International Journal of Economics and Finance; Vol. 13, No. 7; 2021
ISSN 1916-971X E-ISSN 1916-9728
Published by Canadian Center of Science and Education

The Effect of Institutional Quality on the Balance of Payments in African Countries. A Comparative Study

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Received: May 12, 2021 Accepted: June 4, 2021 Online Published: June 12, 2021

doi:10.5539/ijef.v13n7p55 URL: https://doi.org/10.5539/ijef.v13n7p55

Abstract

This study tries to examine the effect of the quality of the institutional framework on the accounts of the balance of payments in a sample of African countries (28 countries) and a sample of countries occupying advanced positions in international economics (15 countries) to determine different indicators of the institutional framework that affect the balances of the current and financial accounts of the balance of payments in the two sample countries through the period 2002-2019. The study applied the panel autoregressive distributed lag (ARDL) model, Akaike info criterion (AIC), to determine the short- and long-run relationships.

The empirical findings illustrate that the institutional indicators that support the current accounts of the balance of payments, in the long run, are not the same that support the financial accounts of the balance of payments of African countries. In addition, the effect of institutional indicators on international transactions is related to the level of economic development, where the effect of institutional indicators on countries with relatively low levels of economic development is more powerful than their effects on countries with advanced levels of development. Thus, the low quality of the institutional framework is considered an important impediment to the development of international transactions in African countries.

Keywords: institutional, government effectiveness, African, current account, financial account, balance of payments

JEL: E02, F32, O43, P33, O57.

1. Introduction

1.1 Overview

The processes of economic growth and development do not just depend on the number and quality of factors of production available in the economy but also on the quality of the institutional framework surrounding these processes. The quality of the institutional framework allows one country to allocate and use its available resources in more efficient ways and introduce high numbers and quality of outputs that exceed the ones introduced by other countries with the same or even higher resources (Hall & Jones, 1999; Shah & Huther, 1998). Moreover, the quality of the institutional framework supports the process of innovation and allows for generating and introducing new ideas in the economy (Duho et al., 2020). The differences in the patterns and rates of economic growth among countries with the same resources have made doubts regarding the belief that economic growth stems just from capital accumulation and the contribution of labor and other factors of production (North & Thomas, 1973). Accordingly, it can be said that government effectiveness and quality of institutional framework are prerequisites to the process of economic growth. According to the Solow growth model, the level of economic growth in developing and developed economies will ultimately converge and reach a steady-state level of output, where developing economies are growing faster than the developed ones (Solow, 1956). In other words, the rate of growth of the developed and developing economies will converge through the steady-state path and ultimately reach the cutting-edge (McQuinn & Whelan, 2007). The convergence between the growth in the developed and developing economies is a conditional one, and the most crucial condition is that the status of the institutional framework holds the same in all economies. Empirically, economies with the same endowments of resources are subject to economic growth divergence rather than growth convergence, thanks to the effectiveness of the institutional framework in these economies. In addition, an effective

institutional framework can set a pattern of economic growth enables for maximizing the economic and social benefits of using the available resources (Ali & Zhuang, 2007). One of the desired economic growth patterns is the one that promotes the position of the economy in international economics. For African countries, integration into the global economy is one of the four main goals designed by the New Partnership for Africa's Development program (African Union, 2001). A major reason that stands behind the deterioration in the international trade indicators of most of the Sub-Saharan Africa countries is the inefficient institutional framework in this region (Osabuohien, 2011), where the majority of African countries exports are income inelastic products, a character that stands behind the deterioration in the balance of trade (Tharnpanich & Mccombie, 2013). Moreover, the quality of the institutional framework is an attractive stimulus to foreign direct investment (Sabir et al., 2019). In light of the previous illustration, it can be said that the quality of the institutional framework can affect the balances of the current and financial accounts of the balance of payments.

1.2 Study Problem

Several measures to promote the accounts of the balance of payments have been observed in many African countries, devaluation of local currencies, tax facilities, and granting subsidies are on the top of these measures; however, all these efforts did not bear fruit, where these countries maintained relatively low positions in international economics. The previous observations highlight other factors that may have an indirect effect on the balance of payments. On top of these factors is the institutional framework surrounding the business, where countries that occupy advanced positions in international economics achieved relatively higher scores regarding the institutional indicators.

1.3 Study Objectives and Layout

This study tries to examine the effect of the quality of the institutional framework on the accounts of the balance of payments in a sample of African countries and a sample of countries occupying advanced positions in international economics to determine different indicators of the institutional framework that affect the balances of the current and financial accounts of the balance of payments in the two samples, as depicted in Figure 1. Figure 1 illustrates the six pillars or indicators of the institutional framework, namely control of corruption, rule of law, political stability, voice and accountability, regulatory quality, and government effectiveness. These aspects are expected to influence the current and financial accounts of the balance of payments. The study will try to examine the effect of these institutional indicators on the current and financial accounts of the African countries and a sample of countries (reference countries) occupying good positions in the current and financial international transactions. Finally, the study will make a comparison between the two sample countries to determine the available channels to improve the positions of African countries in international transactions.

