

# Effect of Remittances on Banking Sector Development in WAEMU Countries

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## Abstract

This study empirically analyses the effect of migrant remittances and civil liberties on the financial development of West African Economic and Monetary Union (WAEMU) countries. Using data from the World Bank on seven member countries in the region between 1992 and 2016, the study shows from PMG estimator that in the long term, real GDP per capita, migrant remittances, the rate of economic openness and civil liberties have a positive influence on the financial development of countries in the WAEMU region. The study urges governments to create the necessary conditions to reduce the transaction costs of remittances. This reduction in the transaction cost of remittances would contribute to increasing the volume of official remittances, and ultimately to the level of financial development of the WAEMU region.

## Keywords

Remittances, Financial Development, Bank, Institutions, WAEMU

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## 1. Introduction

Migrants' remittances have become an important source of foreign exchange for developing countries. They referred to as financial resource flows arising from the cross border movement of nationals of a country [1]. They represent the second largest source of external financing for emerging economies worldwide after foreign direct investment (FDI). During the period from 1970 to 2013, developing countries received significant remittances. In Sub-Saharan Africa, remittances, which represented 0.9% of GDP in 1994 and 1.6% in 2004, reached 2.3% in 2014. This increase in financial flows has been accompanied by an abundant literature on the impact of these funds on economic growth and poverty reduction in recipient countries. In any case, the importance of migrant workers' remittances in economic development, as reflected in the literature and empirical analyses, can be understood through their benefits for host countries. They are a source of income diversification for households [2], a means of improving health conditions [3]

and an opportunity to strengthen the financial sector [4]. However, the impact of remittances on economic growth and poverty reduction would depend on the level of financial development and how remittances are spent [5, 6]. However, the literature remains ambiguous on the link between remittances and financial development. On the one hand, remittances promote financial development by increasing household bank deposits and by increasing demand for banking services [7, 8]. On the other hand, remittances from migrants can loosen the liquidity constraints of economic agents and have a depressing effect on the development of the credit market. Remittances may also not increase bank deposits if they are spent immediately.

In the WAEMU zone, remittances received from migrant workers more than quadrupled between 2000 and 2011, from CFA 323.1 billion to CFA 1.353 billion [9]. As a percentage of GDP, they rose from 1.7% in 2000 to 3.6% in 2011. By country, this proportion varies from 0.9% in Côte d'Ivoire and Niger to 8.8% in Togo. It is estimated at 2.9% in Benin, 1.3% in Burkina Faso, 3.9% in Guinea-Bissau, 3.4% in Mali

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and 7.3% in Senegal. At the same time, after more than two decades of financial liberalization in WAEMU, the overall banking situation remains satisfactory. The ratio of bank loans to GDP increased from 11.63% in 2001 to 26.73% in 2013 [10]. The banks in the area are even overliquid [11]. Indeed, in the WAEMU zone, on average, during the period 1991 to 2006, the banking sectors of the various countries held liquidity surpluses ranging from 4% to 18% of total deposits. As a proportion of GDP, these levels range from 0.8% to more than 3.7%. Recent studies suggest that the level of financial development in sub-Saharan African countries could approach the baseline if they improved their institutions. Most previous studies have shown that the quality of institutions is one of the main factors explaining financial underdevelopment in the countries of the region. In Africa, apart from a few countries, democracy is struggling to take root. With the 2006-2015<sup>1</sup> data, on a scale of 10, Mauritius has a democracy index of 8.28 in 2015, Botswana has a democracy index of 7.87 and Cape Verde has a democracy index of 7.81. In South Africa, the index is 7.56 in 2015 and 3.31 in Ivory Coast. For the same year, the index is 6.08 in Senegal and 6.86 for Ghana. In Morocco, it is 4.66 for the same year. Countries with good democracy scores have developed financial systems. Mauritius has a modern and important domestic financial system. The population is highly banked, with 1.3 bank accounts per capita [12]. Access to bank credit for small and medium-sized enterprises is very easy. The banking system is dynamic, profitable, liquid and solid. The equity ratio is close to 13% and the non-performing loans ratio does not exceed 8%. Regarding economic freedom, for the two most important countries in the WAEMU zone, Côte d'Ivoire and Senegal, the indicators are acceptable. In Côte d'Ivoire, the Heritage Foundation's overall index of economic freedom, which was 53.4 in 1995, rose to 50.2 in 2000, 56.6 in 2005 and 54.1 in 2010, reaching 63.0 in 2017. For Senegal, this index, which was 58.9 in 2000, then 57.9 in 2005 and 54.6 in 2010, rose to 55.9 in 2017. In the WAEMU zone, according to the V-DEM (Variety of Democracy) database, the civil liberties index rose from 0.43 in 1970 to 0.53 in 1990 and 0.68 in 2000 to 0.76 in 2010. From the above, the question the study attempts to answer is the following: to what extent have remittances and civil liberties stimulate financial development in the WAEMU region? Thus, the overall objective of this study is to analyze the effect of migrant remittances and civil liberties on financial development of WAEMU countries. Specifically, it will examine the effect of remittances on financial development on the one hand and the impact of civil liberties on financial development on the other. In relation to these

