutions can affect each other, because economic institutions can be a part of the evolution of political institutions as they tend to support economic development over time and lead to a demand for better political institutions. Both political and economic institutions play a key role in a country's long-term growth potential (Lehne et al. 2014). Countries with stronger economic institutions have an effective rule of law, a good business climate for investors, more secure property rights, social norms that are market friendly and better credit giving opportunities due to better financial institutions, and this in turn will lead to higher economic growth (Lehne et al. 2014).

*Rule of law* is an institutional factor that is both a formal and an informal rule, and for this reason rule of law can fall under three institutional groups; legal, social and economic. It measures the effect legal institutions have on financial development; the extent to which agents abide by the rules of society and the likelihood of crime and violence, which in turn affects the economy's growth; and an indicator of quality of institutional environment in

economic institutions. When societies obey *Rule of Law*, they grow more than societies where they take state rights as a priority instead of individual rights, *Rule of Law* will therefore have a positive effect on financial development (Ménard & Shirley 2005).

Another institutional factor that can be used to measure institutional quality of social institutions is *Control of Corruption*, and corruption is made up of a set of institutions and is a part of informal rules formed due to norms of the geographical region and tends to grow in societies where the norms are of this kind (Kuncic 2014). Corruption is higher where there is no *Rule of Law*, and the level of corruption will be lower when there is *Rule of Law*.

Transaction costs are higher in a market where corruption is present, whereas in a market where the level of corruption is low, the transaction costs will be lower. Institutions such as *RL* and *CC* tend to be weaker in resource-rich countries (Lehne et al. 2014). *Control of Corruption* will therefore have a positive effect on financial development, as the transaction costs will be lower where *Control of Corruption* is low.

In order to measure the quality of institutional environment of political institutions; *Political Stability and Absence of Violence* and *Voice and Accountability* will be used as indicators. *Political Stability and Absence of Violence* is viewed as a formal rule and measures the likelihood of political stability and politically motivated violence, as structures are formed to ensure fair politics, including rules that must be followed to minimize violence. *Voice and Accountability* represent the extent to which a citizen can participate in the selection of their government, mandated by formal governmental structures, like being able to vote. The combination of these two institutional factors gives a wholesome picture of the quality of institutional environment measured in political institutions. *Political stability and Absence of Violence* has a positive effect on financial development, because when there is better political stability and less politically motivated violence it will lead to better democracy, which will act like an investor into the economic growth of a country. *Voice and Accountability* ensures the citizens of a country have the freedom to express themselves, the freedom of association and a free media, and these in turn have a positive effect on the democracy of a country, which will lead to better opportunities and over time higher economic growth.

#### **4. METHODOLOGICAL CONSIDERATION**

This section consists of an in-depth explanation of how this study is conducted. Sections 4.1 to 4.3 covers detailed information explaining the procedure, data collection, statistical

methods adhered, and details of models used in the regression analysis. Section 4.4 contains subjective explicit explanations of parameters that are implicit to the economic models used in this study. Lastly section 4.5 concentrates on the reliability and validity of this study.

## **4.1 Methodology**

The method used for this study is a quantitative method. We make use of both descriptive and inferential statistics to show results of panel data displayed in diagrams and tables. The inferential statistics include multiple regression analysis with fixed effect regression models. The reason being multiple regression analysis allows various explanatory variables, making it possible to investigate how the institutional factors *Control of Corruption*, *Rule of Law*, *Political Stability and Absence of Violence* and *Voice and Accountability* affects financial development. Also, using fixed effect models helps to control for country effects making our estimations unbiased and consistent (Stock & Watson 2020, pp. 367-374).

## **4.2 Data**

Data used is panel data for 43 Sub-Saharan African countries for the years 2004-2018. However, due to the unavailability of data for some variables, the regression number of identity changes from 43 to 35 for regression when using control variables due to unavailability of data for some of the control variables, see appendix 4 for table on missing variables. All the data collected is obtained from various databases. Data on institutional factors, consumer price index and foreign direct investment net flows is obtained from the World Bank database and collected data on financial development-index from the International Monetary Fund (IMF) database. The economic freedom in the world index is obtained from the Fraser Institute. To group countries into their respective corruption levels, the corruption perception index scale obtained from Transparency International is used to collect names of countries according to their corruption levels for year 2018, that way we can group countries to their respective corruption levels.

## **4.3 Variables**

### ***4.3.1. Dependent Variable***

*Financial Development index* is developed by the International Monetary Fund (IMF) and it encloses the efficiency, access and depth of development for both financial institutions and markets. This is a good measurement of FD because it is from a reliable source and measures all financial aspects of financial development.

### **4.3.2 Explanatory Variables**

*Control of Corruption (CC)* is a measure of the extent to which public power is exercised for private gain, by elites and private interests (World Bank 2020). *CC* as a political institution indicator is hypothesized to have a positive effect on *FD* (Ménard & Shirley 2005; Khan et al. 2019). *Rule of Law (RL)* captures the extent to which agents have confidence in and abide by the rules of society, the quality of contract enforcement, property rights, police, courts and likelihood of crime and violence (World Bank 2020). *RL* is an indicator viewed to have a positive effect on *FD* because it strengthens formal law enforcements and ensures legal contracts are followed by innovators and creditors (North 1991; Ménard & Shirley 2005). *Political Stability and Absence of Violence (PV)* as a political institution indicator measures the likelihood of political instability caused by violence, including politically motivated violence or terrorism (World Bank 2020). When *PV* is positive there is political stability, and vice-versa when it is negative. *PV* is expected to have a positive effect on *FD*, because when there is less politically motivated violence, there will be better economic opportunities for both the people and the democracy, leading to higher economic growth. *Voice and Accountability (VA)* as a political institution indicator captures the extent of citizens' involvement in government selection, freedom of expression, freedom of association, and free media (World Bank 2020). *VA* is expected to have a positive effect on *FD*, because when the indicator is high, people have better opportunities in both the financial market, but also better individual opportunities, because of their interest in keeping order in society.

### **4.3.3 Control Variables**

Control variables are used in order to control for factors that could lead to omitted variable bias on financial development. *Consumer Price Index (CPI)* as a measurement of inflation measures the changes in purchasing power of goods and services (World Bank 2020; International Monetary Fund 2020). *CPI* is known to have a negative effect on *FD* (Khan 2018). *Foreign Direct Investments (FDI)* refers to direct investment equity flows in the economy across borders. It is calculated by the sum of equity capital, reinvestment of earnings and other capital. *FDI* is associated with a resident in one economy having control on the management of a firm present in another economy, where *net inflow* are liabilities and *net outflow* are assets (World Bank 2020). *FDI<sub>i</sub>* has a negative effect while *FDI<sub>o</sub>* has a positive effect on *FD* (Khan et al. 2019). *Economic Freedom of the World Index (EF)* measures the positive relationship between economic freedom and several social and economic goals

(Index of Economic Freedom 2020). *EF* index also considers other factors such as Rule of Law, Government Size, Regulatory Efficiency and Open Markets. *EF* is known to have a positive effect on financial development (Khan et al. 2019).

#### 4.4 Regression Model

We make use of the standard multiple regression model for panel data:

$$FD_{it} = B_0 + B_1CC_{it} + B_2PV_{it} + B_3RL_{it} + B_4VA_{it} + B_5EF_{it} + B_6CPI_{it} + B_7FDI_{it} + B_8FDIO_{it} + u_{it},$$

where  $u_{it}$  is the error term,  $i$  = number of countries, and  $t$  = number of years.

