The Effects of Financial Dollarization on Foreign Direct Investment in Ghana

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Abstract. The impact of financial dollarization on foreign direct investment was examined in this article. Augmented Dickey-Fuller (ADF) tests were used to verify the series' unit root. Unit root test results showed that all variables were stationary at a 5% significant level in I(0) or I(1) difference. Consequently, the analysis employed the Dynamic Ordinary Least Square regression model. Data from quarterly time series covering the years 2000 to 2021 were used in this article. According to the results, financial dollarization has a negative long- and short-term impact on foreign direct investment in Ghana. To reverse Ghana's trend of financial dollarization and draw in much foreign direct investment, it is advised that government policies concentrate on re-establishing trust, and confidence in the national currency. Also, monetary authorities should ensure that the is a more robust macroeconomic stability such as an institution to enforce risk hedging instruments domestically.

Keywords: ARDL · financial dollarization · foreign direct investment · trade openness

1 Introduction

For a long time, foreign direct investment (FDI) has been considered a driver of economic growth [1]. A potential market for an investor is likely to be a resource-rich nation with inexpensive labor with growth possibilities [2]. It has been described as a hard partnership that is occasionally difficult to realize [3].

A predictable macroeconomic climate and a stable currency may be significant to the investor for an FDI owner searching for a reliable nation for long-run investments [4].

The macroeconomic fundamentals have significantly improved over the past several years, but the Ghanaian economy is nevertheless defined by persistently high and high rates of inflation as well as ongoing currency devaluation [5].

Despite being one of the motivating elements for investors to contemplate an investment in any continent, the impact of financial dollarization on FDI had received little attention from macroeconomic researchers globally and Ghana as a whole.

By examining the influence of financial dollarization on FDI while controlling other potential factors that could have an impact on FDI, this paper seeks to fill a gap in empirical research on the topic of foreign direct investment. Also, an extant review of the literature shows that no study has addressed the subject of how financial dollarization impacts FDI from the Ghanaian economic perspective.

The emphasis placed on the attraction of FDI in Ghana and other parts of the world is the primary driving force behind this study. Hence, the focus of this research is on financial dollarization and how it can impact the flow of FDI in Ghana.

1.1 Literature Review

There has been a lot of research on FDI and how it relates to various economic issues. Generally speaking, there are two categories that this literature on FDI falls under. The effect of FDI on several macroeconomic indicators is the subject of one section of the literature; an example of such studies is on production as in the works of [6], and economic growth as in [7], and the second school of thought focuses on addressing problems associated with the variables affecting FDI inflow. The gap in the studies under consideration is that an outside influence that might draw FDI has received little attention. It would be worthwhile to look into how financial dollarization affects foreign direct investment.

2 Methods

2.1 Description and Sources of Data

Data from quarterly time series covering the years 2000 to 2021 were used in this article. The World Bank Development Indicators are used for all data series, with the exception of the financial dollarization which was source from the Bank Ghana database department. This article made use of the empirical literature as a foundation for the measurement of all the variables.

2.2 Model Specification

$$FDI_t = f\left(K_t^{\beta 1}, L_t^{\beta 2}, FDR_t^{\beta 3}, Y_t^{\beta 4}, INF_t^{\beta 5}, OPN_t^{\beta 6}\right) + e_t \tag{1}$$

where FDI represents Foreign Direct Investment, stands for capital, is labor, is financial dollarization, Y is $GD\ growth$, INF is Inflation, OPN is trade openness, and. Meanwhile, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5\ and\ \beta_6$ are the explanatory variable coefficients, and each is expectedly not equal to 0, and e_t is the disturbance term.

2.2.1 Estimation Technique

To objectively ascertain how financial dollarization affects FDI, we used the ARDL technique of cointegration as described in the works by Pesaran et al. as cited in the

works of [8].