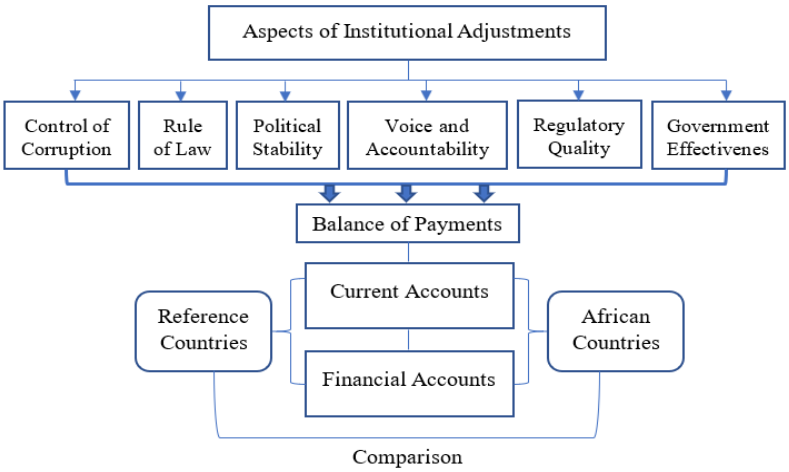

Figure 1. The study layout

1.4 Study Hypotheses

- The inefficiency of the institutional frameworks in African countries stands behind their lagged position in international economics.
- The institutional indicators that affect the current accounts of the balance of payments in African countries differ from the ones that affect the financial accounts.

1.5 Methodology

This study applies the panel autoregressive distributed lag (ARDL) model, Akaike info criterion (AIC), to estimate the effect of different institutional aspects on the current and financial accounts of the balance of payments in the short and long run.

1.6 The Scope of the Study

This study examines the development of the institutional indicators and the balances of current and financial accounts of the balance of payments in two sample countries during the period 2002-2019. One sample includes 28 African countries, while the other one is the reference sample and includes 15 countries that managed to achieve simultaneous success in both accounts of the balance of payments.

1.7 Sources of Data

Data are collected from the World Development Indicators and Worldwide Governance Indicators database of the World Bank.

1.8 Research Plan

Section (1): Introduction.

Section (2): Literature Review.

Section (3): The Development of Institutional Indicators and Balance of Payments Accounts in the Sample Countries.

Section (4): Econometric Analysis and Empirical Findings.

Section (5): Concluding Remarks and Recommendations.

2. Literature Review

This section illustrates the empirical literature regarding the effect of the institutional frame work and government effectiveness on the performance of the economy.

The study of Fayissa and Nsiah (2013) applied fixed and random effects and Arellano-Bond models on data extracted from 28 Sub-Sahara African countries for the period 1990-2004 and concluded that differences in the quality of institutional aspects stand behind the divergence of per-capita income in the Sub-Sahara African countries. Moreover, inefficiency in setting appropriate institutional frameworks in African countries is considered the main impediment to the achievement of the New Partnership for Africa's Development goals. The study of Han et al. (2014) applied the Dynamic Generalized Method of Moments and panel model to determine the effect of the degree of institutional quality on the economic development in a sample of countries from different regions during the period 1998-2011. The study argued that the six institutional indicators have a powerful positive impact on the status of economic growth and per-capita income. Besides, the response of economic performance to the degree of institutional quality is relatively weak in Asian countries; however, the two institutional indicators, namely government effectiveness and regulatory quality, have a significant impact on the economic performance in Asia compared to other countries all over the world. The study of Emara and Chiu (2016) used the Principal Components Analysis method to prepare a composite governance index and applied regression analysis on cross-sectional data of 188 countries for the years 2009 and 2013 to determine the effect of the quality of governance on the economic growth process. The study found that economic growth strongly responds to the improvement in the governance index and that the modest and unstable levels of economic growth achieved by most middle eastern and north African countries are attributed to weak governance reasons. The study of Alam (2017) applied the Generalized Method of Moments on panel data of 81 economies for 13 years to estimate the effect of government effectiveness on the process of economic growth and concluded that the effect of government effectiveness on economic growth varies according to the level of income. The study concluded that control of corruption has a positive and significant effect on economic growth while political stability and the absence of violence and terrorism have weak positive effects on economic growth. The study of Butkus and Šeputienė (2018) applied the Generalized Method of Moments and System-Generalized Method of Moments on a sample of 152 economies for the period 1996-2016 to estimate the factors that determine the turning point of the positive effect of debt on economic growth. The study argued that despite government effectiveness is an important determinant of the debt turning point; however, the trade balance is a more critical determinant of this point. The study of Nikzadian et al. (2019) examined the effect of government effectiveness on the efficiency of allocating and utilizing resources and applied panel data analysis on oil-exporting countries for the period 2002-2015 and argued that government effectiveness is most necessary to make the best utilization of oil revenues in the oil-exporting countries. The study of Sabir et al. (2019) applied

