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⁵

⁶ **Abstract**

⁷ Having become aware of the financial status of underdeveloped countries of the West African
⁸ Economic and Monetary Union (WAEMU) and the potential role of institutional factors in
⁹ the effectiveness of financial development policies, this study proposes an analysis of the
¹⁰ impact of institutional quality on the success of their financial development policy. The results
¹¹ of the study show that institutions have a decisive impact on the finance effect on economic
¹² growth and development. The study explains that since independence (1960) to the present,
¹³ various financial development policies have not paid off. The author,

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¹⁵ **Index terms**— institutional quality, financial policy development, static and dynamic panel, a composite
¹⁶ indicator of financial development.

¹⁷ **1 Introduction**

¹⁸ Developing countries, particularly those from the West African Economic and Monetary Union (WAEMU), are
¹⁹ characterized by economic, political, and social structures that do not meet the basic needs of the population.
²⁰ Massive poverty and low integration also characterize these countries into the global economy. The rates of
²¹ economic growth in that area of Africa are relatively low and are also characterized by excess volatility.

²² This economic and monetary zone has a rather significant financial delay over the developing countries in
²³ general and the other countries in sub-Saharan Africa in particular although it is seen as one of the most dynamic
²⁴ and promising areas of the continent. Indeed, the financial sector of the WAEMU countries, notwithstanding the
²⁵ development it has experienced in recent years, remains characterized by a low depth, extent, and access, which
²⁶ impedes sustainable economic development and is harmful to the effectiveness of macroeconomic policies.

²⁷ These shortcomings at the level of their financial system can be explained by shortcomings in their institutions
²⁸ and governance mechanisms (political, economic, social, etc.). These shortcomings jeopardize a real development
²⁹ process, which would be characterized by their transition from a stage of economy based on the exploitation of
³⁰ primary products to that of industrial transformation. In our view, an analysis of the problems experienced by
³¹ these developing countries, consisting of an evaluation of financial development policies in terms of institutional
³² factors, would be a fruitful approach to estimating the potential of Development in these countries. However,
³³ as part of our research, we found it useful to focus on the internal dynamics of development, namely the links
³⁴ between the institutional and the financial aspects. This study aims to answer the question on to what extent
³⁵ does the State or sub-regional institutional framework influences the performance of the financial system; and
³⁶ conditions the results of financial development policies? Indeed, the institutional issue in an empirical approach
³⁷ to financial development is the subject of more and more research work in economics. Increasingly, the idea that
³⁸ the performance of the financial system cannot be the result of the only factor of financial liberalism is present in
³⁹ the literature. But these performances would be due to the interaction of a more complex set of data that does
⁴⁰ not just fall within the evolution of financial regulations. In particular, institutional policies and arrangements
⁴¹ would play a role in the relationship between finance and growth; the quality of the institutions may even be
⁴² perceived as the primary determinant of financial and economic development (Acemoglu et al., 2004; ??odrik
⁴³ and Subramanian, 2003). The institutional issue thus has an undeniable relevance in so far as the paradigm of
⁴⁴ development prevailing until the beginning of the 90s fails to explain the failure of development policies derived
⁴⁵ from its theoretical corpus. By exploring this new path of research, it becomes possible to explain to some
⁴⁶ extent the economic and especially financial difficulties of developing countries. In this perspective, an adequate
⁴⁷ institutional framework would contribute to financial development and increase the effect of the latter on growth.

3 LITERATURE REVIEW

48 Conversely, a deficient institutional system, introduces distortions in the functioning of markets and is a
49 hindrance to the development of the economic activity. The hypothesis derived from this reasoning is based on
50 the work of Arestis et al. ??002. It stipulates that financial reform cannot promote the development of the
51 financial sector until the economic system is anchored in a sound, credible, and adequate legal and institutional
52 structure. Since a developed financial system alone can guarantee a substantial effect on the real performance of
53 the economy, institutions' development is vital towards guaranteeing this effect.

54 The objective of this study is to examine the effect of institutional quality on financial development based on
55 panel data analysis across developed and west Africa countries.