#### 4.5 Reliability and Validity

Results from this study are valid and can be generalized to the population because we make use of a randomized control experiment with fixed-effects regressions so our estimates can be true estimates for the population mean of our sample. By using fixed-effects regressions we control for entity fixed effects (Stock & Watson 2020, pp. 374-376, 441). Therefore, measurements of fixed-effects regressions are reliable, making our findings generalizable. Muchmore, we include control variables to solve for omitted variable bias that can occur due to econometrics. This is to ensure that no variables are correlated with the idiosyncratic error term, as well as other regressors that can affect our outcome variable; *FD* (Stock & Watson 2020, p. 212). Another argument for the validity of this study is solving for heteroscedasticity, to do this we conduct a multicollinearity test which tests correlation amongst each two variables. We find out that the level of correlation of some variables were somewhat high. However, testing using variance inflation factor (VIF), which shows the level of multicollinearity, we see that there is no multicollinearity amongst variables. Furthermore, making use of adjusted R-squared helps to adjust the fraction of sample variance that increases when using multiple regression. It also helps to give accurate estimates that explain the outcome, hence increasing the validity of our research (Stock & Watson 2020, pp. 223-231, 262).

Table 1 below is a summary of the variables of interest, their sources and a description of the units they measure, as well as our expectations of the effect of all the explanatory variables and control variables on *FD* based on the theories explained in section 3 above.

**Table 1: Summary of Variables**

<b>Variable Sign</b>	<b>Variable</b>	<b>Measured Unit</b>	<b>Data Source</b>	<b>Expected effect</b>
<i>FD (dependent variable)</i>	<i>Financial Development Index</i>	Index	IMF	
<i>CC</i>	<i>Control of Corruption</i>	Index ranges from -2.5 to 2.5.	World Bank (World Governance Indicator)	positive
<i>RL</i>	<i>Rule of Law</i>	Index ranges from -2.5 to 2.5.	World Bank (World Governance Indicator)	positive
<i>PV</i>	<i>Political Stability and Absence of Violence</i>	Index ranges from -2.5 to 2.5	World Bank (World Governance Indicator)	positive
<i>VA</i>	<i>Voice and Accountability</i>	Index ranges from -2.5 to 2.5	World Bank (World Governance Indicator)	positive
<i>CPI</i>	<i>Consumer Price Index</i>	Index of 100	World Bank (World Economic Indicator)	negative
<i>FDIi</i>	<i>Foreign Direct Investment net inflow</i>	Index Current U.S. dollars	World Bank (World Economic Indicator)	negative
<i>FDIo</i>	<i>Foreign Direct Investment net outflow</i>	Index Current U.S. dollars	World Bank (World Economic Indicator)	positive
<i>EF</i>	<i>Economic Freedom Index</i>	Index ranges from 0 -10	Fraser Institute	positive
<i>ETHFRAC</i>	<i>Ethnic Fractionalisation</i>	Index	Quality of Government	

## 5. EMPIRICAL RESULTS

This section displays results of both the descriptive statistics and inferential statistics. The descriptive statistics are presented in tables, pie charts and scatter plots. Results of the inferential statistics with regression are presented in tables.

### 5.1 Results from Descriptive Statistics

Table 2 shows the results of the summary statistics of all variables. Hence, minimum and maximum values, mean values, standard deviations and number of observations for each variable. The mean is the average value, while standard deviation shows the variance or dispersion of the values of the variable that is being studied (Stock & Watson 2020, pp. 60-62). This means that from table 2 we can see that the mean values of all the explanatory variables (institutional factors) are negative. The symbols (-) means weak while (+) means strong. So, a negative *CC* mean shows that on average the control of corruption in the society is low at a rate of 0.6. The standard deviation on *CPI* is much higher than the remaining variables used, *CPI* therefore has a much bigger variation of numbers than all other variables. We also observe that there is a large gap between min and max of *CPI*, *FDIo* and *FDIi*, which shows that the countries observed have a large variation of data in terms of national spending.

**Table 2: Summary Statistics**

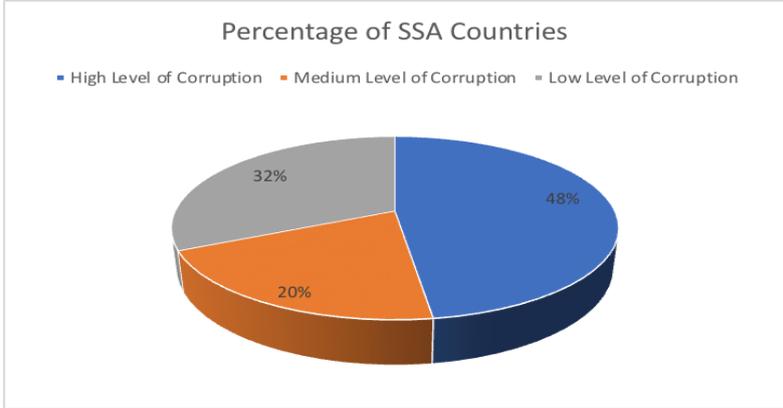
Variable	No. of Obs.	Mean	Std. Dev.	Min	Max
<i>FD</i>	645	0.1434399	0.1026188	0.0355458	0.6484371
<i>CC</i>	645	-0.6100224	0.6311143	-1.826384	1.159934
<i>RL</i>	645	-0.6590218	0.6136606	-1.816499	1.02916
<i>PV</i>	645	-0.4897348	0.8857003	-2.699193	1.200234
<i>VA</i>	645	-0.5127158	0.7397685	-2.226054	0.9984295
<i>EF</i>	529	6.144612	0.7802209	4.21	8.21
<i>CPI</i>	587	112.4905	56.61886	32.14809	890.229
<i>FDIi</i>	638	4.997082	8.815001	-6.369877	103.3374
<i>FDIo</i>	515	0.957531	5.530111	-9.270683	75.99954
<i>ETHFRAC</i>	380	0.6759316	0.2129606	0.054	0.889

#### 5.1.1 How Does the Impact of Institutional Factors on Financial Development Differ When Level of Corruption Changes?

The pie chart below shows the aggregate percentage of each corruption level in SSA countries, where 48 % have high levels of corruption, 20% have medium levels of corruption and 32% have low levels of corruption. This is done for us to efficiently make an elaborate

conclusion from the results of the following empirical statistics of the trend of institutional factors on financial development for each corruption level.