the system Generalized Method of Moments on data collected from a sample of countries with different levels of economic development for the period 1996-2016 to examine the effect of institutional quality on foreign direct investment. The study found that the quality of institutional framework positively affects the flows of foreign direct investment in all countries in the sample; however, the response of FDI to the quality of institutional framework is relatively higher in developed countries compared to the developing ones. The study of Hayat et al. (2019) applied the system Generalized Method of Moments on panel data collected from a sample of 104 countries for the period 1996-2015 to examine the indirect effect of the quality of institutional framework on economic growth through the flows of foreign direct investment. The study argued that the spillovers of foreign direct investment on economic growth in countries with high-quality institutional frameworks are relatively high compared to countries with low-quality institutional frameworks. The study of Montes et al. (2019) applied panel data analysis on a sample of 82 developed and developing economies for the period 2006-2014 to examine the effect of fiscal transparency on government effectiveness and debt. The study argued that an increase in fiscal transparency would improve government effectiveness and reduce government debt. The study of Şaşmaz and Sağdiç (2020) applied panel data models on 11 transition economies in the European Union for the period 2002-2018 to examine the effect of government effectiveness and the rule of law on the economic performance of these countries. The study argued that government effectiveness has a significant positive effect on economic growth, while the rule of law indicator has no significant effect on the process of economic growth. The study of Radulović (2020) examined the effect of institutional quality on economic growth in European Union countries and non-EU economies of Southeast Europe during the period 1996-2017 by applying the Autoregressive Distributed Lag model. The study argued that all the institutional indicators have positive long-run relationships with economic growth and this relationship is not valid in the short run. For the non-EU economies, all institutional indicators, but the rule of law, have positive long-run relationships with economic growth, while in the short-run, just regulatory quality and voice and accountability indicators have positive effects on economic growth. The study of Duho et al. (2020) applied the panel-corrected standard error regression on data collected from 100 countries in Asia and Africa for the period 2002-2018 to examine government effectiveness in Asian and African countries and determine the degree of convergence in governance between these countries. The study concluded that governance indicators are performing much better in Asian countries than in African countries except for voice and accountability and press freedom. In addition, there are five indicators with significant positive impacts on government effectiveness, namely regulatory quality, voice and accountability, economic wealth, minimizing corruption, and government size, while freedom of the press negatively affects government effectiveness.

What is new with this study?

This study examines the short- and long-run effect of institutional quality on the international transactions of African countries represented by the balances of the current and financial accounts of the balance of payments of a sample of 28 African countries. To develop a benchmark, the same examination will be applied on a sample of 15 countries that managed to achieve simultaneous success in both accounts of the balance of payments. Based on the outcomes of the two examinations, optimal procedures regarding institutional quality indicators to improve the positions of African countries in international economics will be determined.

3. The Development of Institutional Indicators and Balance of Payments Accounts in the Sample Countries

3.1 The Reference Countries

The reference sample includes countries that managed to maintain advanced positions in the balance of payments accounts and countries that managed to improve their positions in international economics through the study period. Figure 2 illustrates the development of the balances of current accounts through the periods 2002-2010 and 2011-2019. The performance of the current accounts of the reference countries fluctuated through the two sub-periods of the study; however, the average balances of all countries fluctuated within the positive area through the period 2011-2019. Countries like Germany, Italy, South Korea, Spain, Singapore, and the Netherlands managed to significantly improve the status of their current accounts through the period 2011-2019. Other countries, such as Denmark, Kuwait, Russian Federation, Saudi Arabia, Switzerland, and Thailand, either managed to maintain or modestly improve the status of their current accounts through the second sub-period. In addition, countries like Denmark, Germany, Singapore, Spain, Sweden, and Switzerland managed to improve the stability of the performance of their current accounts where the standard deviations of these countries recorded 5.2, 72.9, 13.2, 9.7, and 21.3 billion US$, respectively, during the period 2002-2010 and these records reduced to 3.7, 32.3, 4.9, 7.4, and 14 billion US$, respectively, through the period 2011-2019.

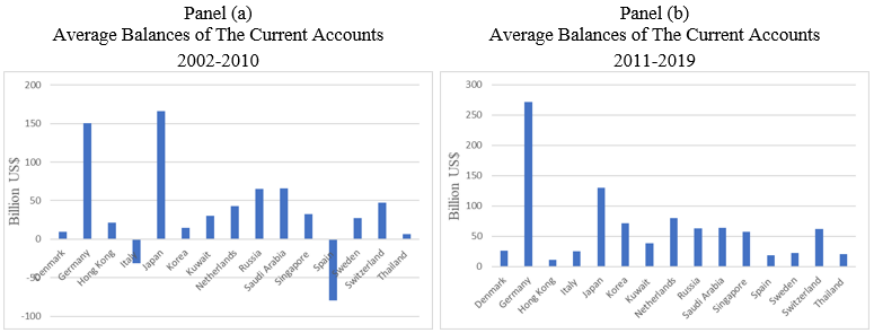

Figure 2. Development of the balances of current accounts of the reference countries

Source: World Bank, World Development Indicators Data Base.

Regarding the financial accounts, Figure 3 illustrates the development of financial accounts balances through the periods 2002-2010 and 2011-2019. Countries like Italy and Spain managed to turn their financial deficits, during the period 2002-2010, into financial surpluses, through the period 2011-2019. Germany, South Korea, Netherlands, and Singapore managed to significantly improve the status of their financial accounts through the period 2010-2019. Despite the financial balances of all reference countries have fluctuated within the positive area through the period 2011-2019; however, the status of some balances has deteriorated through the second sub-period, like the case of Hong Kong and Japan. What is worth noting is that the balances of financial accounts are much volatile, where the standard deviations of the financial balances of most countries in the sample have been significantly increased in the second sub-period of the study relative to the first one.