56 This study seeks to extend the literature in three dimensions. First, the financial development indicator is
57 built-in using the institutional and financial parameters. Secondly, a linear and nonlinear dynamic panel data
58 models are set up to test the linear and non-linear financial development-institutional quality relationships.
59 This can be considered as one of the pioneer empirical works that used the robust dynamic panel system GMM
60 approach to estimate the nonlinear relationship. Thirdly, the models are estimated based on the newly assembled
61 institutional quality measure developed by Kaufmann et al. (2008) Also, by way of confirmation of our results,
62 the study is remaking the same estimate on a sample of developed countries 25, all Organization for Economic Co-
63 operation and Development (OECD). Furthermore, after obtaining results using one of the most robust methods
64 for estimating dynamic panel data (Generalized Method of Moment System), we realize that the retarded variable
65 of our dependent variable is not significant, and therefore we could settle for static panel estimates (Fixed-effects
66 model or random-effect model). The question underlying this methodological approach concerns the explanatory
67 capacity of our composite financial development indicator to reveal the shortcomings of the WAEMU financial
68 sector. To this end, we proceed to a second econometric estimation (both static and dynamic) on a control
69 sample, made up of countries with different characteristics from those of the WAEMU countries, that is to say,
70 OECD countries. These results will enlighten us on how the quality of institutions contributes to the process of
71 developing the financial sector. And at the same time, the question arises as to whether it is not the shortcomings
72 of the institutions that need to be attributed to the blockages of the growth of the financial sector and, therefore,
73 that of the real increase.

74 In our approach, we first start to create a composite indicator of financial development and then to form our two
75 (2) databases, both for WAEMU countries (sample of 8 countries) and those of the OECD (sample of 25 countries)
76 on the period 1996-2016. Each of the two (2) databases includes the following variables: The gross domestic
77 product per capita, the consumer price index, an average of the indicators representing the economic institutions,
78 and that of the political indicators, and the indicator of financial development creates. Two methods, namely
79 that of the Generalized Method of Moment (GMM System) on dynamic panel data at first and the estimation
80 of models with fixed effects or random effect, are used in a second time. We decide to adopt a double-estimation
81 approach to ensure the robustness of our econometric conclusions.

82 The first part provides a brief overview of the institutional framework as well as a panorama of empirical
83 studies of the relationship between the institutional framework and the development of the financial sector (and
84 by implication, the growth of economic activity). The second part is devoted to the methodology used. The last
85 part is devoted to the results and discussions.

86 2 II.

87 3 Literature Review

88 In this literature review, we first highlight the first wave of work that has set out to seek the link between the
89 quality of institutions and economic development. And in a second time, we present our work, which consisted
90 specifically in searching the link between, on the one hand, the institutional quality and, on the other hand, the
91 capacity of the financial system to contribute to the financing of the economy.

92 It should be noted that the analysis for the role of the financial system in the growth process has been
93 enriched by the development of theoretical models of endogenous growth integrating the financial sphere since
94 the work of Schumpeter ??1912) and ??urley and Shaw (1955). It is established that capital accumulation and
95 technological change are not the only factors that explain the differences in the level of development © 20 20
96 Global Journals between countries. The recent literature on growth also stresses the role of financial development
97 and the quality of institutions, separately on the one hand and jointly, as fundamental determinants of economic
98 growth. Also, an extensive literature has accumulated in recent years to show that macroeconomic stability and
99 financial liberalization are insufficient for the real deepening of the financial sectors (and thus gaining growth).
100 This literature also shows that other institutional reforms should accompany these policies. By basing their work
101 on the gross domestic product per capita as a measure of economic development, many researchers have concluded
102 that the differences found at the global level could be explained by the quality of the country or the study area.
103 Growth would be high when institutions are functioning well and weak when they are deficient. By improving
104 laws and their application, it is possible to stimulate the economic growth in particular for African countries that
105 are experiencing real deficits in this area. This renewed interest in the institutions follows the work of the new
106 institutional economics, notably those of Douglass North (1990). Indeed, North (1990) defines institutions as the
107 set of rules and standards of a society or, more formally, the constraints established by men who frame and regulate
108 behaviors. These are both formal institutions (such as rules, laws, constitutions) and informal institutions (such

109 as unwritten social behavior standards, conventions, self-imposed codes of conduct). Based on this definition of
110 ' ' Northienne ' ' of institutions, Daron Acemoglu et al. (2004) distinguish economic institutions from political
111 institutions. Economic institutions would structure the rules of the economic game and concern, for example,
112 property rights, the execution of contracts, and the transparency of contracts while political institutions include
113 democracy, bureaucracy, and political stability. It is up to the economic and political institutions to ensure
114 respect for the rules of law, which allow for the proper functioning of the spheres of production and exchange.
115 They consist of formal rules of the game (constitutions, laws, property rights) and informal (customs, traditions,
116 social capital, and rules of conduct, etc.).