**Diagram 1: Share of three corruption levels in SSA countries years 2004-2018.**



**Diagram 2: Scatter Plots of Control of Corruption and Financial Development for High, Medium and Low levels of Corruption.**

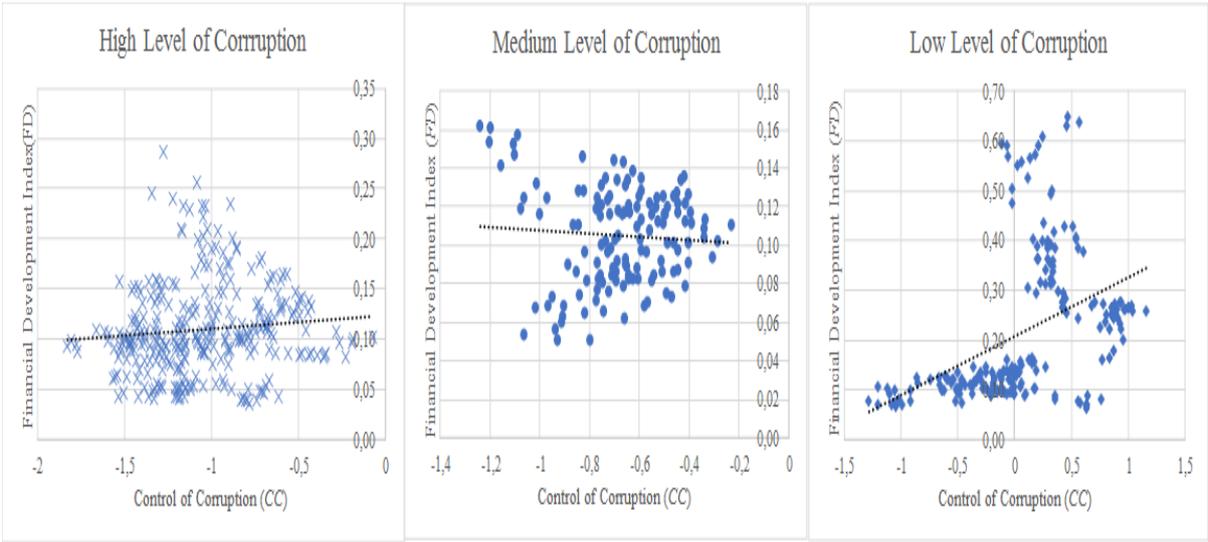


Diagram 2 shows the correlation between *CC* and *FD* in high, medium and low levels of corruption. When the level of corruption is high, there is a weak positive correlation between *CC* and *FD*, whereas in the graph where the level of corruption is medium, there is a weak negative correlation between *CC* and *FD*. In the last graph, where the level of corruption is low, we can see that there is a strong positive correlation between *CC* and *FD*. We can also observe that all three different levels of corruption have outliers in their scatterplots, where it seems as the graph with low level of corruption has the most spread out outliers, whereas the graph with medium level of corruption the outliers are fairly close to the line of best fit.

**Diagram 3: Scatter Plots of Rule of Law and Financial Development for High, Medium and Low levels of Corruption.**

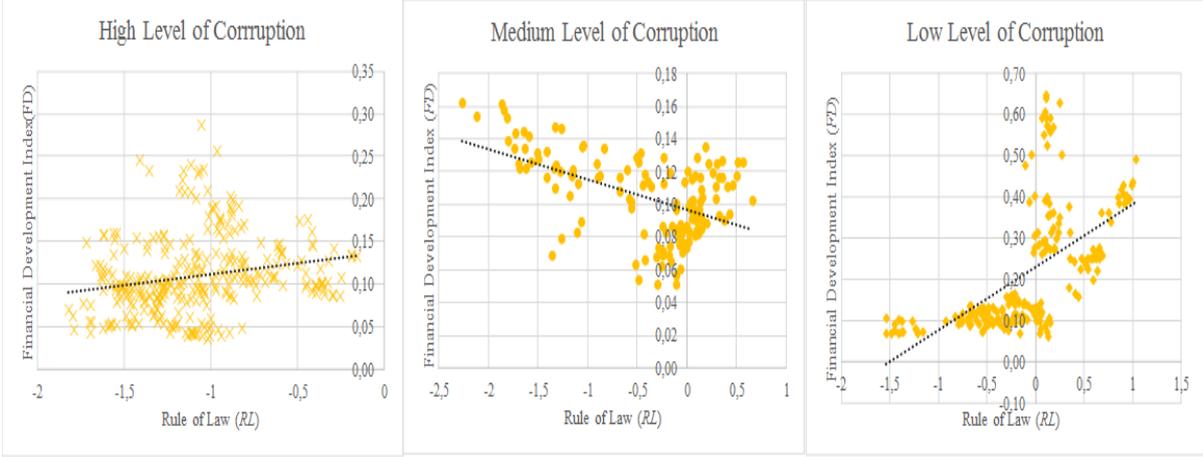
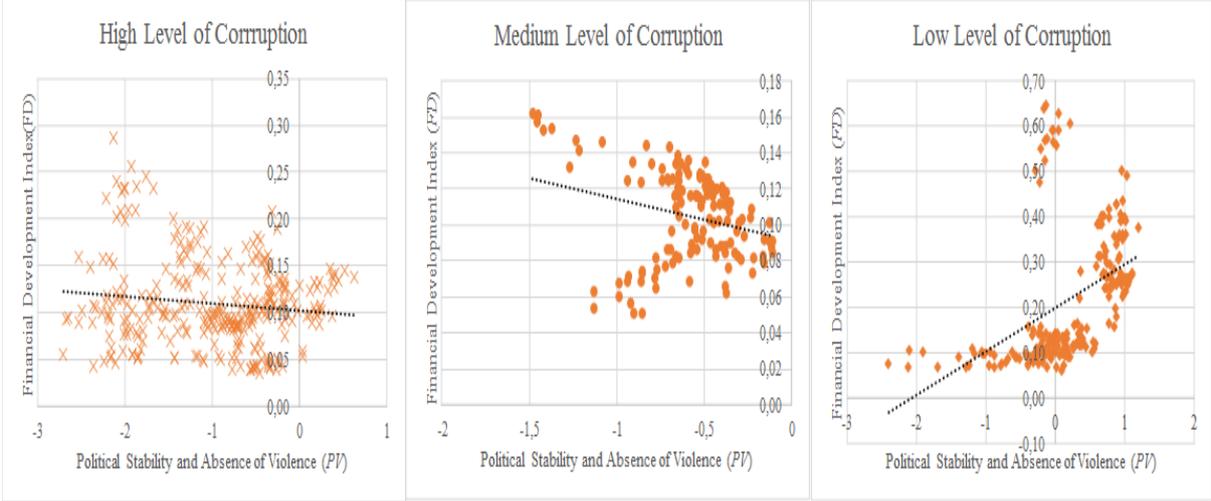


Diagram 3 shows the correlation between *RL* and *FD* in the three different levels of corruption; high, medium and low. We observe a positive correlation between *RL* and *FD* in the graphs where the level of corruption is high and low, where the graph above with a high level of corruption has a weak positive correlation between *RL* and *FD*, and in the graph above where the level of corruption is low, there is a strong positive correlation between *RL* and *FD*. Whereas the graph with medium level of corruption, shows a negative correlation between *RL* and *FD*. Here we can also observe that all three scatter plots have outliers, however the graph with low level of corruption has the most outliers that are further away from the line of best fit. Whereas the graph with medium level of corruption has outliers are closer to the line of best fit compared to the other graphs.

Diagram 4 below depicts the correlation between *PV* and *FD* at different levels of corruption. When the corruption level is high and medium there is a weak negative linear relationship between both variables, where the negative relationship is stronger at medium level. Meanwhile at low levels of corruption there is a positive linear relationship between *PV* and *FD*. We observe that there are outliers in all three scatter plots, where the graph with low level of corruption has outliers the furthest away from the regression line. And the graph with medium level of corruption has outliers that are closer to the line of best fit.