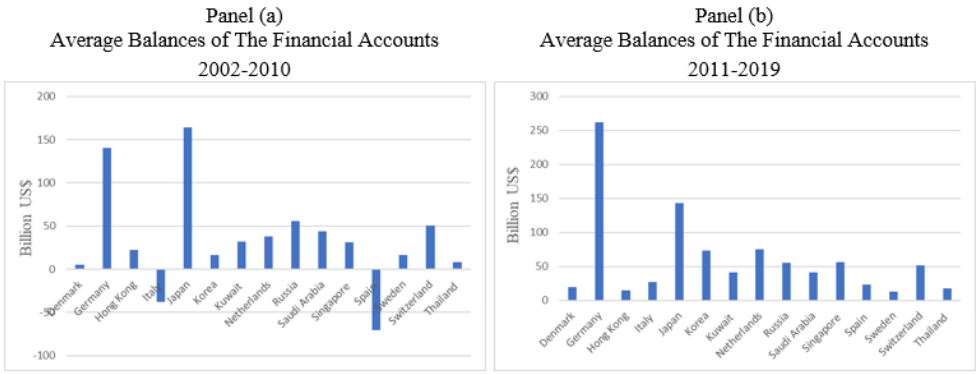

Figure 3. Development of the balances of financial accounts of the reference countries

Source: World Bank, World Development Indicators Data Base.

Through the study period, four reference countries witnessed deteriorations in the six indicators of the institutional quality, namely Denmark, Kuwait, Italy, and Thailand, as illustrated in Figure 4. The six institutional indicators, namely control of corruption, government effectiveness, political stability (No Violence), rule of law, voice and accountability, and regulatory quality, are represented by the numbers 1, 2, 3, 4, 5, and 6, respectively, in Figure 4 and the forthcoming figures.

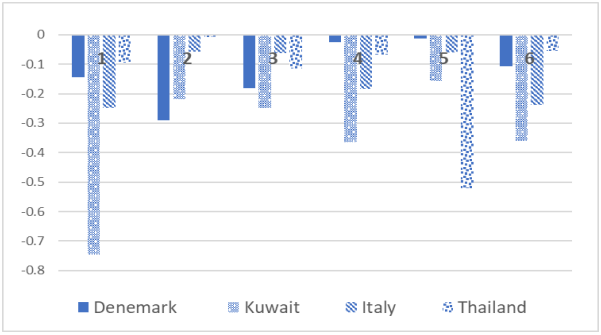

Figure 4. Reference countries that witnessed a decline in all institutional indicators during the study period

Source: World Bank, Worldwide Governance Indicators database.

Unlike the rest of the reference countries, Japan managed to achieve progression in the six institutional indicators, while the rest of the reference countries experienced deterioration in one or more of the six institutional indicators. Figure 5 shows that the majority of reference countries were suffering problems in two main institutional quality indicators, namely control of corruption and political stability indicators; on the other hand, most countries performed better concerning rule of law and government effectiveness indicators. Few countries were suffering problems in the other two institutional indicators voice and accountability and regulatory quality.

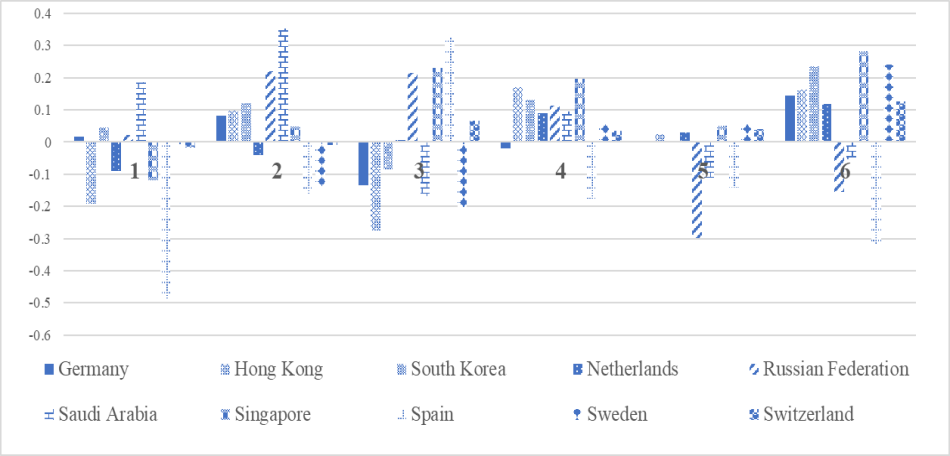

Figure 5. The development of the institutional indicators during the study period

Source: World Bank, Worldwide Governance Indicators database.

3.2 The African Countries

The African continent is represented in this study by 28 African countries chosen according to size, importance, and availability of data. Figure 6 indicates that all the African countries in the sample experienced deterioration in the balances of their current accounts through the study period. Moreover, the balances of 21 African countries in the sample turned into deficits through the period 2011-2019.