117 The objective behind the conception of the institutions is the establishment of a certain order and, therefore, the
118 reduction of the possible uncertainties in the exchange. They can be considered as corporate technologies in the
119 functioning of productive economic activities ??Nelson and Sampat, 2001). Many recent studies have emphasized
120 the importance of institutional quality for an economic performance like Rodrik et al. ??002) have all in their
121 way in different studies, with various and varied theoretical and empirical research techniques supported with
122 some close differences, that economies with a legal system that facilitates contracts between agents private and
123 guarantees property rights, are in favor of the accumulation of private capital and the expansion of the financial
124 markets.

125 And conversely, the low-level economies of a legal system suffer from a low incentive to lending activities
126 and financial transactions. They also create a market for non-productive activities such as rent-seeking or
127 bribery, which generate high transaction costs and poor resource allocation. Also, Demetriades and Law in
128 2006 concluded that, in low-income countries, institutional quality appears to be a fundamental determinant
129 of economic development, more than financial development, and any positive effect of financial development on
130 growth would be weakened without the existence of good institutions. And also, some work goes so far as to
131 condition the impact of financial liberalization policies on the development of the financial system to institutional
132 differences between countries.

133 More recent work such as Gani and Ngassam ??009), Beji and Youssef (2010), highlighted the importance of
134 institutions for finance, such as rules of law, political stability, government efficiency and the control of corruption.
135 In these works, the authors used different samples from several countries of economic and geographical zones of the
136 world. By using advanced quantitative techniques, they come to similar conclusions regarding the confirmation
137 of the thesis on which the theory of law and finance rests (La . We see through the results of these works;
138 the institutional quality strongly influences the efficiency of the financial system. Indeed, variables such as
139 the quality of regulation and control, corruption, political instability, protection of rights, in particular, private
140 property rights, are elements in the process of financial development of an economy. In most of these recent
141 studies, recourse to the application of the GMM method in the dynamic panel by the authors is noted.

142 Subsequently, Minea and Villieu (2010) attempted to reproduce this result in an endogenous growth model.
143 They show that when "institutional quality" exceeds a certain threshold, the relationship between finance and
144 growth is positive, while it becomes negative below the threshold. The intuitive explanation for this result is that
145 financial development lowers transaction costs on private investment, but also reduces the revenue of seignior
146 age usable for public investment. It is supportive of growth only if the government can obtain other revenue to
147 finance infrastructure, that is, if the institutional quality is sufficient to allow the collection of taxes other than
148 by tax Inflationary. If the institutional quality is too low, Seignior age's revenue loss cannot be offset by the
149 collection of new taxes, and the infrastructure necessary for development cannot be programmed.

150 Our literature review concludes with the result that financial development is not conceivable without a sound
151 institutional framework conducive to the development of economic and financial activities. This brings an
152 additional guarantee to our idea of building from the outset of our research, an indicator of financial development
153 that incorporates the quality of the institutions in determining the level of efficiency of the financial sector.

154 4 III.

155 5 Methodology a) Creating a new financial development indi- 156 cator

157 We calculated our development index through two steps. First, we calculated a composite index of the quality
158 of institutions. For this, we referred to the databases of World Governance Indicators, December 2018, built
159 thanks to the work of Kaufman and al. This is a database with indicators relating to 6 variables of institutional
160 development, mainly the voice and accountability, political stability and no Violence, government effectiveness,
161 regulatory quality, the rule of law, and control of corruption. We extracted data about each of these variables
162 from this basis to build an index successively for the quality of political institutions and then an index for the
163 quality of economic institutions. Each variable is rated between -2.5 and +2.5.

164 We combined these institutional variables with six financial variables whose data were derived from the Global
165 Financial Development Database (GFDD) 2017. These variables are bank credit to bank deposit, deposit money
166 bank asset to GDP, domestic credit to the private sector, Private credit by deposit money banks and other
167 financial institutions to GDP, Liquid liabilities to GDP, and Financial system deposits to GDP.

168 After ensuring the availability of data on all dimensions of our final indicator of financial development, we

169 selected a sample of 97 countries, including countries from all continents around the world. And it's from 1996 to
170 2016, which is the time interval within which we obtain data. Finally, we used the Principal Component Analysis
171 method on the XLSTAT in Excel software to get our financial indicator.