objectives, the following two assumptions are assumed. First, remittances are beneficial to financial development in the WAEMU region in the long term. Secondly, civil liberties are beneficial to the financial development of WAEMU countries.

This study is not lacking in interest and challenge. Indeed, economic financing constraints remain a central issue in sub-Saharan Africa, particularly in WAEMU countries. The study contributes to advancing the literature on the link between remittances and financial development in the WAEMU region.

Methodologically, the study uses the Pool Mean Group (PMG) estimator [13]. Unlike conventional methods (fixed effects or generalized moments), the PMG method introduces heterogeneity into certain coefficients to be estimated. Indeed, the PMG method reconciles in the same specification, the usual approach imposing fixed coefficients and the one assuming country-specific coefficients. Thus, it is possible to specify that the long-term relationship between the variables is the same for all countries but that each country follows its own dynamic to converge towards this common relationship. This assumption seems reasonable for countries in a monetary union that aspire to strong long-term integration.

The study uses annual data covering the period 1992 to 2016 and the choice of this period is dictated by data availability. This article is organized as follows: Section 2 is devoted to a literature review on the relationship between remittances, economic freedom and financial development. Section 3 will present the methodology of the study. Section 4 presents the data source and description of the variables. Section 5 will discuss empirical results, particularly the econometric analysis of the relationship between migrant remittances, civil liberties and financial development. Section 6 is reserved for the conclusion of the study.

## 2. Literature Review

Most studies on remittances have focused on their impacts on economic growth, education, health, poverty, and entrepreneurial activity while that on financial development is scanty. Theoretically, the impact of migrant remittances on financial development is ambiguous. The perceived importance of remittances to the financial sector is underscored by the efforts of financial intermediaries to encourage remittance recipients to put remittances in the financial system [14]. It is believed that by so doing, the way will be paved for recipients to gain access to other financial products and services, from which they hitherto would be denied access. Also, since remittances are perceived to be huge and stable, banks could be encouraged to lend to the

<sup>1</sup> The data are from a world perspective: <http://perspective.usherbrooke.ca/bilan/stats/0/2012/fr/9/carte/EIU.DEMO.GLOBAL/x.html>

recipients and this could impact positively on credit market development and hence economic growth. On the other hand, remittances may not necessarily increase bank loans if they are used for current expenses or if beneficiaries do not have sufficient confidence in the banking system to make deposits. In addition, remittances from migrants may be detrimental to bank credit to the private sector when banks choose to lend to the public sector rather than the private sector. In addition to migrant remittances, a legal and regulatory system ensuring the protection of property rights and the proper execution of contracts has been identified as essential for financial development. It is accepted that the origins of the legal code have a significant influence on the treatment of creditors and shareholders and on the efficiency of contract enforcement [15]. In the same way, [16] point out that disclosure regulations, accounting standards, accepted bank practices and deposit insurance appear to have significant effects on financial development. Institutions that uphold the rule of law, respect property rights and enforce contracts are associated with higher levels of financial development [17, 18]. It appears that democratic regimes encourage financial development by refusing to practice financial repression [19]. Transparency and competitiveness of the political system are supposed to make the financial system open and competitive [20, 21]. Indeed, democratic institutions can improve the efficiency of financial markets, resulting in reduced transaction costs [22].