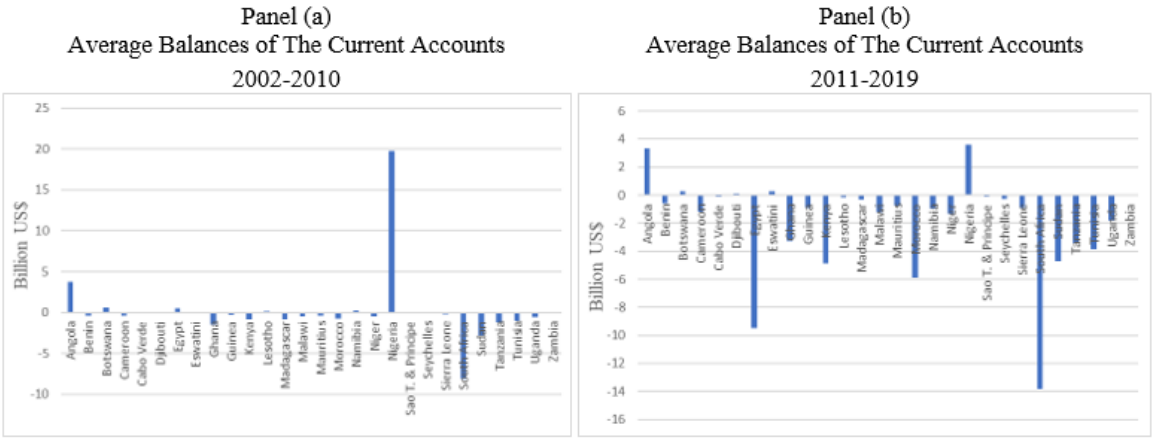

Figure 6. Development of the balances of current accounts of the sample of African countries

Source: World Bank, World Development Indicators Data Base.

The situation is much worse for the balances of the financial accounts, where all the African countries in the sample suffered deterioration in their financial accounts; besides, almost all the countries have experienced severe financial deficits. Figure 7 shows significant changes in the balances of financial accounts during the period 2011-2019 relative to the preceding period where several balances turned into a deficit. The volatility of the balances of both the current and financial accounts is very high, where the average balances of the current and financial accounts recorded -0.86 and -0.99 billion US $ with standard deviations of 5 and 4.5 billion US$, respectively.

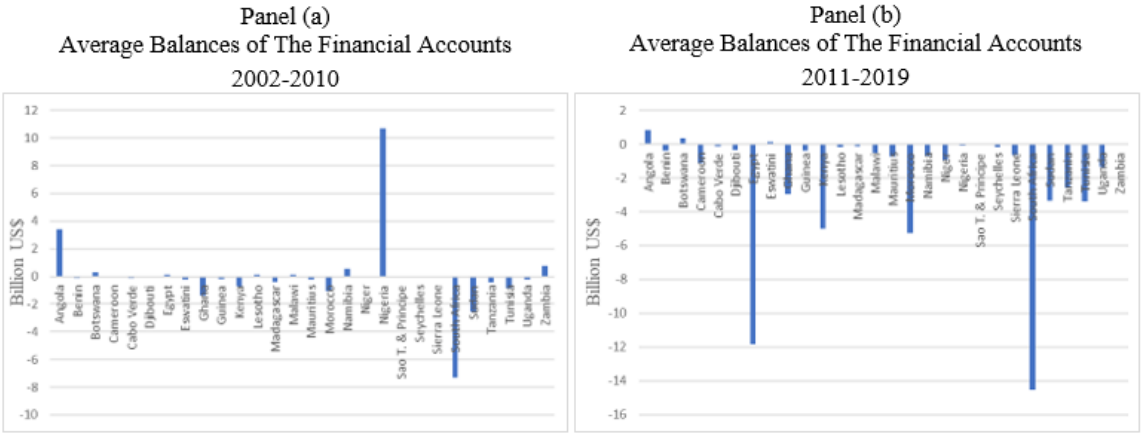

Figure 7. Development of the balances of financial accounts of the sample of African countries

Source: World Bank, World Development Indicators Data Base.

It can be said that the African continent is showing very poor performance regarding the institutional quality indicators where just a few African countries managed to achieve very modest records in a limited number of the six institutional quality indicators. Figure 8 shows that just five African countries, in the sample, managed to achieve very modest records, ranging from 0 to 1 point, in more than three institutional indicators through the period 2002-2010, namely Botswana, Caba Verde, Mauritius, Namibia, and South Africa. On the other side, fifteen African countries in the sample recorded negative points in the six institutional indicators during the same period, namely Angola, Djibouti, Cameroon, Egypt, Eswatini, Guinea, Kenya, Madagascar, Morocco, Niger, Nigeria, Sierra Leone, Sudan, Tanzania, and Uganda. The remaining countries in the sample recorded positive points in one or two indicators, at most, of the six institutional indicators.

Figure 8. Development of institutional quality indicators of the sample of African countries (2002-2010)

Source: World Bank, Worldwide Governance Indicators database.

Through the period 2011-2019, Botswana, Cabo Verde, Mauritius, Namibia, and South Africa, managed to maintain their modest records in the positive area, while the records of the countries in the negative area became much worse, where some indicators reached or almost were close to -2 points as depicted in Figure 9.

Figure 9. Development of institutional quality indicators of the sample of African countries (2011-2019)

Source: World Bank, Worldwide Governance Indicators database.

4. Econometric Analysis and Empirical Findings

This section examines the effect of the institutional indicators on international trade and financial transactions in the reference and African countries through applying the panel autoregressive distributed lag (ARDL) model, Akaike info criterion (AIC).

4.1 Specifying the Model

The generalized autoregressive distributed lag (ARDL) model has been built based on the following function:

$$y_{nt} = f(y_{n,t-k}, x_{1nt}, x_{1n,t-v}, x_{2nt}, x_{2n,t-v}, x_{3nt}, x_{3n,t-v}, x_{4nt}, x_{4n,t-v}, x_{5nt}, x_{5n,t-v}, x_{6nt}, x_{6n,t-v})$$

Where y is the dependent variable and it represents the balances of current and financial accounts of the countries balance of payments, k represents the lags of the dependent variables, v represents the lags of the independent variables or the regressors, x_1 represents control of corruption, x_2 represents government effectiveness, x_3 represents political stability and absence of violence, x_4 represents rule of law, x_5 represents voice and accountability, and x_6 represents regulatory quality.