172 6 b) Estimation method in static and dynamic panel data: the 173 fixed effects model with random effects, the GMM model in 174 System

175 -The Fixed effects and random effects models? Fixed effects model

176 This model, also known as the covariance model, assumes that U_i and V_t are constant, nonrandom effects,
177 which therefore change the value of the econometric equation constant according to the values i and t . This is an
178 estimate that is carried out by the Ordinary Least Squares (OLS), after an addition to the explanatory variables
179 of the indicator variables, or dummy variables, associated with individuals i and periods t (less an individual and
180 a period to not create co linearity with the Constant. Assuming that the random cross-disturbance W_{it} satisfies
181 the conventional assumptions of the OLS (i.e., they are centered, homoscedastic, independent, and normal), the
182 estimates are optimal and allow for particular Fisher Tests to test the need for the terms U_i or V_t . The
183 fixedeffects model is: $Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + \epsilon_{it}$ Where FINANCE is
184 financial development, INTECO is economic institutions, INSTPO is political institutions, INSTFIN is
185 financial institutions, RGDPC is real GDP per capita, the subscripts i and t index countries and time
186 respectively. Also, the specification contains an unobservable country-specific effect α_i and error-term ϵ_{it} .

188 7 ? The random-effects model

189 This model, also called the compound error model, assumes the random U_i , V_t . The basic specification assumes:
190 o The centered U_i , V_t , and W_{it} (zero expectation) o The respective U_i , V_t , and W_{it} homoscedastic and
191 standard deviation σ_u , σ_v , σ_w .

192 o U_i , V_t , and W_{it} are not correlated and independent The idea of this modeling is that the three no longer
193 practice on the constant of the model, but really on the random disturbance ϵ_{it} . The method then aims to clarify
194 these effects to take them into account to refine the estimate.

195 Under the assumptions indicated, the variance of the hazard is: $\text{Var}(\epsilon_{it}) = (\sigma_u^2 + \sigma_v^2 + \sigma_w^2) + (2\sigma_{uv} + 2\sigma_{uw} + 2\sigma_{vw})$

196 Although fixed-effects and random-effects models appear to be different, the second is generally recommended.
197 Tests (notably Hausman) allow testing both hypotheses. And from the moment when the main objective is the
198 estimation of the coefficients of variables other than the constant and if they differ a bit, the question of the
199 choice between the two models (fixed effects and random effects) loses its acuity. The random effects model
200 is: $Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 W_{it} + \epsilon_{it}$ The Generalized Method of
201 $\epsilon_{it} = \sigma_u U_i + \sigma_v V_t + \sigma_w W_{it} + \epsilon_{it}$ The GMM model
202 + $\sigma_u^2 + \sigma_v^2 + \sigma_w^2 + 2\sigma_{uv} + 2\sigma_{uw} + 2\sigma_{vw}$ The GMM model
203 Moment (GMM) model

204 in System GMM in the dynamic panel has several virtues: they solve problems of bias of concurrency,
205 inverse causation, and omitted variables. The GMM estimator is better than the Ordinary Least Squares (OLS)
206 estimator. There are two (2) forms of GMM estimators in dynamic panels: The first difference GMM Estimator
207 and the System GMM Estimator. The Arellano & Bond Model (1991) offers a first-GMM-difference estimator.
208 It consists in taking for each period the first difference of the equation to be estimated to eliminate the country
209 of the specific effects, and to the instrument after that the explanatory variables of the equation in first difference
210 by their values at the level retarded of a period or more. The Blundell & Bond Model (1998) determines
211 a system-GMM estimator that combines the firstdifference equations with the level equations in which their
212 primary differences instrument the variables. The GMM estimator in the system appears to be better than the
213 GMM estimator since the latter gives biased results in the case of finite samples when the instruments are weak.
214 The determination of the GMM estimator depends on the validity of the hypothesis that the error terms are not
215 self-correlated and the validity of the instrumental variables used. To ensure the lack of self-correlation of the
216 error terms and the validity of the instruments used, Blundell and Bond (1998) propose two essential tests:

217 The Sargan test which allows to analyze the overidentification of the model and the validity Instruments
218 used for the estimation and common test of lack of selfcorrelation for error terms, χ^2 . Basic GMM model
219 is: $\chi^2 = \sum \frac{(\hat{u}_i)^2}{\hat{\sigma}^2_{\hat{u}_i}}$ Where FINANCE is financial development, INTECO is economic institutions, INSTPO is political institutions,
220 INSTFIN is financial institutions, RGDPC is real GDP per capita, the subscripts i and t index countries and
221 time respectively. Also, the specification contains an unobservable country-specific effect α_i and error-term ϵ_{it} . The
222 data used in this study are mostly from the World Bank.