**Diagram 4: Scatter Plots of Political Stability and Absence of Violence and Financial Development for High, Medium and Low levels of Corruption.**



**Diagram 5: Scatter Plots of Voice and Accountability and Financial Development for High, Medium and Low levels of Corruption.**

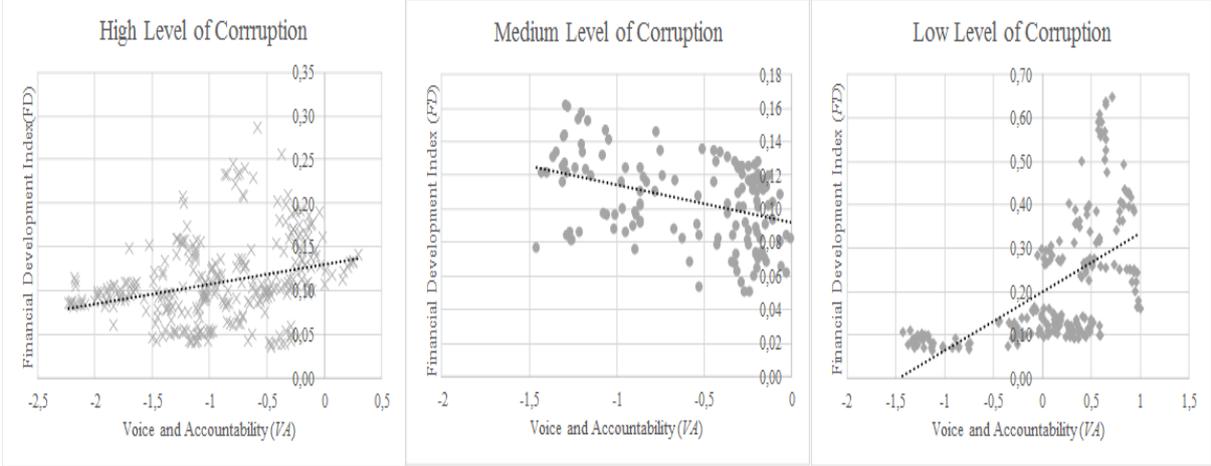


Diagram 5 depicts the correlation between VA and FD at different levels of corruption. When corruption level is high and low there is a weak positive linear relationship between VA and FD Hence in both levels of corruption when VA increases FD also increases and vice-versa. However, at medium level of corruption there is a negative linear correlation between VA and FD.

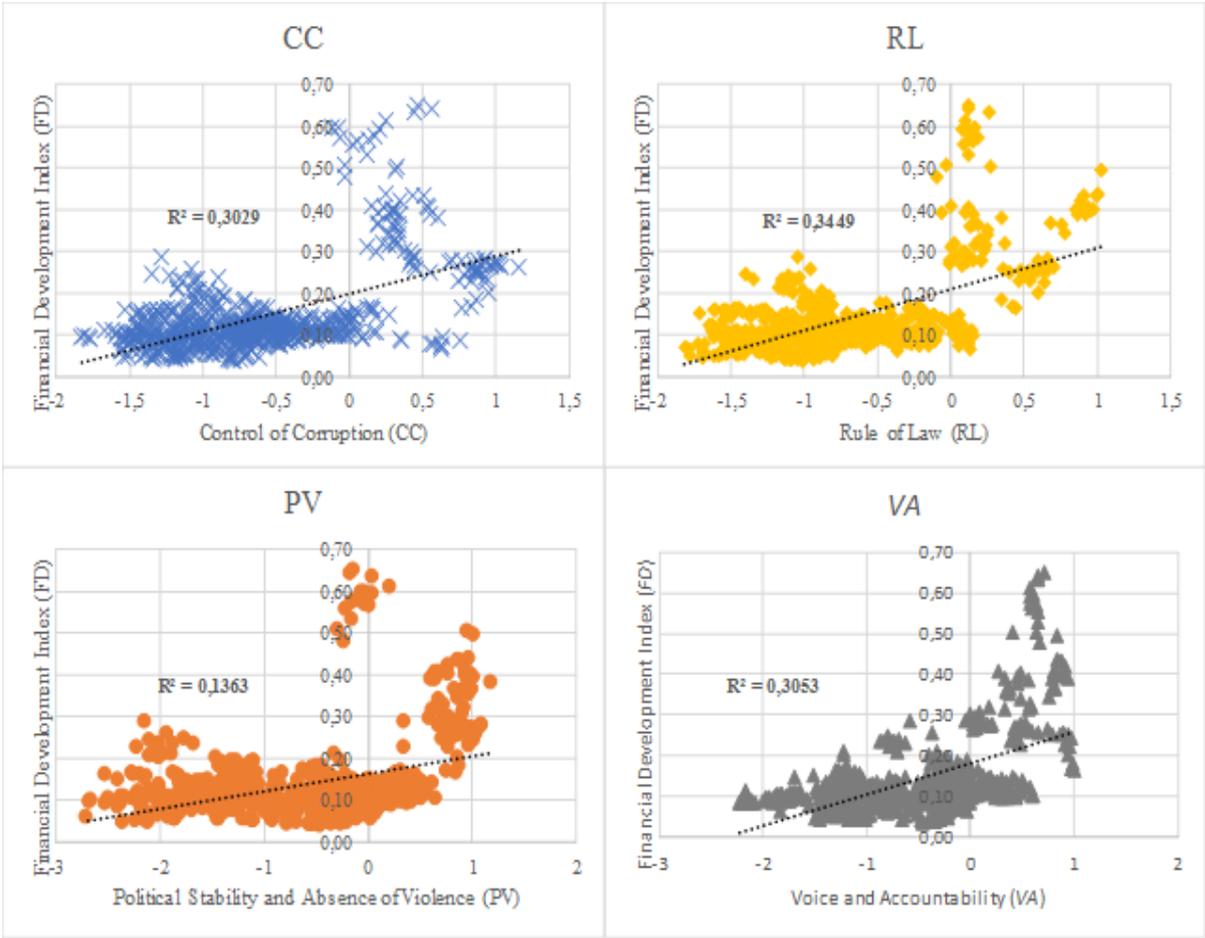
The results from all the diagrams on levels of corruption depict a negative relationship between FD and all institutional factors at medium level of corruption in comparison to positive relationship that exists between FD and all institutional factors at low levels of corruption. Regarding high corruption levels, there is a variation between negative and

positive correlations however these variations are extremely weak, indicating high levels of corruption disturbs the relationship between institutional factors and *FD* much more than other levels of corruption.

**5.1.2 How does the Institutional Factors: Rule of Law, Political Stability and Absence of Violence, Voice and Accountability and Corruption Affect Financial Development?**

To answer the above research question, we begin by conducting descriptive statistics.

**Diagram 6: Scatter Plots of the Correlation Between Financial Development and the Four Institutional Factors in SSA Countries Years 2004-2018.**



The trend of the graphs in diagram 6 below indicates an upward movement with a positive Pearson correlation coefficient ( $R^2$ ) for all four institutional factors when looking at their individual relationship with *FD*. Results show approximately 30% correlation between *CC* and *FD*, 34% in *RL* and *FD*, 13.6% in *PV* and *FD* and lastly a  $R^2$  of 31% between *VA* and *FD*. This means that when *CC* increases there is a 30 % chance that *FD* increases as well and vice-versa. The same effect applies to the remaining three institutional factors and *FD* but at their

respective  $R^2$ . *RL* is the institutional factor that has the highest strength of association with *FD*, while *PV* has the lowest.