The generalized model is represented as follows:

$$y_{nt} = \sum_{k=1}^{K} \theta_n y_{n,t-k} + \sum_{v=0}^{V} \beta_{n,t-v}\, x_{n,t-v} + \varphi_n + \varepsilon_{nt}$$

Where Θ represents the coefficients of the lagged dependent variables, β represents the coefficients of the independent variables, φ represents the unit-specific fixed effect, and ε represents the error term.

The error correction model or the re-parameterized ARDL model is represented as follows:

$$\Delta y_{nt} = \theta_n \underbrace{(y_{n,t-1} - \psi_n x_{nt})}_{\text{Error Correction Term}} + \sum_{k=1}^{K-1} \xi_{nt} \Delta y_{n,t-k} + \sum_{v=0}^{V-1} \beta'_{nt}\, \Delta x_{n,t-v} + \varphi_n - \varepsilon_{nt}$$

Where θ is the coefficient of the error correction term and it indicates the speed of correcting the short-term deviations, ψ represents the long-run relationships vector, ξ and $\beta'$are the short-term dynamic coefficients.

4.2 Stationarity Test

The stationarity of the model variables has been examined through the unit root test, Levin, Lin & Chu t method. The test revealed that all the model variables are stationary, whether at level or the first difference, see appendix (A).

4.3 The Empirical Findings Regarding the Reference Countries

The coefficients of the error correction terms are negative and statistically significant at a 1% significance level indicating the occurrence of convergence from short-term to long-term. In other words, a causal long-run relationship is running from the regressors to the dependent variables. Accordingly, it can be said that institutional quality indicators have long-run effects on the balances of current and financial accounts of the reference countries, see appendices (B-1) and (B-2).

4.3.1 Institutional Quality Indicators and Current Accounts' Balances

Control of corruption, rule of law, and voice and accountability have long-run negative impacts on the current accounts' balances, and these relationships are statistically significant at a 1% significance level with coefficients of -46.5, -62.6, and -33, respectively. Political stability and absence of violence has a long-run positive effect on the current accounts' balances and this relationship is statistically significant at a 1% significance level with a coefficient of 43.5. The institutional indicators have no significant effect on the current accounts in the short-run where none of the regressors is statistically significant, see appendix (B-1).

4.3.2 Institutional Quality Indicators and Financial Accounts' Balances

Control of corruption, political stability and absence of violence, and voice and accountability have negative impacts on the financial accounts' balances, and these relationships are statistically significant at a 1% significance level with coefficients of -97.6, -27.1, and -24.1, respectively. Moreover, government effectiveness negatively affects the balances of financial accounts with a coefficient of -52.4 and at a significance level of 5%. Rule of law and regulatory quality have positive effects on the financial accounts' balances, and the two relationships are statistically significant at a 1% significance level with coefficients of 152.8 and 101.4, respectively. What is worth noting is that in the short-run, the rule of law indicator has had a negative impact on the financial accounts' balances; however, this relationship turned into a positive relation, in the long run, see appendix (B-2).

4.4 The Empirical Findings Regarding the Sample of African Countries

The statistical outcomes support the validity of long-run causality running from the institutional quality indicators to the current and financial accounts of the sample of African countries, see appendices (C-1) and (C-2).

4.4.1 Institutional Quality Indicators and Current Accounts' Balances

Control of corruption, rule of law, voice and accountability, and regulatory quality have long-run negative impacts on the current accounts' balances, and these relationships are statistically significant at a 1% significance level with coefficients of -0.47, -0.95, -0.48, and -1.35, respectively. Government effectiveness has a long-run positive effect on the current accounts' balances and this relationship is statistically significant at a 5% significance level with a coefficient of 0.7. Control of corruption and regulatory quality indicators have had positive impacts on the balances of the current accounts in the short run; however, the signs of the two relationships turned negative in the long run, see appendix (C-1).

4.4.2 Institutional Quality Indicators and Financial Accounts' Balances

Political stability and absence of violence, voice and accountability, and regulatory quality have positive impacts on the financial accounts' balances, and these relationships are statistically significant at a 1% significance level with coefficients of 1, 0.8, and 0.85, respectively. Government effectiveness has a long run negative effect on the financial accounts' balances, and this relationship is statistically significant at a 1% significance level with a coefficient of -0.28. Despite control of corruption has had a statistically short-run positive impact on the balances of the financial accounts at a 5% significance level with a coefficient of 4; however, this relationship became statistically insignificant in the long run, see appendix (C-2).

5. Concluding Remarks and Recommendations

The empirical findings of the study illustrate that, in general, the negative impact of the improvement in the institutional quality indicators on international trade and financial transactions is greater than its positive effect. Accordingly, it can be said that the advanced performance in international trade and finance achieved by the reference countries of the study could not be attributed to the quality of their institutional frameworks but rather to other factors. Political stability has a powerful long-run positive effect on the current accounts' balances of the reference countries and the financial accounts' balances of the African countries sample. Despite the rule of law plays a significant role in supporting international financial transactions in the reference countries in the long run; however, it has no significant role in supporting international trade and finance in the African countries

whether in the short or long run. Control of corruption has positive effects on both the current and financial accounts' balances just in the short-run. Regulatory quality positively affects the financial accounts of the reference and African countries in the long run; however, its support disappears for the current accounts of both reference and African countries. On the contrary, its impact on current accounts becomes negative for African countries in the long term.