225 **8 IV.**

226 **9 Results**

227 In this part, we will first give the results of our composite financial indicator and then the results of our econometric
228 model with all its tests.

229 **10 a) Composite indicator of financial development**

230 To obtain this index, we proceed by applying the Principal Component Analysis method to achieve a weighting
231 that reflects the reality of contributions from different dimensions of financial development. This Principal
232 Component Analysis work focuses on data from institutional and financial variables such as the

233 **11 Voice and accountability, Political Stability and no Violence,
234 Government Effectiveness, regulatory quality, rule of law,
235 Control of Corruption, bank credit to bank deposit, deposit
236 money bank asset to GDP, Domestic credit to private sector,
237 Private credit by deposit money banks and other financial
238 institutions to GDP, Liquid liabilities to GDP and Financial
239 system deposits to GDP.**

240 The software used XLSTAT when applying the PCA gives us a table of contribution to the different variables to
241 the construction of the different axes. It is the contributions of the various variables that we use as a weighting in
242 the calculation of our synthetic indicator for the quality of institutions. We have deducted the following weighting
243 from the results of our application:

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245 -Bank credit to bank deposits (0.573%) -Deposit money banks' assets to GDP (9.419%) -Domestic credit to the
246 private sector (9.526%) -Financial system deposits to GDP (7.017%) -Liquid liabilities to GDP (7.229%) -Private
247 credit by deposit money banks and other financial institutions to GDP (9.627%) -Voice-and-Accountability
248 (6.578%), -Political Stability-No-Violence (6.859%), -Government-Effectiveness (11.319%), -Regulatory-Quality
249 (10.556%), -Rule-of-Law (10.942%), -Control-of-Corruption (10.355%) Source: Author The results show us that
250 finance, growth, and the quality of institutions are correlated variables. The idea that countries with better
251 institutions are also those with the highest levels of GDP per capita, a more efficient financial sector, and our
252 composite indicator of financial development is involved in confirming these results, precisely as it is highly
253 correlated with the variables mentioned above. This gives relevance to this indicator about its ability to reveal
254 the economic, institutional, and financial situation of the 97 countries in our sample.

255 Besides, the analysis of the data tells us once again that the OECD developed countries and some countries in
256 Asia and South America, are a group of leading countries, characterized by high capita GDP, a level of inflation
257 relatively correct, an institutional framework conducive to the development of financial activities. And then
258 there is a group of countries, most of which are less economically and financially developed, some of which show
259 encouraging signs and others, including many African countries, which are experiencing real difficulties and must
260 make significant efforts to improve their institutions, to hope for stronger growth and more improved indicators
261 of financial development.

262 By analyzing our results (taking the most recent date, 2016), we find that out of the 97 countries in our
263 sample, 38 of them have an above-average index of 28.12, and symmetrically 59 countries are classified as having
264 a lower than the sample average. When we look closer, the ranking shows that the leading countries are Hong
265 Kong, followed by Luxembourg, Japan, Switzerland, China, Denmark with indices of 113.38 respectively; 83.61;
266 77.83; 77.35; 64.43; 60.58; 77.73; 73.04 show top-notch performance according to our calculations, and whose
267 indices indicate a deviation from the average of the sample The United States (53.57) occupies the 12th position,
268 France (42.72) is in 21st position. Generally, in these countries, agents do not experience a financial constraint
269 framework in these financial systems. Financial intermediation is effective, and firms and households can finance
270 their projects. These systems fulfill the six main financial functions: the legal and regulatory framework, risk-
271 sharing, and investment monitoring are conducive to economic agents; the information available is sufficient
272 for decision making. Among the countries of the African continent, it can be seen that South Africa (42.94),
273 Morocco (34.71), Cape Verde (34.04), Tunisia (32.90) are the best performing in Africa with higher indices than
274 the average.

275 On the other hand, the second half of the classification, that is, the countries of Sub-Saharan Africa, massively
276 occupy its lower extremity. With exceptions such as Argentina (7.76), Pakistan (12.23) at the level of the
277 last 20 positions are only African countries (South of Sahara). Malawi (6.00), Sierra Leone (5.11), Chad
278 (4.44), Sudan (4.30), and Congo Democratic Republic (2.80) have the five least developed and worst-performing

15 II. STATIC PANEL ESTIMATION (FIXED AND RANDOM EFFECTS MODEL) A. THE WAEMU ZONE

279 financial systems in our sample. Firms and households in these countries face significant financial constraints.
280 Economic agents do not operate within an institutional (economic and political) framework sufficiently conducive
281 to business, and governments do not provide effective law enforcement, property, and regulations for framework
282 good economic practice.