We thereby hypothesize that the institutional factors (1) *Control of Corruption*, (2) *Rule of Law*, (3) *Political Stability and Absence of Violence* and (4) *Voice and Accountability* all have a positive impact on financial development. Hence our hypothesis is:  $H_0$ =Institutional factors; *CC*, *RL*, *PV*, *VA* do not affect financial development,  $H_a$ = Institutional factors; *CC*, *RL*, *PV*, *VA* affect financial development. Where  $H_0$  stands for null-hypothesis and  $H_a$  refers to the alternate hypothesis. Our hypothesis is based on the theoretical frameworks that emphasize the need for institutions for effective and efficient functioning of financial intermediaries leading to prosperous innovation and in turn financial development. As well as the empirical results (Diagram 6) which shows positive correlation between institutional factors and financial development.

## 5.2 Results from Inferential Statistics for main research question

Firstly, we present the results of the correlation test, this is to test if our variables are highly linearly correlated. As we can see from table 3, some variables have a correlation greater than 0.8, such as *Rule of Law* and *Control of Corruption* at approximately 0.9, as well as *Voice and Accountability* and *Rule of Law* at 0.8.

**Table 3: Correlation for all institutional factors as explanatory variables.**

	<i>FD</i>	<i>CC</i>	<i>RL</i>	<i>PV</i>	<i>VA</i>	<i>EF</i>	<i>CPI</i>	<i>FDIi</i>	<i>FDIo</i>
<i>FD</i>	1.0000								
<i>CC</i>	0.5504	1.0000							
<i>RL</i>	0.5873	0.8885	1.0000						
<i>PV</i>	0.3692	0.6836	0.7368	1.0000					
<i>VA</i>	0.5525	0.7365	0.8089	0.6329	1.0000				
<i>EF</i>	0.4746	0.6477	0.7174	0.4776	0.6016	1.0000			
<i>CPI</i>	-0.1093	-0.1013	-0.0329	-0.1389	-0.0964	-0.0660	1.0000		
<i>FDIi</i>	0.0048	0.0740	0.0221	0.1258	0.0922	-0.0339	-0.0197	1.0000	
<i>FDIo</i>	0.0008	-0.0631	-0.0920	-0.0373	-0.0294	-0.1701	-0.0558	0.4960	1.0000

*Notes: All variables are defined in table 1.*

Since the correlation value for *RL* and *CC* is above 0.8 we conduct a multicollinearity test using the Variance Inflation Factor (VIF) presented in table 4 to make sure there is no linear association between independent variables. Results show values less than 10, which according to the thumb rule indicates no multicollinearity amongst independent variables. This means

estimation of individual coefficients are significant as well as p-values and robust standard errors of our regression, where the p-value measures the probability of estimation outcome.

**Table 4: Multicollinearity linear regression for institutional factors as explanatory variables using variance inflation factor (VIF).**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
<i>RL</i>	9.54	0.104819
<i>CC</i>	5.52	0.181134
<i>VA</i>	3.28	0.304466
<i>PV</i>	2.76	0.361708
<i>EF</i>	2.12	0.471391
<i>FDIi</i>	1.09	0.917740
<i>CPI</i>	1.07	0.930481
<i>FDIo</i>	1.07	0.930481
<b>Mean VIF</b>	<b>3.31</b>	

*Notes: All variables are defined in table 1.*

To answer our main research question, we conduct a fixed-effect regression adding progressively each of the institutional variables; CC, RL, PV and VA on FD. This is to see how each of the institutional variables affect FD. Where all control variables are held constant, hence present in for all regressions.

Table 5 below shows the result of the fixed effect regression of institutional factors impact on financial development; in this regression we do not consider control variables. The reason for this is to only observe the explanatory variables CC, RL, PV and VA on FD. Results show CC has a negative effect on FD. However, when RL is taken into consideration we see that the effect on CC on FD becomes positive, RL on the other hand has a negative effect on FD. When PV is included in the mix, we observe a significant negative effect of RL on FD, and PV has a positive significant effect on FD. Lastly, when all four institutional factors CC, RL, PV and VA are accounted for we observe that only RL and PV have significant effects on FD, where RL has a negative effect at 10% significance level and PV has a positive effect at 1% level. We also notice the rate at which PV affects FD increases while RL reduces. Both CC and VA are insignificant even though CC has a positive effect while VA has a negative effect.

**Table 5: Fixed Effects Regression with Standard Robust Errors of Institutional Factors on Financial Development without Controlling for the Financial Environment.**

Variables	<i>FD</i>			
	(1)	(2)	(3)	(4)
<i>CC</i>	-0.00241	0.00135	0.00283	0.00369
	(0.00896)	(0.00980)	(0.00971)	(0.0100)
<i>RL</i>		-0.00766	-0.0202**	-0.0180*
		(0.0105)	(0.00982)	(0.0104)
<i>PV</i>			0.0113***	0.0119***
			(0.00357)	(0.00364)
<i>VA</i>				-0.00543
				(0.0104)
Constant	0.142***	0.139***	0.137***	0.137***
	(0.00547)	(0.00670)	(0.00625)	(0.00642)
No. of Obs.	645	645	645	645
No. of id	43	43	43	43
R-squared	0.000	0.003	0.029	0.030

*Notes:* This table reports the fixed effects estimations on how institutional factors impact *FD*. Robust standard errors in parenthesis \*, \*\*, and \*\*\* indicate level of significance at 10%, 5% and 1% respectively. All variables are defined in table 1.

Presented in table 6 below is the result of the fixed effect estimation when we account for control variables from the beginning of the regression, hence control for the financial environment. In comparison to table 5 we see that the number of identifications drops from 43 to 35, the reason for this is because *EF* is the variable with the least amount of available data, thereby reducing the number of observations and identifications. Also, in comparison to table 5 we observe a change in the way the institutional factors affect financial development. From the table below we observe that an increase in *CC* by 1 unit leads to approximately 0.001 unit increase on *FD*, meaning an increase in control of corruption leads to an even lesser positive effect on *FD*. Adding *RL* reduces the effect further from 0.00107 to approximately 0.0005, the effect of *RL* on *FD* changes from positive to negative when both *PV* and *VA* are included in the regression which differs from its result in OLS. *PV*'s effect on *FD* has become positive and decreases when *VA* is added to the regression which also differs from results in table 5

where it increases. We also observe that *CC* as well as *RL* and *VA* are no longer statistically significant in comparison to the OLS results. Only *PV* remains to be significant at a 5% level, however the level of significance decreases to 10% when *VA* is taken into consideration.

**Table 6: Fixed Effects Regression with Standard Robust Errors for Institutional Factors on Financial Regression while Controlling for Financial Environment.**

Variables	FD			
	(1)	(2)	(3)	(4)
<i>CC</i>	0.00107 (0.0129)	0.000458 (0.0141)	0.00291 (0.0140)	0.00117 (0.0154)
<i>RL</i>		0.00110 (0.0128)	-0.00951 (0.0139)	-0.0116 (0.0147)
<i>PV</i>			0.00811** (0.00393)	0.00764* (0.00386)
<i>VA</i>				0.00489 (0.0105)
<i>EF</i>	-0.0142 (0.00887)	-0.0142 (0.00886)	-0.0141 (0.00898)	-0.0140 (0.00894)
<i>CPI</i>	-0.000239*** (8.22e-05)	-0.000240*** (8.55e-05)	-0.000226** (8.31e-05)	-0.000232*** (7.62e-05)
<i>FDI<sub>i</sub></i>	0.000119 (0.000198)	0.000120 (0.000198)	0.000169 (0.000198)	0.000179 (0.000191)
<i>FDI<sub>o</sub></i>	-0.000748*** (0.000270)	-0.000750*** (0.000269)	-0.000834*** (0.000271)	-0.000859*** (0.000278)
Constant	0.276*** (0.0544)	0.276*** (0.0548)	0.273*** (0.0564)	0.272*** (0.0562)
No. of Obs.	425	425	425	425
No. of id	35	35	35	35
R-squared	0.204	0.204	0.215	0.216

*Notes:* This table reports the fixed effects estimations on how institutional factors impact FD. Robust standard errors in parenthesis \*, \*\*, and \*\*\* indicate level of significance at 10%, 5% and 1% respectively. All variables are defined in table 1.