The empirical findings illustrate that the institutional indicators that support the current accounts, in the long run, are not the same that support the financial accounts. This finding supports the validity of the second hypothesis of the study. In addition, it seems that the effect of institutional indicators on international transactions is related to the level of economic development, where the effect of institutional indicators on countries with relatively low levels of economic development is more powerful than their effects on countries with advanced levels of development. Thus, the low quality of the institutional framework is considered an important impediment to the development of international transactions in African countries. This finding supports the validity of the first hypothesis of the study.

Table 1 summarizes the empirical findings of the study for the two sample countries, the reference and the African countries, in both the long- and short-run.

Table 1. Summary of the empirical findings of the study

Institutional Indicators	Reference Countries				African Countries			
	Current Accounts							
	Short-Run		Long-Run		Short-Run		Long-Run	
	Coefficient	Sig. Level	Coefficient	Sig. Level	Coefficient	Sig. Level	Coefficient	Sig. Level
Control of Corruption	-	-	-46.5	1%	3.2	5%	-0.47	1%
Government Effectiveness	-	-	-21.2	10%	-	-	0.7	5%
Political stability and absence of violence	-	-	43.6	1%	-	-	-	-
Rule of Law	-	-	-62.6	1%	-	-	-0.95	1%
Voice and Accountability	-	-	-33	1%	-	-	-0.48	1%
Regulatory Quality	-	-	-	-	2.8	10%	-1.35	1%
	Financial Accounts							
Institutional Indicators	Short-Run		Long-Run		Short-Run		Long-Run	
	Coefficient	Sig. Level	Coefficient	Sig. Level	Coefficient	Sig. Level	Coefficient	Sig. Level
Control of Corruption	-	-	-97.6	1%	4	5%	-	-
Government Effectiveness	-	-	-52.4	5%	-	-	-2.8	1%
Political stability and absence of violence	-	-	-27.1	1%	-	-	1	1%
Rule of Law	-112.1	5%	152.8	1%	-	-	-	-
Voice and Accountability	-	-	-24.1	1%	-	-	0.8	1%
Regulatory Quality	-	-	101.4	1%	2.1	10%	0.85	1%

In the context of the previous findings, African countries have to develop the status of four main institutional aspects, namely government effectiveness, political stability and absence of violence, voice and accountability, and regulatory quality, to reach advanced positions in international economics. In addition, further studies are needed to determine the turning point of the positive effect of institutional quality on international transactions and determine the complementary measures that maintain the progress of both the institutional indicators and the current and financial accounts of the balance of payments of the reference countries.

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Appendix

Appendix A. Unit Root Test (Stationarity Test)

Reference Countries Group			
Variable	Stationarity Status	Levin, Lin & Chu t	
		Statistic	Probability
Current Account Balance (Y1)	Level	-3.23735	0.0006
	First Level	-8.41851	0
Financial Account Balance (Y2)	Level	-2.78834	0.0026
	First Level	-9.1383	0
Control of Corruption (X1)	Level	-1.1173	0.1319
	First Level	-3.06735	0.0011
Government Effectiveness (X2)	Level	-2.51868	0.0059
	First Level	-3.36158	0.0004
Political Stability No Violence (X3)	Level	-1.36681	0.0858
	First Level	-5.80014	0
Rule of Law (X4)	Level	-1.38127	0.0836
	First Level	-5.09336	0
Voice and Accountability (X5)	Level	-4.43588	0
	First Level	-12.4371	0
Regulatory Quality (X6)	Level	-0.06919	0.4724
	First Level	-3.79316	0.0001
African Countries Group			
Variable	Stationarity Status	Levin, Lin & Chu t*	
		Statistic	Probability
Current Account Balance (Y1)	Level	-3.51976	0.0002
	First Level	-12.7339	0
Financial Account Balance (Y2)	Level	-3.57790	0.0002
	First Level	-10.7233	0
Control of Corruption (X1)	Level	-0.08930	0.4644
	First Level	-7.11266	0
Government Effectiveness (X2)	Level	-3.77632	0.0001
	First Level	-12.3516	0
Political Stability No Violence (X3)	Level	-3.85349	0.0001
	First Level	-6.77040	0
Rule of Law (X4)	Level	-2.50548	0.0061
	First Level	-8.59616	0
Voice and Accountability (X5)	Level	-2.40871	0.0080
	First Level	-5.74163	0
Regulatory Quality (X6)	Level	-1.31316	0.0946
	First Level	-8.37802	0

Appendix B-1. The Effect of Institutional Indicators on the Current Accounts of the Reference Countries

Dependent Variable: D(Y1)
Method: ARDL
Sample: 2003-2019
Included observations: 255
Maximum dependent lags: Automatic selection
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evaluated: 3
Selected Model: ARDL (1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
X1	-46.54755	16.67952	-2.790700	0.0060
X2	-21.17032	12.28312	-1.723529	0.0869
X3	43.57092	8.943210	4.871956	0.0000
X4	-62.63488	20.41328	-3.068340	0.0026
X5	-33.04429	9.389226	-3.519384	0.0006
X6	21.37032	15.81205	1.351521	0.1786