283 For the WAEMU countries of the zone, namely Togo (18.73), Senegal (16.51), Burkina Faso (12.85), Benin
284 (12.47), Ivory Coast (11.78), Mali (10.97), Niger (7.85), Guinea-Bissau (7.17). They are characterized by a lower-
285 than-average index of the sample indices, which indicates a significant delay in the financial system of the countries
286 in this WAEMU economic zone, which is manifested by inadequacies in both purely financial indicators, as well
287 as institutional indicators. These results show us that our new composite indicator of financial development had
288 a positive and significant impact on development. Economic institutions and political institutions have taken
289 in isolation have negative and significant coefficients, which we explain by the fact that in our opinion, the
290 quality of the institutions will only have a real and significant impact on the financial sphere when there is an
291 interpenetration of institutional performance with financial variables.

292 13 b) The results of the econometric analysis

293 ? Regarding the delayed variable of finance and the price, the level has insignificant coefficients. This can
294 be explained by the fact that the problems of endogeneity that were suspected are not proven, and we could,
295 therefore, have estimated our equation with a static panel model (what we do later in this work). ? The gross
296 domestic product (GDP) per capita and inflation have negative and insignificant coefficients, so we will avoid
297 giving them an interpretation. Our composite indicator of financial development has a positive coefficient (+
298 2.09) and significant. As a result, our assumption, according to which the financial development indicator we
299 have built, is sufficiently relevant to explain that the evolution and development process of the financial system
300 tends to be reinforced by the positive and significant sign in its coefficient in econometric estimates.

301 The WAEMU countries are among the countries that are experiencing difficulties in their economic develop-
302 ment. On the one hand, these difficulties are remarkable because of the inefficiency that characterizes their
303 financial system. We believe from the results we have obtained during our research (theoretical and empirical)
304 that institutional quality plays a very significant role in the functioning and capacity of the financial sphere to
305 enable the emergence of a financial system efficient in an economy. We also believe that the positive impact of
306 our composite indicator of development (unlike the coefficients of economic and political institutions indicators
307 taken in isolation) shows its consistency in its ability to measure financial development.

308 We found it interesting to replicate the same method to see if the results that support the relevance of our
309 composite indicator of financial development to countries with characteristics quite different from those of the
310 WAEMU countries, namely 25 OECD countries.

311 14 b. The OECD zone

312 The table below shows the results: These results show us that in the OECD, as in the WAEMU countries, the
313 signs and the significance of the different variables are similar. The results are similar in detail to those obtained
314 above. Indeed, as in the WAEMU zone, the new indicator has its relevance as to the impact it has on the
315 functioning of the financial sector.

316 -The coefficient of the new indicator is positive (+ 2.06) and significant.

317 -As for the gross domestic product and inflation, their coefficients are not significant, as in the estimate on
318 the countries of the WAEMU zone. Therefore, they cannot be interpreted reliably.

319 -And finally, as with the WAEMU area, with OECD countries, we get a coefficient of the delayed variable of
320 non-significant financial development. At this level, too, the GMM system model could have been replaced by
321 the techniques for estimating static panel models (what we do after that).

322 After using the GMM System model estimation method and obtaining results showing the nonsignificance of
323 the delayed variable coefficient, we concluded that a static panel estimation technique could have estimated our
324 model. The next part will be devoted to this task.

325 15 ii. Static panel estimation (fixed and random effects model)

326 a. The WAEMU Zone

327 We have obtained results that support those obtained during our regressions by the GMM System method. First
328 of all:

329 -Global significance tests of both models (Fixed Effects and Random Effects) show that both models are
330 significant.

331 -The signs of the coefficients for the two (2) models are almost identical.

332 -Apart from the Economic Growth variable, whose significance is only certain at a threshold of 10%, all other
333 variables are significant. -Global significance tests of both models (Fixed Effects and Random Effects) show that
334 both models are significant -The signs of the coefficients for the two (2) models are almost identical.

335 -Apart from the Inflation variable, all other variables are significant. The significance of the "Economic growth"
336 variable is only at the 10% threshold. Because the probability of Hausman's test (0.0047) is less than 5%, the
337 fixed-effect model is preferable to the random effects model.