Empirically, there are very few empirical studies in the literature on the role of migrant remittances in financial development. In a study on the impact of remittances on financial development in 44 sub-Saharan African (SSA) countries over the period 1975-2004, it appears that remittances promote financial development in SSA, after controlling for other macroeconomic and institutional variables influencing financial development and correcting the reverse causality between remittances, poverty and financial development [23]. The authors show that remittances have a positive impact on financial development, as measured by the ratio of bank assets to GDP and the M2 to GDP ratio. Recently, in a seminal study, the link between remittances and financial sector development was examined for 109 countries over the period 1975-2007 [24]. Using the

dynamic GMM technique, they indicate that migrant remittances have an impact on financial development, represented by the shares of bank deposits or bank loans granted to the private sector as a proportion of GDP. By examining how remittances can influence economic growth under different levels of financial development, in the major remittance-recipient developing countries, the results of [25] suggest that financial development neither works as a substitute nor a complement for the remittance-growth nexus. While remittances are effective in promoting economic growth, the influence of financial variables is found to be insignificant. More developed financial systems may attract more remittances; however, the interaction effect of financial development and remittances is not growth enhancing. Promoting financial literacy, reducing the cost of sending remittances through banks and encouraging the overall use of formal financial institutions may induce a stronger remittance-growth nexus. In addition, the dynamic and causal links between international remittance flows, banking sector development and stock market development have been studied for a wide range of developing countries [26]. They found that remittances promote banking sector development in low remittance receiving countries, but not in high remittance receiving economies. They established a bi-causal negative link between stock markets and remittances in countries with developed banking systems. In low remittance recipient countries, remittances decrease stock market development; however, in remittance dependent countries, remittances promote stock market development.

### 3. Model and Econometric Methodology

The methodology adopted in this study is essentially econometric modelling based on panel data. In this section, we first present the model specification and then the Pool Mean Group (PMG) estimation methodology.

#### The Empirical Model

To assess the impact of remittances on financial development, the following model is specified:

$$FIN_{it} = \theta_0 + \theta_1 GDP_{it} + \theta_2 REM_{it} + \theta_3 OPEN_{it} + \theta_4 INF_{it} + \theta_5 CIVILLI_{it} + \mu_{it} \quad (1)$$

Where  $i$  represents country  $i$  in the panel,  $t$  the time,  $FIN$  the financial development indicator.  $FIN$  is the average of three ratios (bank loans to the private sector as a percentage of GDP, bank assets as a percentage of GDP and bank liabilities as a percentage of GDP).  $GDP$  stands for real GDP per capita,  $REM$ , remittances as a percentage of GDP,  $OPEN$  the rate of economic openness of each country,  $INF$  the inflation

rate,  $CIVILLI$ , a civil liberty indicator and  $\mu_{i,t}$  the error term.

From an economic theory perspective, civil liberties and remittances are expected to positively influence the financial development of WAEMU countries. The same is true of GDP per capita, which should have a positive impact on financial development.

### The Presentation of the PMG and MG Estimator

The pooled mean group (PMG) estimator is used as the main estimation technique [27]. According to him, equation 1 can be seen as a staggered delay autoregressive model (ARDL) of the form:

$$y_{it} = \sum_{j=1}^m \lambda_{ij} y_{it-j} + \sum_{j=0}^n \delta_{ij} x_{it-j} + \mu_i + \varepsilon_{it} \quad (2)$$

Where

$y_{it} = FIN_{it}$ ,  $x_{it} = (GDP_{it}, REM_{it}, OPEN_{it}, INF_{it}, CIVILLI_{it})$  is a vector (5x1) of explanatory variables;  $\delta_{ij}$  is a vector

$$\Delta y_{it} = \phi_i (y_{it-1} - \theta_i x_{it}) + \sum_{j=1}^{m-1} \lambda_{ij}^* \Delta y_{it-j} + \sum_{j=0}^{n-1} \delta_{ij}^* \Delta x_{it-j} + \mu_i + \varepsilon_{it} \quad (4)$$

Where  $\phi_i$  is the adjustment coefficient,  $\theta_i$  is the vector of long-term coefficients and  $\Delta$  is the variation operator between two successive dates. It is expected that  $\phi_i < 0$ . One of the advantages of the ARDL models is that the short-term and long-term multipliers are estimated jointly. In addition, these models allow the presence of variables that can be