		Short Run Equation		
COINTEQ01	-0.354159	0.054343	-6.517131	0.0000
D(X1)	16.25766	19.86451	0.818428	0.4145
D(X2)	0.584009	14.09993	0.041419	0.9670
D(X3)	-0.078675	7.764799	-0.010132	0.9919
D(X4)	-25.63223	21.12391	-1.213422	0.2270
D(X5)	29.47193	29.54696	0.997461	0.3202
D(X6)	-26.98613	25.62265	-1.053214	0.2940
C	65.51853	16.50335	3.970014	0.0001
Mean dependent var	3.215594	S.D. dependent var		26.94448
S.E. of regression	26.15001	Akaike info criterion		8.191784
Sum squared resid	98470.50	Schwarz criterion		9.871047
Log likelihood	-979.8908	Hannan-Quinn criter.		8.866103

Appendix B-2. The Effect of Institutional Indicators on the Financial Accounts of the Reference Countries

Dependent Variable: D(Y2)
Method: ARDL
Sample: 2003 2019
Included observations: 255
Maximum dependent lags: Automatic selection
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evaluated: 3
Selected Model: ARDL (1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
		Long Run Equation		
X1	-97.64771	13.35512	-7.311632	0.0000
X2	-52.44914	23.96966	-2.188147	0.0303
X3	-27.11251	9.510090	-2.850921	0.0050
X4	152.7888	18.82348	8.116923	0.0000
X5	-24.16040	9.310908	-2.594849	0.0104
X6	101.4383	21.59826	4.696598	0.0000
		Short Run Equation		
COINTEQ01	-0.357769	0.079251	-4.514375	0.0000
D(X1)	2.896242	45.34075	0.063877	0.9492
D(X2)	8.584813	22.62560	0.379429	0.7049
D(X3)	20.50218	18.65105	1.099250	0.2735
D(X4)	-112.1636	47.71797	-2.350552	0.0201
D(X5)	70.29850	50.54384	1.390842	0.1664
D(X6)	-42.16386	47.08943	-0.895400	0.3721
C	-4.723781	6.897202	-0.684884	0.4945
Mean dependent var	3.138335	S.D. dependent var		36.07859
S.E. of regression	31.02918	Akaike info criterion		8.756661
Sum squared resid	138644.7	Schwarz criterion		10.43592
Log likelihood	-1056.149	Hannan-Quinn criter.		9.430980

Appendix C-1. The Effect of Institutional Indicators on the Current Accounts of the African Countries

Dependent Variable: D(Y1)
Method: ARDL
Sample: 2003-2019
Included observations: 476
Maximum dependent lags: Automatic selection
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evaluated: 3
Selected Model: ARDL (1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
		Long Run Equation		
X1	-0.471527	0.174100	-2.708370	0.0072
X2	0.704769	0.305577	2.306356	0.0218
X3	0.188649	0.129822	1.453130	0.1473
X4	-0.954846	0.330242	-2.891350	0.0041
X5	-0.479188	0.180892	-2.649025	0.0085
X6	-1.351488	0.239470	-5.643669	0.0000
		Short Run Equation		
COINTEQ01	-0.370043	0.073230	-5.053143	0.0000
D(X1)	3.184914	1.553216	2.050528	0.0413
D(X2)	-0.808420	0.639257	-1.264626	0.2071
D(X3)	-1.066367	1.339650	-0.796004	0.4267
D(X4)	-2.641171	2.570198	-1.027614	0.3050
D(X5)	-1.588481	1.100289	-1.443694	0.1500
D(X6)	2.804346	1.515785	1.850094	0.0654
C	-0.900876	0.291994	-3.085255	0.0022
Mean dependent var	-0.139954	S.D. dependent var		2.992784
S.E. of regression	2.626332	Akaike info criterion		1.701244
Sum squared resid	1889.947	Schwarz criterion		3.628213
Log likelihood	-198.7134	Hannan-Quinn criter.		2.457126

Appendix C-2. The Effect of Institutional Indicators on the Financial Accounts of the African Countries

Dependent Variable: D(Y2)
Method: ARDL
Sample: 2003-2019
Included observations: 476
Maximum dependent lags: Automatic selection
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evaluated: 3
Selected Model: ARDL (1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
		Long Run Equation		
X1	-0.183822	0.256803	-0.715810	0.4747
X2	-2.787263	0.354732	-7.857370	0.0000
X3	1.077882	0.113170	9.524451	0.0000
X4	0.234869	0.292264	0.803617	0.4223
X5	0.794062	0.234301	3.389067	0.0008
X6	0.854786	0.252136	3.390174	0.0008
		Short Run Equation		
COINTEQ01	-0.454329	0.060555	-7.502740	0.0000
D(X1)	3.991814	2.056014	1.941531	0.0532
D(X2)	1.594119	2.041008	0.781045	0.4355
D(X3)	-0.120643	1.329064	-0.090773	0.9277
D(X4)	-2.995565	2.423061	-1.236273	0.2174
D(X5)	0.918601	1.765253	0.520379	0.6032
D(X6)	2.148276	1.234007	1.740894	0.0828
C	-0.742632	0.204214	-3.636541	0.0003
Mean dependent var	-0.126193	S.D. dependent var		3.406338
S.E. of regression	2.617546	Akaike info criterion		2.199798
Sum squared resid	1877.324	Schwarz criterion		4.126768
Log likelihood	-324.3492	Hannan-Quinn criter.		2.955680