338 **16 Test of Breusch-Pagan:**

339 This test decides between a random effects regression and a simple OLS regression. The probability of Breusch-
340 Pagan test (0.0022) is less than 5%, so the null hypothesis is accepted, and the random effect is appropriate. -In
341 both samples and regardless of the estimated model, the coefficients are almost identical. Namely: A positive and
342 significant effect of the new composite indicator of financial development. And the other institutional variables
343 taken in isolation show negative and significant coefficients on the phenomenon of financial development.

344 V.

345 **17 Conclusion**

346 The WAEMU countries are characterized by what is called financial underdevelopment in literature. This work
347 aimed to show that the quality of (political and economic) institutions has an influence on the process. Because the
348 probability of Hausman's test (0.3521) is high than 5%, the random-effect model is preferable to the fixed-effects
349 model.

350 **18 Test of Breusch-Pagan:**

351 This test decides between a random effects regression and a simple OLS regression. The probability of Breusch-
352 Pagan test (0.0000) is less than 5%, so the null hypothesis is accepted, and the random effect is appropriate.

353 Our results in this static panel regression game show us that: This work tells us first that when a financial
354 system works effectively, it results in mobilization and adequate allocation of available economic resources. We
355 have developed a new composite indicator of financial development, built for 97 countries between 1996 and 2016.
356 It brings together several aspects of financial development. This is a more comprehensive and accurate indicator
357 of the real financial development of countries.

358 Secondly, through our econometric work, we have achieved results. Indeed, estimating our static panel model
359 gives us results that validate the relevance of our composite indicator of financial development. Indeed, as in our
360 regressions (Dynamic and Static Panel), the coefficient of the new composite indicator is "positive and significant."
361 Indeed, all of these results reinforce the idea that our new composite indicator of financial development has its
362 relevance (Relevance that we capture by its ability to measure the performance of financial systems for different
363 countries). ^{1 2 3}

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²() B Institutional Quality and Financial Development in West Africa Economic and Monetary Union

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18 TEST OF BREUSCH-PAGAN:

1

Institutional Quality and Financial Development in West Africa Economic and Monetary Union
VARIABLES (AXES F1 ET F2 : 84,33 %)

1

0.75

0.5

0.25

Year F2 (9,58 %)
2020 -0.25 0

28 -
0.5

Volume -1 -0.75 -
XX 1

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GlobalF1 0.573 9.419 9.526 7.017 7.229 9.627 Voiceand Accountability 6.578 Bank credit to bank deposits (%)
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2

	Coef.	Std.Err.	t	P > t
FINANCE				
FINANCE(t-1)	0.004	0.004	1.04	0.331
RGDPC	-	0.276	-1.75	0.124
	0.481			
INFLATION	-	1.103	-1.59	0.156
	1.753			
INTECO	-	0.198	-3.70	0.008***
	0.732			
INSTPOL	-	0.053	-9.12	0.000***
	0.484			
INSTFIN	2.094	0.032	65.01	0.000***
CONSTANT	4.572	2.428	1.88	0.102
Hansen test for overid. restrictions		chi2 (97) = 0.03	prob>chi2	
			=	
			1.000	
Arellano-Bond test for AR (1)	z = -	pr>		
	0.78	z =		
		0.438		
Arellano-Bond test for AR (2)	z = -	pr>		
	0.35	z =		
		0.727		
Prob> F = 0.000 ***		F(5, 7) = 1,14e+06		

Source:
Au-
thor

Notes: INTECO= Economic Institutions; INSTPOL =Political Institutions; INSTFIN= Financial Institutions; RGDPC= Gross Domestic Product per capita. The Arellano and Bond dynamic panel system GMM estimations (Stat, command) is used to estimate this model. P-value *** indicates 1% of the significance level. The Hansen test accepted the over-identification restrictions. The null hypothesis of the absence of first-order serial correlation and second-order serial correlation (AR2) are also accepted.

Figure 2: Table 2 :

3

	Coef.	Std.Err.	t	P > t
FINANCE				
FINANCE (t-1)	- 0.003	0.002	-1.31	0.203
RGDPC	- 0.896	0.718	-1.25	0.224
INFLATION	0.052	0.140	0.37	0.716
INTECO	- 0.225	0.225	-2.23	0.036**
INSTPOL	- 0.502	0.116	-1.72	0.098*
INSTFIN	2.063	0.007	314.03	0.000***
CONSTANT	3.625	2.626	1.38	0.180
Hansen test for overid. restrictions		chi2 (98) = 22.20	prob>chi2 = 1.000	
Arellano-Bond test for AR (1)	z = - 0.46	pr> 0.46	z = 0.648	
Arellano-Bond test for AR (2)	z = - 2.13	pr> 2.13	z = 0.033**	
Prob> F = 0.000***		F(5, 24) = 662886.55		

Source:
Au-
thor

Notes: INTECO= Economic Institutions; INSTPOL =Political Institutions; INSTFIN= Financial Institutions; Gross Domestic Product per capita. The Arenallo and Bond dynamic panel system GMM estimations (Statc command) is used to estimate this model. P-value*, **, *** indicate respectively 10%, 5% and 1%, of significance levels. The Hansen test is accepted the over-identification restrictions. The null hypothesis of the absence of serial correlation (AR1) is accepted, but the absence of second-order serial correlation (AR2) is rejected.