(5x1) of coefficients;  $\lambda_{ij}$  a scalar and  $\mu_i$  represents the fixed effect (country). From this model, the long-term relationship derives as follows:

$$y_{it} = \theta_i x_{it} + \mu_{it} \quad (3)$$

If the variables are cointegrated, then the term  $\varepsilon_{it}$  is a stationary process. In this case, the model can be respecified as an error-correction model in which the short-term dynamics are influenced by the deviation from the long-term relationship:

integrated of different orders, i.e.  $I(0)$  and  $I(1)$ , or cointegrated [28]. The PMG estimator allows short-term coefficients and adjustment coefficients to vary from country to country, but long-term coefficients are the same for all countries ( $\theta_i = \theta$ ). In this study, the PMG estimator is based on the following error-correction model:

$$\Delta FIN_{it} = \theta_0 + \phi_i S_{it-1} + \sum_{j=1}^p \gamma_{1ij} \Delta FIN_{it-i} + \sum_{j=0}^p \gamma_{2ij} \Delta GDP_{it-i} + \sum_{j=0}^p \gamma_{3ij} \Delta REM_{it-i} + \sum_{j=0}^p \gamma_{4ij} \Delta OPEN_{it-i} + \sum_{j=0}^p \gamma_{5ij} \Delta INF_{it-i} + \sum_{j=0}^p \gamma_{6ij} \Delta CIVILLI_{it-i} + \mu_{it} \quad (5)$$

Where

$$S_{it-1} = (FIN_{it-1} - \theta_1 GDP_{it} - \theta_2 REM_{it} - \theta_3 OPEN_{it} - \theta_4 INF_{it} - \theta_5 CIVILLI_{it})$$

It has been shown that the imposition of an identical coefficient for the return force could lead to biases [29]. The MG estimator allows heterogeneity in both short-term parameters and long-term coefficients. The MG estimator estimates the equation for each country in the sample and then calculates the unweighted averages of the coefficients over the entire panel. The hypothesis of homogeneity of long-term coefficients is empirically tested. For this purpose, a Hausman test was used to determine the difference between the MG and PMG estimators. Under the null hypothesis, this difference is not significant and the PMG estimator is then preferable.

## 4. Data and Descriptive Statistics

This section is reserved for the presentation of data sources and descriptive statistics.

### Source of Data

The empirical study uses annual data from 7 WAEMU countries except Guinea-Bissau, for unavailability of data. These are Côte d'Ivoire, Senegal, Niger, Mali, Burkina Faso, Togo and Benin. These countries are in monetary union and share the CFA franc. The study data are mainly from the World Bank database, mainly the 2018 World Development

Indicators (WDI) database [30]. Civil liberties come from the V-DEM (Variety of Democracy) database [31]. The study covers the period from 1992 to 2016.

### Descriptive Statistics

The descriptive statistics of all variables are recorded in Table 1. This table requires some comments. It indicates that over the period 1992-2016, on average, the growth rate of real GDP per capita is \$702.81, the opening rate 31.51% with an inflation rate of 4.42%. The high standard deviation (7.34) observed for inflation reflects a heterogeneity of the general price level in the sample. Remittances from migrants represent on average 2.90% of GDP over the period of the study. In view of these figures, remittances from migrants represent important resources for WAEMU countries. The financial development indicator came out at an average of 20.90%. As a result, the financial sector in the WAEMU region is very underdeveloped. As for civil liberties, they appear acceptable within the WAEMU zone, with an average of 0.77 on a scale of 0 to 1. The closer the index gets to 1, the more the country ensures civil liberties; civil liberty includes free expression, the quality of institutions and individual autonomy without interference from public authorities.

**Table 1.** Descriptive Analysis of Variables.

| Variables | Obs. | Mean    | Std. Dev. | Min     | Max      |
|-----------|------|---------|-----------|---------|----------|
| FIN       | 175  | 20.903  | 8.593     | 4.930   | 50.651   |
| GDP       | 175  | 702.816 | 309.145   | 325.836 | 1588.153 |
| REM       | 175  | 2.905   | 2.481     | 0.226   | 11.272   |
| OPEN      | 175  | 31.511  | 9.319     | 14.187  | 62.516   |
| INF       | 175  | 4.424   | 7.342     | -9.823  | 46.386   |
| CIVILLI   | 175  | 0.770   | 0.091     | 0.556   | 0.907    |

Source: Author's estimates, based on WDI data (2018)

The descriptive analysis is complemented by an analysis of the correlation matrix, which is used to assess the dependence between several variables at the same time. The

Pearson correlation coefficient matrix is summarized in Table 2. This table indicates a low correlation between the explanatory variables. Of all these variables, the openness rate pair (OPEM) and financial development (FIN) have the highest correlation coefficient (0.62) but well below 0.8. The REM and FIN, GDP and FIN pairs have correlation coefficients of 0.41 and 0.36 respectively. The INF and FIN pairs have a negative correlation coefficient (-0.12), which seems to be in line with economic theory. All other variables are retained in the model because of their theoretical interest.