$$\Delta \ln FDI_t = \varphi_0 + \phi \ln FDI_{t-1} + \beta_1 \ln K_{t-1} + \beta_2 \ln L_{t-1}$$
$$+ \beta_3 \ln FDR_{t-1} + \beta_4 \ln Y_{t-1} + \beta_5 \ln INF_{t-1} + \beta_6 \ln OPN_{t-1}$$
$$+ \sum_{i=0}^{\rho} \alpha_1 \Delta \ln FDI_{t-i} + \sum_{i=0}^{\rho} \alpha_2 \Delta \ln K_{t-i}$$
$$+ \sum_{i=0}^{\rho} \alpha_3 \Delta \ln L_{t-i} + \sum_{i=0}^{\rho} \alpha_4 \Delta \ln FDR_{t-i} \qquad (2)$$
$$+ \sum_{i=1}^{\rho} \alpha_4 \Delta \ln Y_{t-i} + \sum_{i=0}^{\rho} \alpha_5 \Delta \ln INF_{t-i}$$
$$+ \sum_{i=0}^{\rho} \alpha_6 \Delta \ln OPN_{t-i} + \varepsilon_t$$

where the short-run elasticities are represented by β i and the long-run elasticities by Ø and α respectively. Before estimating the findings, we first have to test for cointegration between the variables. The short-run changes to equilibrium specified by Error Correction Model (ECM) term are presented as follows.

$$\Delta \ln FDI_t = \varphi_0 + \sum_{i=1}^{\rho} \beta_1 \Delta \ln FDI_{t-i} + \sum_{i=0}^{\rho} \beta_2 \Delta \ln K_{t-i}$$
$$+ \sum_{i=0}^{\rho} \beta_3 \Delta \ln L_{t-i} + \sum_{i=0}^{\rho} \beta_4 \Delta \ln FDR_{t-i}$$
$$+ \sum_{i=0}^{\rho} \beta_5 \Delta \ln Y_{t-i} + \sum_{i=0}^{\rho} \beta_6 \Delta \ln INF_{t-i} \qquad (3)$$
$$+ \sum_{i=0}^{\rho} \beta_7 \Delta \ln OPN_{t-i} + \delta ECT_{t-1} + v_t$$

where ECT_{t-1} represents the error correction term which is the rate at which a parameter adjusts to restore long-run equilibrium shock.

3   Results and Discussion

Table 1 below provides descriptive statistics that highlight the statistical features of the study's variables across the sample period. The statistics reveal that 88 observations in total were used for the investigation. Minimum variation between the variables' average values exists, and all of the variables utilized in the study had positive means except financial dollarization.

3.1   Test for Units's Root

To investigate the series' stationarity characteristics for the study, the Augmented Dickey-Fuller (ADF) with constant only as well as constant and trend were presented since the ADF and the PP test yielded almost the same results. Before employing the ARDL bounds testing strategy for cointegration, the results from the unit root test were carried out to ensure that any of the variables are integrated in order higher than I(1). At the various levels of significance as listed in Table 2 below, the H_0 (Null hypothesis) for the series was rejected.

Table 1. Descriptive of Variables

	FDI	**FDR**	**Y**	**INF**	**L**	**K**	**OPN**
Mean.	1.533	−1.164	1.691	2.712	16.199	22.296	4.475
Std. Dev.	0.774	0.103	0.441	0.374	0.165	0.885	0.162
Maxi.	2.253	−0.955	2.642	3.514	16.455	23.514	4.754
Mini.	−0.045	−1.374	0.779	2.167	15.925	20.863	4.179
Observ.	88	88	88	88	88	88	88

Source: Generated by the author (2021) using EViews 12

Table 2. ADF Test results

Levels First difference					
Variables.	**I**	**II**	**III**	**IV**	**order**
FDI	0.952	1.987	8.522***	8.471***	I(1)
FDR	2.231	2.196	8.504***	8.446***	I(1)
Y	2.436	2.409	8.486***	8.453***	I(1)
L	2.408	1.514	−0.719	−2.318	I(0)
K	1.156	2.129	8.923***	−8.902**	I(1)
INF	2.231	2.646	8.525***	8.467***	I(1)
OPN	2.017	1.819	8.506***	8.616***	I(1)

*Note. ***, **, indicates non-stationary rejection at 1 and 5% significant levels respectively. Where I and III represent the constant and II, and IV represents the constant with trends*

3.1.1 Bounds Test for Cointegration

The joint estimation of the impact of FDI on financial dollarization along with the specific impact of FDI on other variables is the topic covered in this section. In this context, the limits testing technique to cointegration was used to determine the long-term association (cointegration) among these variables. The test entails using the F-statistics to compare with the defined critical boundaries [8].