Figure 3: Table 3 :

4

	Coef.	Std.Err.	t	P
FINANCE				
RGDPC	-0.460	0.257	-	0.0
			1.79	
INFLATION	2.104	0.007	312.57	0.0
INTECO	-0.492	0.052	-	0.0
			9.39	
INSTPOL	-0.464	0.083	-	0.0
			5.60	
INSTFIN	-1.395	0.232	-	0.0
			6.02	
CONSTANT	3.961	0.788	5.02	0.0
sigma_u		0.109		
sigma_e		0.098		
rho		0.552		
Prob> F	= 0.000***F test that all u_i F(7, 131) = 6.81			

Notes: INTECO= Economic Institutions; INSTPOL =Political Institutions;INSTFIN= Financial Institution Gross Domestic Product per capita. P value* and *** indicate respectively 10% and 1%, of significance level.

Figure 4: Table 4 :

5

	Coef.	Std.Err.	z	P > z
FINANCE				
RGDPC	-0.315	0.122	-2.58	0.010***
INFLATION	2.093	0.006	356.30	0.000***
INTECO	-0.487	0.046	-	0.000***
			10.52	
INSTPOL	-0.540	0.0722	-7.47	0.000***
INSTFIN	-1.210	0.217	-5.58	0.000***
CONSTANT	3.276	0.531	6.17	0.000***
sigma_u		0.051		
sigma_e		0.098		
rho		0.213		
Prob> chi2	(5) = 351754.94			
chi2 =				
0.000				

Source:
Author

Notes: INTECO= Economic Institutions; INSTPOL =Political Institutions;INSTFIN= Financial Institution Gross Domestic Product per capita. P value *** indicates 1%, of significance level.

Figure 5: Table 5 :

6

Test of Breusch-Pagan	Test	
	Hausman	
Chi2 (1)	9.37	Chi2 (5)
Prob> chi2	0.002	Prob> chi2

Source: Author

b. The OECD Zone

As in our previous results, we achieved results almost similar to those obtained in our regressions for the WAEMU countries. First of all:

Figure 6: Table 6 :

7

	Coef.	Std.Err.	t	P > t
FINANCE	-0.353	0.135	-2.62	0.009***
RGDPC	2.056	0.001	3751.16	0.000***
INFLATION	-0.228	0.059	-3.87	0.000***
INTECO	-0.697	0.060	-11.58	0.000***
INSTPOL	-0.0367	0.048	-0.76	0.449
INSTFIN	1.627	0.529	3.07	0.002***
CONSTANT				
sigma_u		0.232		
sigma_e		0.100		
rho		0.843		
Prob> F = 0.000*** F test that all u_i F(24, 420) = 87.75				
Source: Author				

[Note: Notes]

Figure 7: Table 7 :

8

	Coef.	Std.Err.	z	P > z
FINANCE				
RGDPC	-0.326	0.119	-2.73	0.006***
INLATION	2.056	0.001	3808.95	0.000***
INTECO	-0.217	0.0568	-3.81	0.000***
INSTPOL	-0.691	0.0581	-11.89	0.000***
INSTFIN	0.0296	0.046	0.64	0.520
CONSTANT	3.276	0.461	3.26	0.001***
sigma_u		0.051		
sigma_e		0.098		
rho		0.213		
Prob> chi2 =		wald chi2 (5) = 2.56e+07		
		0.000		

Source: Author

[Note: Notes: INTECO= Economic Institutions; INSTPOL =Political Institutions;INSTFIN= Financial Institutions; RGDPC = Gross Domestic Product per capita. P value *** indicates 1%, of significance level.]

Figure 8: Table 8 :

9

Test of Breusch-Pagan		Test Hausman	
Chi2 (1)	2404.82	Chi2 (5)	5.55
Prob> chi2	0.0000	Prob> chi2	0.3521

Source: Author

Figure 9: Table 9 :

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