**Table 2.** Pearson Correlation Matrix.

|         | FIN      | GDP     | REM    | OPEN    | INF    | CIVILLI |
|---------|----------|---------|--------|---------|--------|---------|
| FIN     | 1.000    |         |        |         |        |         |
| GDP     | 0.363*   | 1.000   |        |         |        |         |
| REM     | 0.412*   | -0.305* | 1.000  |         |        |         |
| OPEN    | 0.623*   | 0.426*  | 0.400* | 1.000   |        |         |
| INF     | -0.129** | -0.002  | -0.001 | -0.009  | 1.000  |         |
| CIVILLI | 0.010    | -0.0006 | -0.092 | -0.242* | -0.052 | 1.000   |

Note: (\*\*)\* refers to the significance of the parameters at the 5% (10%) threshold.

Source: Author's estimates, based on WDI data (2018)

## 5. Empirical Results

The empirical analysis follows the following approach. It begins by applying unit root tests to the series to study the stationarity of the variables. Then it will be necessary to apply the cointegration test to validate or invalidate a possible long-term relationship between the variables. Finally, it will be necessary to estimate the long-term coefficients using the PMG estimator.

### Unit Root and Cointegration Test Results

The order of integration of the variables is tested using three tests [32, 33, 34]. The results reported in Table 3 indicate that at the 5% threshold, the null hypothesis that confirms the presence of unit root cannot be rejected for all level

variables. Not all variables are therefore stationary in level. But all variables are stationary in first difference. It follows from the above that there is a presumption of a cointegrating relationship between the different variables. A cointegration test should therefore be applied. Pedroni's cointegration test [35] is performed for all variables and the results are reported in Table 4. After performing Pedroni's cointegration test for all variables, of the seven statistics, only two are in favour of a long-term relationship between the variables. Since the sample is not very large, it is advisable to use statistics by panel-ADF and group-ADF, which have better properties. It was necessary to apply the tests of Kao [36] to remove doubts about the existence of a long-term relationship between the variables in the model. The results of this test are recorded in Table 5.

**Table 3.** Stationarity Test Results.

| Variables | In Level           |                     |                    | In First Difference |                     |                    |
|-----------|--------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
|           | LLC                | IPS                 | Breitung           | LLC                 | IPS                 | Breitung           |
| FIN       | -1.825*<br>(0.033) | 4.909<br>(1.000)    | 6.138<br>(1.000)   | -8.350*<br>(0.000)  | -7.307*<br>(0.000)  | -3.239*<br>(0.000) |
| GDP       | 6.270<br>(1.000)   | 1.475<br>(0.929)    | 3.272<br>(0.999)   | -3.672*<br>(0.000)  | -7.608*<br>(0.000)  | 0.659<br>(0.745)   |
| REM       | 0.326<br>(0.627)   | 0.374<br>(0.645)    | 3.474<br>(0.999)   | -8.956*<br>(0.000)  | -9.392*<br>(0.000)  | -5.519*<br>(0.000) |
| OPEN      | 1.975<br>(0.975)   | -1.567**<br>(0.058) | -0.099<br>(0.460)  | -8.949*<br>(0.000)  | -9.742*<br>(0.000)  | -7.462*<br>(0.000) |
| INF       | -9.644*<br>(0.000) | -8.110*<br>(0.000)  | -6.879*<br>(0.000) | -11.531*<br>(0.000) | -12.932*<br>(0.000) | -7.799*<br>(0.000) |
| CIVILLI   | -2.328*<br>(0.010) | -3.169*<br>(0.000)  | -0.096<br>(0.461)  | -11.538*<br>(0.000) | -10.573*<br>(0.000) | -3.019*<br>(0.001) |

Note: LLC, IPS and Breitung are the Levin-Lin-Chu (2002), Im,-Pesaran-Shin (2003) and Breitung (2000) tests respectively. The values in brackets are p-values. (\*\*)\* means that the series is stationary at the 5% (10%) threshold. The choice of delays is based on the Akaike Info Criterion.