## 6. ANALYSIS AND DISCUSSION

We observe *Rule of Law* and *Political Stability and Absence of Violence* to be the only institutional factors that have a significant effect on financial development when we do not control for any factors in the financial environment that also can affect financial development

(Table 5, column 4). *Rule of Law* is used as a measure for legal, social and economic institutions, while *Political Stability and Absence of Violence* is a measure for political institutions, together they represent all groups of institutions. Since both institutional factors are significant this implies that the group of institutions, they represent are all essential for financial development. We deem this result of *Rule of Law* and *Political Stability and Absence of Violence*'s significant effect on financial development to be logical, because when there is rule of law, where no one is above the law and rules that govern society; financial contractual agreements will easily be adhered to. This is because financial actors know there will be repercussions if a contract is breached, hence making them act accordingly in a way that would be beneficial for the financial environment and its expansion. However, our result indicates a negative relationship between *Rule of Law* and financial development which is in contradiction to the hypothesized positive effect based on NIE theory as found in table 1. We assume the reason behind *Rule of Law*'s negative significance on financial development is because of corruption. Our subjective reasoning for this negative relationship is thus follows: Sub-Saharan Africa seems to be known for substantial amounts of corruption, as seen in diagram 1 an aggregate of 68% SSA have high to medium levels of corruption. Also, from the summary of statistics in table 2 we see that *Rule of Law* has the highest negative mean, which in order words shows that in average SSA countries have weak *Rule of Law* which can also be an indication of higher chances of corruption. Corruption, in other words, rent seeking opportunities, are what may give incentives to engage in credit giving. If financial actors are aware that adhering to rule of law implies no escaping from repercussions when their rent seeking opportunities are exposed, this may distort their willingness to honestly engage in financial markets, especially credit markets, hence changing from *Rule of Law* effect on financial development from positive to negative. Since this is our subjective reasoning behind the statistical result for *Rule of Law* on financial development, more studies on this relationship can be conducted to compare and explain our findings intuitively.

Unlike *Rule of Law*, *Political Stability and Absence of Violence* has a significant positive effect on financial development. The positive effect can be because when there is *Political Stability and Absence of Violence* in an economy, the people have confidence in the political institutions' ability to enforce these legal contracts. This in turn would increase the incentives of investors and creditors to engage more in the credit market, thus also leading to financial development. This reasoning can be clearly seen in how the coefficient of *Political Stability and Absence of Violence* on financial development has a stronger significance level of 1% in

comparison to the 10% significance level of *Rule of Law* showing how *Political Stability and Absence of Violence* as a measure for political institutions is more evidently important for credit giving. NIE theory backs up this analysis as it states legal institutions are crucial for growth in financial institutions (Huang 2010), where according to (Schumpeter [1911]1983; Levine 1999; 2000; Calderón & Liu 2002; Beck & Levine 2005) financial institutions such as banks and financial intermediaries are crucial for credit giving. The reason for this is because when there is a good institutional environment, financial intermediaries will be more effective and efficient in engaging in credit markets, which in turn brings about productivity gains that help to expand the financial sector, resulting in financial development. Much more, the stronger evidential effect of *Political Stability and Absence of Violence* on financial development is logical because a good political institution that focuses on political stability and absence of politically motivated violence creates room for investors to trust in stable governments. The trust for governments is extremely important because governments are the largest creditors in the credit market. Therefore, when there is trust for the larger share of creditors in the credit market incentive for credit giving increases. Much more, we find that when we control for some factors in the financial environment such as inflation, economic freedom and foreign direct investment (Table 6) only *Political Stability and Absence of Violence* remains significant, thereby highlighting even more the effect of *Political Stability and Absence of Violence* on financial development. However, we are aware that the sample observation for both regressions differ, where in table 6 only 35 countries are studied while results in table 5 is based on a sample observation from 43 countries. However, since we also control for fixed entities effects, and *Political Stability and Absence of Violence* is significant result from this regression can also back up the argument for confidence in political institutions and governments for financial development possibilities. According to previous studies institutional quality which is an index based on institutional factors are essential for financial development (Chong & Calderon 2000; Law & Azman-Saini 2012; Khan et al. 2019) because when there is good institutional environment, governments become efficient and reliable, which leads to strong political, economic, legal and social institutions that fosters the incentives for credit giving which in turn leads to financial expansion. Our results are also in accordance to their findings, hence making our results also reliable.

When analyzing diagrams 2,3,4, and 5, we note all scatter plots with low levels of corruption show a strong positive correlation between the independent variable (*CC, RL, PV or VA*) and the dependent variable; financial development. Our results agree with Mauro (2002) findings

which concludes that low levels of corruption advances economies while high levels of corruption are detrimental. Though his research was solely on economic growth it can still be applied to financial development because financial development is an endogenous factor in economic growth (Schumpeter [1911]1983; Romer 1986:1990; Berthélemy et al. 1996; Levine 1997; Acemoglu 2009). Thereby in our research the positive impact of low levels of corruption for economies is expressed when low levels of corruption facilitate the positive correlation between institutional factors and financial development. We argue that when there is low level of corruption, where rent seeking activities present in the market becomes lesser, the value of rule of law increases. This alludes that the likelihood of immoral financial behavior reduces while the incentives to work towards having better financial environment and good communities increases. This also indicates that when individuals trust their government and the institutions present in their societies, they are more likely to be content with the government and political institutions. Therefore, the political stability and absence of violence in such societies will further facilitate good institutional environment that leads to financially development. The extent to which the citizens of a country can be involved in the selection of their governments, which is measured as voice and accountability, can also have a positive effect in a country where the level of corruption is low. The reason is when there are better democratic opportunities because of good voice and accountability, the chances of political stability and absence of violence, as well as high value of rule of law becomes more feasible thereby creating possibilities for better institutional environment that foster financial development. Such better institutional environment can be better economic, legal and political institutions which also according to (Ménard & Shirley 2005; Huang 2010; Lehne et al. 2014) are important for formation of better contracts, reduced transactions costs etcetera helps to increase incentives for innovators and investors engage in credit market. Also, better institutional environment also entails better social institutions which fosters reduced rent-seeking activities that can be detrimental for financial development. Research findings (Chong & Calderon 2000; Law & Azman-Saini 2012; Vitola & Senfelde 2015; Khan et al. 2019) concur with the notion of better institutional environment, which they estimate as institutional quality, for financial expansion. We believe our findings on low levels of corruption supports their results on good institutional quality for financial development. This is because as presented in our results, low levels of corruption are the only level of corruption that has a trend of positive relationship between all institutional factors and financial development. Therefore, based on our discussion above on our analysis it is safe to attribute the positive trend as an expression of good institutional quality which we refer to as better

institutional environment as discussed above, low levels of corruption fosters improvement in institutional environment thereby making the possibility of institutions to work more efficiently and effectively which in turn increases incentives to engage in the credit market thereby benefiting financial development.