Source: Author's estimates, based on WDI data (2018)



**Table 4.** Results of Pedroni's Cointegration Test (1999).

|                     | Panel Tests |          | Group Mean Tests |          |
|---------------------|-------------|----------|------------------|----------|
|                     | Statistics  | P-values | Statistics       | P-values |
| <i>v-stat</i>       | -1.149      | 0.874    | -                | -        |
| <i>p-stat</i>       | 2.693       | 0.996    | 3.214            | 0.999    |
| <i>t-stat (PP)</i>  | 1.787       | 0.963    | 1.849            | 0.967    |
| <i>t-stat (ADF)</i> | -1.599**    | 0.054    | -2.090*          | 0.018    |

Note: (\*\*) \* indicates the significance of the test at the 5% (10%) threshold.  
Source: Author's estimates, based on WDI data (2018)

**Table 5.** Results of Kao's Cointegration Test (1999).

| Test | T-Statistic | P-value |
|------|-------------|---------|
| ADF  | -1.686*     | 0.045   |

Source: Author's estimates, based on WDI data (2018)

The results show that the p-value associated with T-Statistic

**Table 6.** Results of the Long-term Equation.

| Variables                     | PMG      |        |         | MG      |        |         |
|-------------------------------|----------|--------|---------|---------|--------|---------|
|                               | Coef.    | S.E    | p-value | Coef.   | S.E    | p-value |
| <i>GDP</i>                    | 0.033*   | 0.014  | 0.019   | 0.083*  | 0.030  | 0.007   |
| <i>REM</i>                    | 5.292*   | 1.631  | 0.001   | 2.502*  | 0.955  | 0.009   |
| <i>OPEN</i>                   | 0.896*   | 0.313  | 0.004   | -0.031  | 0.357  | 0.929   |
| <i>INF</i>                    | -0.857*  | 0.289  | 0.003   | -0.259  | 0.188  | 0.170   |
| <i>CIVILLI</i>                | 112.418* | 37.246 | 0.003   | -48.940 | 79.521 | 0.538   |
| <i>Adjustment Coefficient</i> |          |        |         |         |        |         |
| <i>Phi</i>                    | -0.092*  | 0.028  | 0.001   | -0.157* | 0.071  | 0.027   |

Note: (\*\*) \* refers to the significance of the parameters at the 5% (10%) threshold.  
Source: Author's estimates, based on WDI data (2018)

**Table 7.** Results of the Short-term Equation.

| Variables        | PMG      |       |         | MG      |        |         |
|------------------|----------|-------|---------|---------|--------|---------|
|                  | Coef.    | S.E   | p-value | Coef.   | S.E    | p-value |
| $\Delta GDP$     | 0.004    | 0.009 | 0.456   | -0.017  | 0.011  | 0.140   |
| $\Delta REM$     | -0.178   | 0.243 | 0.420   | -0.469* | 0.111  | 0.000   |
| $\Delta OPEN$    | -0.442   | 0.062 | 0.058   | -0.007  | 0.051  | 0.882   |
| $\Delta INF$     | 0.016    | 0.014 | 0.061   | 0.011   | 0.019  | 0.558   |
| $\Delta CIVILLI$ | -11.648* | 4.579 | 0.002   | -1.296  | 9.008  | 0.886   |
| <i>Constant</i>  | -11.033* | 3.726 | 0.000   | -3.206  | 17.675 | 0.856   |

Note: (\*\*) \* indicates the significance of the parameters at the 5% (10%) threshold.  
Source: Author's estimates, based on WDI data (2018)  
Source: Author's estimates, based on WDI data (2018)

**Table 8.** Hausman Test Results.

| Variables      | Coefficients |         | Difference (b-B) |
|----------------|--------------|---------|------------------|
|                | PMG (b)      | MG (B)  |                  |
| <i>GDP</i>     | 0.033        | 0.083   | -0.050           |
| <i>REM</i>     | 5.292        | 2.502   | 2.789            |
| <i>OPEN</i>    | 0.896        | -0.031  | 0.928            |
| <i>INF</i>     | -0.857       | -0.259  | -0.598           |
| <i>CIVILLI</i> | 112.418      | -48.940 | 161.359          |