A trend can be observed in all the scatter plots with medium level of corruption; all the graphs have a negative correlation between financial development and the independent variables (*CC*, *PV*, *RL*, and *VA*). The correlation between *Rule of Law* and financial development seems to have a deeper negative slope than all the other institutional factors, where *Control of Corruption* has the gentlest negative slope out of the four institutional factors. The reason for this is that *Rule of Law* is an institutional factor that can be related to three different institutional groups; legal, social and economic, this is because *Rule of Law* can be seen as a human interaction or a contract that can lead to better quality of life, because of better investment opportunities that will regulate more lending and therefore financial development. At medium level of corruption, the effect *Rule of Law* has as a variable of three different institutional groups may overlap or cancel each other out, and this could be the reason for the negative results. In medium level of corruption this effect *Rule of Law* has as a variable for three different institutional groups, is therefore more negative in relation to the effect it has on financial development. At medium level of corruption, *PV*'s negative correlation to financial development may be because the people of a country may not trust the political institutions because of corruption and there may therefore be more politically based violence, and this could be a factor in the negative correlation between financial development and *Political Stability and Absence of Violence*. The effect of *Voice and Accountability* on financial development may be resulted from the fact that at medium level of corruption, the people do not get to be a decent part of the selection of the government or have the freedom to give free speech or free media. This means that this indicator was not that high and therefore will not lead to better opportunities in the financial market or individual opportunities for the people. The scatter plots with high levels of corruption show varying results, where *Political Stability and Absence of Violence* is the only independent variable that has a negative correlation with financial development. Where the slope of the line is approximately the same for the remaining independent variables with a positive correlation between the variables; *Control of Corruption*, *Rule of Law* and *Voice and Accountability* and financial development. It appears all the institutional factors that had a positive correlation with financial development have scatter plots that are placed in the same area of the graphs.

## 7. CONCLUSION

The aim of this research was to study the role of institutional environments on financial development. We conducted a multiple regression analysis with fixed entity effects and concluded that when observing only the institutional environment in SSA without controlling for the financial environment, both *Rule of Law* as well as *Political Stability and Absence of Violence* have significant effects on financial development. Meanwhile, when the financial environment such as inflation, foreign direct investment and economic freedom is held constant only political stability remains as the institutional factor that has a significant effect on financial development. This leads to the conclusion that political institutions play more of a crucial role in financial development in comparison to other forms of institutions. We also detected a trend in the direction of the institutional factors correlation on financial development when observing high, medium and low levels of corruption. Thereby also concluding that high levels of corruption disturb the relationship between institutional factors and financial development much more than the other levels of corruption, where low levels of corruption foster institutional environment. Hence, emphasizing the role which institutional environment, as well as low levels of corruption for financial development. Societies therefore need to strengthen their political institutions if they want to achieve financial expansion. Further research that can be done is to specifically study the effect of rule of law on financial development in countries with varying corruption levels. Such research can help to clearly depict the direction in which the effect of *Rule of Law* has on FD. More studies containing all the six institutional quality indicators can be conducted as this could show more detailed results of the effect institutional factors have on financial development in SSA. Studies could also be done on the SSA emerging market to see whether institutional factors are what brings about financial development in such markets.

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## APPENDIX:

**Table 1: List of SSA Countries Observed**

1. Angola (AGO)	16. Ethiopia (ETH)	31. Niger (NER)
2. Benin (BEN)	17. Gabon (GAB)	32. Nigeria (NGA)
3. Botswana (BWA)	18. Gambia, The (GMB)	33. Rwanda (RWA)
4. Burkina Faso (BFA)	19. Ghana (GHA)	34. Sao Tome and Principe (STP)
5. Burundi (BDI)	20. Guinea (GIN)	35. Senegal (SEN)
6. Cabo Verde (CPV)	21. Guinea-Bissau (GNB)	36. Seychelles (SYC)
7. Cameroon (CMR)	22. Kenya (KEN)	37. Sierra Leone (SLE)
8. Central African Republic (CAF)	23. Lesotho (LSO)	38. South Africa (ZAF)
9. Chad (TCD)	24. Liberia (LBR)	39. Sudan (SDN)
10. Comoros (COM)	25. Madagascar (MDG)	40. Tanzania (TZA)
11. Congo Democratic Republic (COD)	26. Malawi (MWI)	41. Togo (TGO)
12. Congo Republic (COG)	27. Mali (MLI)	42. Uganda (UGA)
13. Côte d'Ivoire (CV)	28. Mauritius (MUS)	43. Zambia (ZMB)
14. Equatorial Guinea (GNQ)	29. Mozambique (MOZ)	
15. Eritrea (ERI)	30. Namibia (NAM)	

The countries that are not included in our list of countries from the Sub-Saharan African Region are: Eswatini, Mauritania, Réunion, Somalia and Zimbabwe.

**Table 2: Paired Correlation with Number of Observations Showing Evidence of Missing Values from Variables for Financial Environment namely EF, CPI, FDIi and FDIo.**

```
pwcorr cc rl pv va ef cpi fdii fdio, obs
```

	cc	rl	pv	va	ef	cpi	fdii
cc	1.0000 645						
rl	0.8885 645	1.0000 645					
pv	0.6836 645	0.7368 645	1.0000 645				
va	0.7365 645	0.8089 645	0.6329 645	1.0000 645			
ef	0.6477 529	0.7174 529	0.4776 529	0.6016 529	1.0000 529		
cpi	-0.1013 587	-0.0329 587	-0.1389 587	-0.0964 587	-0.0660 492	1.0000 587	
fdii	0.0740 638	0.0221 638	0.1258 638	0.0922 638	-0.0339 529	-0.0197 587	1.0000 638
fdio	-0.0631 515	-0.0920 515	-0.0373 515	-0.0294 515	-0.1701 447	-0.0558 492	0.4960 515
		fdio					
fdio	1.0000 515						

**Table 3: List of Missing Variables**

Variable	Missing	Total	Percent Missing
Country	0	645	0.00
id	0	645	0.00
Years	0	645	0.00
t	0	645	0.00
fd	0	645	0.00
cc	0	645	0.00
pv	0	645	0.00
rl	0	645	0.00
va	0	645	0.00
ef	116	645	17.98
cpi	58	645	8.99
fdii	7	645	1.09
fdio	130	645	20.16

**Table 4: Fixed-Effects Regression of *Control of Corruption* on Financial Development without Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      645
Group variable: id                   Number of groups =      43

R-sq:                                Obs per group:
  within = 0.0004                      min =          15
  between = 0.3388                     avg =         15.0
  overall = 0.3029                      max =          15

corr(u_i, Xb) = -0.5705                F(1,42)         =      0.07
                                         Prob > F        =      0.7891

```

(Std. Err. adjusted for 43 clusters in id)

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	-.0024125	.0089605	-0.27	0.789	-.0204955	.0156704
_cons	.1419682	.0054661	25.97	0.000	.1309372	.1529992
sigma_u	.10279395					
sigma_e	.0198587					
rho	.96402067	(fraction of variance due to u_i)				

**Table 5: Fixed-Effects Regression of *Control of Corruption* and *Rule of Law* on Financial Development without Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      645
Group variable: id                   Number of groups =      43

R-sq:                                Obs per group:
  within = 0.0029                      min =          15
  between = 0.3748                     avg =         15.0
  overall = 0.3345                      max =          15

corr(u_i, Xb) = -0.6135                F(2,42)         =      0.29
                                         Prob > F        =      0.7466