$\chi^2(5) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 9.73$   
 $Prob > \chi^2 = 0.083$

Source: Author, based on Hausman test results

The results of the hausman test, presented in Table 8, indicate that the assumption of homogeneity of the long-term coefficients cannot be rejected. Indeed, the probability of the test is higher than the 5% threshold. In this case, the interpretation of the

is 0.045. Since this value is less than 5%, it follows that the null hypothesis of no cointegration can be rejected. From the above, it can be concluded that the variables are cointegrated, allowing the estimation of an error-correction model.

#### The Results of The Short-Term and Long-Term Dynamics

At this stage of the study, it is possible to present the results of the PMG and MG estimates. The results of the PMG and MG estimates are reported in Tables 6 and 7. To choose between the two models, it is recommended to apply the Hausman test. This test is applied to the differential between MG and PMG. Under the null hypothesis, the difference between the estimated coefficients MG and PMG is not significant and PMG is more efficient.

results will be based on those of the PMG estimator because it is more efficient. As a result, the interpretation will only focus on the results obtained with the PMG estimator.

Now, it is possible to interpret the results of the econometric analysis of the relationship between the financial development indicator and the explanatory variables used in this study.

In the short term, only the CIVILLI variable shows significant coefficients. Civil liberties therefore have a positive effect on financial development in the WAEMU region. It should be recalled that civil liberties refer to all the freedoms to perform certain acts without the right of State control, although these may be limited by individuals or private organizations.

In the long term, all variables are significant at the 5% threshold. Real GDP per capita, migrant remittances, the rate of economic openness and civil liberties have a positive influence on the financial development of WAEMU countries. The positive effect of real GDP per capita on financial development is consistent with economic theory.

From a Keynesian perspective, financial development is a response to changing supply and demand in the real sector. From this perspective, finance does not cause growth but rather follows growth [37]. The level of financial development in the WAEMU region would therefore reflect the standard of living of its populations. The positive impact of migrant remittances on financial development indicates that they can promote financial development in developing countries. These funds can increase the resources raised by banks, thus increasing their ability to lend to economic agents. These results are similar to those found in a panel of 19 developing countries [38]. Regarding the positive impact of economic openness, it plays a crucial role in determining financial development. The importance of its role in financial development has been presented by financial liberalization theorists [39, 40]. Consequently, trade and financial openness is a key variable in financial development. These results are contrary to those found in 21 African countries where recent attempts at financial development and trade liberalization do not appear to have had a significant impact on growth [41]. On the other hand, these results support other studies that find that trade openness improves long-term financial development for a panel of 43 sub-Saharan African countries over the period 1996 to 2014 [42]. As for civil liberties, it appears that a strong legal environment benefits financial development. Indeed, the quality of legal texts and the effectiveness of their application can have a beneficial effect on banking activity and financial markets. These results confirm the work indicating that one of the constraints to financial development is the lack of effective legal institutions [43]. With regard to the negative impact of the inflation rate, it seems that an unstable macroeconomic environment or poor economic policies are detrimental to financial development. Indeed, macroeconomic instability can lead to financial crises. Inflation has no beneficial effect on financial development in the WAEMU region.

## 6. Concluding Remarks

The objective of this study was to show the empirical link between migrant remittances, civil liberties and financial development. The data for this study come from the World Bank's 2018 Development Indicators Database. These data cover the period 1992-2016 and cover seven WAEMU countries. Using the Pool Mean Group (PMG) estimator, the

data indicate a long-term relationship between migrant remittances and financial development. The results indicate that in the short term, only civil liberties have a positive impact on financial development. In the long term, real GDP per capita, remittances, economic openness and civil liberties contribute to the financial development of WAEMU countries.

On the other hand, inflation is weighing on the financial development of WAEMU member countries. In terms of economic policy implications, governments should make efforts to reduce transaction cost of remittances. Lowering the transaction cost of remittances would help to increase the volume of official remittances and therefore the current levels of financial development. This will have a positive effect on economic growth if these funds are channeled into productive uses. In addition, governments must continue their efforts to reduce poverty in order to raise people's living standards. The strengthening of the legal environment should also be promoted in order to develop the financial and banking sector.

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