```

(Std. Err. adjusted for 43 clusters in id)

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0013475	.0098049	0.14	0.891	-.0184395	.0211345
rl	-.0076609	.010467	-0.73	0.468	-.0287842	.0134623
_cons	.1392132	.0067048	20.76	0.000	.1256824	.152744
sigma_u	.1043383					
sigma_e	.01985115					
rho	.96506657	(fraction of variance due to u_i)				

**Table 6: Fixed-Effects Regression of *Control of Corruption, Rule of Law and Political Stability and Absence of Violence* on Financial Development without Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      645
Group variable: id                   Number of groups =      43

R-sq:                                Obs per group:
  within = 0.0286                    min =          15
  between = 0.1527                   avg =         15.0
  overall = 0.1120                   max =          15

corr(u_i, Xb) = -0.4053                F(3,42)         =      4.03
                                          Prob > F        =      0.0132

                                (Std. Err. adjusted for 43 clusters in id)

```

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0028331	.0097103	0.29	0.772	-.0167631	.0224294
rl	-.0201657	.0098171	-2.05	0.046	-.0399774	-.000354
pv	.0113372	.0035666	3.18	0.003	.0041395	.018535
_cons	.1374308	.0062538	21.98	0.000	.1248101	.1500514
sigma_u	.10488197					
sigma_e	.01960913					
rho	.96622515	(fraction of variance due to u_i)				

**Table 7: Fixed-Effects Regression for all Institutional Factors on Financial Development without Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      645
Group variable: id                   Number of groups =      43

R-sq:                                Obs per group:
  within = 0.0301                    min =          15
  between = 0.2164                   avg =         15.0
  overall = 0.1677                   max =          15

corr(u_i, Xb) = -0.4840                F(4,42)         =      3.15
                                          Prob > F        =      0.0235

                                (Std. Err. adjusted for 43 clusters in id)

```

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0036894	.0100169	0.37	0.714	-.0165254	.0239043
rl	-.0180136	.0104253	-1.73	0.091	-.0390528	.0030256
pv	.0118548	.0036385	3.26	0.002	.0045119	.0191976
va	-.0054331	.0103528	-0.52	0.602	-.0263259	.0154598
_cons	.1368392	.0064235	21.30	0.000	.1238761	.1498024
sigma_u	.10593625					
sigma_e	.01961057					
rho	.96686721	(fraction of variance due to u_i)				

**Table 8: Fixed-Effects Regression of *Control of Corruption* on Financial Development Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      425
Group variable: id                   Number of groups =      35

R-sq:                                Obs per group:
    within = 0.2042                    min =          5
    between = 0.1326                   avg =         12.1
    overall = 0.0674                   max =         15

corr(u_i, Xb) = -0.3761                F(5, 34)       =      7.03
                                        Prob > F        =      0.0001

```

(Std. Err. adjusted for 35 clusters in id)

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0010718	.0129036	0.08	0.934	-.0251515	.027295
ef	-.014174	.0088693	-1.60	0.119	-.0321986	.0038505
cpi	-.0002395	.0000822	-2.91	0.006	-.0004065	-.0000725
fdii	.0001192	.000198	0.60	0.551	-.0002833	.0005217
fdio	-.0007484	.0002702	-2.77	0.009	-.0012976	-.0001992
_cons	.2762041	.0544483	5.07	0.000	.1655519	.3868563
sigma_u	.11347075					
sigma_e	.0197107					
rho	.97070958	(fraction of variance due to u_i)				

**Table 9: Fixed-Effects Regression of *Control of Corruption* and *Rule of Law* on Financial Development Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      425
Group variable: id                   Number of groups =      35

R-sq:                                Obs per group:
    within = 0.2043                    min =          5
    between = 0.1259                   avg =         12.1
    overall = 0.0628                   max =         15

corr(u_i, Xb) = -0.3667                F(6, 34)       =      6.94
                                        Prob > F        =      0.0001

```

(Std. Err. adjusted for 35 clusters in id)

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0004584	.0141223	0.03	0.974	-.0282417	.0291584
rl	.0011048	.0127659	0.09	0.932	-.0248387	.0270482
ef	-.0141504	.0088585	-1.60	0.119	-.032153	.0038522
cpi	-.0002402	.0000855	-2.81	0.008	-.000414	-.0000664
fdii	.0001196	.0001975	0.61	0.549	-.0002818	.000521
fdio	-.0007499	.0002689	-2.79	0.009	-.0012965	-.0002034
_cons	.2763804	.0547585	5.05	0.000	.1650978	.3876631
sigma_u	.11329057					
sigma_e	.01973588					
rho	.97054616	(fraction of variance due to u_i)				

**Table 10: Fixed-Effects Regression of *Control of Corruption, Rule of Law and Political Stability and Absence of Violence* on Financial Development Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      425
Group variable: id                    Number of groups =      35

R-sq:                                  Obs per group:
  within = 0.2148                       min =          5
  between = 0.1462                       avg =         12.1
  overall = 0.0691                       max =         15

corr(u_i, Xb) = -0.3847                  F(7, 34)        =      9.25
                                          Prob > F         =      0.0000

                                          (Std. Err. adjusted for 35 clusters in id)

```

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0029063	.0140098	0.21	0.837	-.025565	.0313777
rl	-.0095126	.0138782	-0.69	0.498	-.0377165	.0186912
pv	.0081122	.00393	2.06	0.047	.0001255	.0160989
ef	-.0140707	.0089798	-1.57	0.126	-.03232	.0041785
cpi	-.0002262	.0000831	-2.72	0.010	-.0003951	-.0000574
fdii	.0001687	.0001976	0.85	0.399	-.0002327	.0005702
fdio	-.0008343	.0002711	-3.08	0.004	-.0013852	-.0002834
_cons	.2731863	.05638	4.85	0.000	.1586083	.3877642
sigma_u	.11373734					
sigma_e	.01963114					
rho	.97107084 (fraction of variance due to u_i)					

**Table 11: Fixed-Effects Regression for all Institutional Factors on Financial Regression while Controlling for Financial Environment.**

```

Fixed-effects (within) regression      Number of obs   =      425
Group variable: id                    Number of groups =      35

R-sq:                                  Obs per group:
  within = 0.2157                       min =          5
  between = 0.1143                       avg =         12.1
  overall = 0.0543                       max =         15

corr(u_i, Xb) = -0.3567                  F(8, 34)        =      8.96
                                          Prob > F         =      0.0000

                                          (Std. Err. adjusted for 35 clusters in id)

```

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
cc	.0011749	.0153761	0.08	0.940	-.030073	.0324228
rl	-.0116375	.0147426	-0.79	0.435	-.041598	.018323
pv	.0076394	.0038555	1.98	0.056	-.0001959	.0154747
va	.0048936	.010491	0.47	0.644	-.0164267	.0262138
ef	-.0139675	.0089374	-1.56	0.127	-.0321304	.0041954
cpi	-.0002315	.0000762	-3.04	0.005	-.0003863	-.0000767
fdii	.0001795	.0001914	0.94	0.355	-.0002096	.0005685
fdio	-.0008592	.0002776	-3.09	0.004	-.0014233	-.000295
_cons	.2724873	.0561632	4.85	0.000	.1583499	.3866247
sigma_u	.11327881					
sigma_e	.01964549					
rho	.97080162 (fraction of variance due to u_i)					