Following the two sets of asymptotic critical values assumption, the predictors are strictly I(0) and strictly I(1) variables on opposite sides of the equation. An Unrestricted Error Correction model projected a limits test from Table 3 to be 24.6. This shows that there is a long-run relationship between the variables under examination since both the maximum and lower limits of the critical values are exceeded.

By demonstrating the long-term link between the variables, the model demonstrated the existence of an error correction process. Based on this notion, this work utilized the ARDL model to further estimate the model's long-run and short-run coefficients.

Table 3. Cointegration test Between FDI and other variables via the Bounds test

F-statistic Critical Value Bound: Intercept and No Trend						
K	90% Level		95% Level		99% Level	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
5	2.12	3.23	2.45	3.61	3.15	4.43
Calculated F-Statistics.						
FDI (DR| Y, INFL, L, K, OPN) = 24.6						

Source: Author's computations (2021) EViews 12

Table 4. Estimated long-run results

Variable	Coefficient	Std. Error
FDR	−2.289**	(0.407)
Y	0.066**	(0.082)
INFL	0.364***	(0.095)
L	5.097***	(0.719)
K	−0.543***	(0.137)
OPN	−4.042***	(0.248)

*Source. Generated by the author (2021) EViews 12, ** and *** indicate 5 and 1% significance levels respectively*

The estimated long-run outcomes utilizing the ARDL estimating method are shown in Table 4. Long-term projections reveal a negative relationship between financial dollarization and FDI, which is statistically significant at 5%. The findings specifically indicate that a point rise in financial dollarization will cause a decrease of 2.29 points in foreign direct investment. This indicates that the stability of the Ghana Cedi against the US Dollar has boosted foreign direct investment inflows. This is because the cost of labor becomes cheap to the foreign investor.

The GDP index results demonstrated that GDP has a favorable effect on economic growth during the study period, with a statistical significance of 5%. Accordingly, an increase in the economy's GDP will cause the country's foreign direct investment to climb by about 0.066 points. This concurs with the findings of [9] who concluded that FDI will relocate to nations with bigger and developing markets and stronger economies, where businesses may be able to get a higher return on their capital and, consequently, a higher profit from their investments.

The study's findings on inflation also depicted that during the sample period, foreign direct investment was significantly yet favorably impacted by inflation. It was discovered that an increase in inflation will boost FDI specifically by 0.364 points. At 1%, this was statistically significant. Per the conclusions by [10], the most fundamental macroeconomic measures, such as inflation, were not deemed statistically significant. It might

result from the fact that nations employ various governmental tools to try to entice international investors, such as investment help in the form of tax reduction or other investment incentives.

Additionally, a check at labor reveals that, with an effective rate of around 5.097 points across the period, labor has a favorable impact on FDI. At 1%, this was statistically significant. This indicates that, over time, a rise in the supply of the labor force of the nation will bring about a rise in foreign direct investment in the economy of roughly 5.097 points. Contrary to popular belief, the data show that foreign investors are drawn to countries with good labor quality even when labor expenses are expressed in terms of higher gross pay. [11] mentioned in their works as greater infrastructure and a stable macroeconomic environment are frequently connected with somewhat higher labor costs, therefore foreign investors favor investing in nations that have these features.

A close examination of capital reveals that, across the period, capital has an effective rate of roughly 0.543 points which has a negative impact on foreign direct investment. At 1%, this was statistically significant. This suggests that over time, a rise in the national capital will cause a drop in foreign direct investment in the economy of around 0.543 points.

The level of economic openness also has a key role in understanding the difference in the inflows of FDI. FDI inflows will decline by 4.042 points as economic openness levels rise. As a result of the economy being closed, FDI inflows are prevented. The results for trade openness indicate that FDI flows are substituted, rather than complemented, by export and import in a host nation, which is the reverse of findings [12]. Increased trade openness is typically linked to efforts made by governments to keep their economy accessible to international commerce, which promotes competitiveness and innovation [13].

3.1.2 Short-Run Results

Table 5 includes the error correction model term together with the ARDL model's short-term estimations. The findings demonstrated that financial dollarization has a statistically significant beneficial short-term impact on foreign direct investment. More specifically, across the data period, financial dollarization records effects on FDI of approximately 0.202 points. Accordingly, growth in financial dollarization will bring about a rise in the nation's FDI of 0.202 points. At a threshold of significance of 5%, this result differs from the long-run estimates.

The study's conclusions on inflation also depicted that across the sample period, inflation had a large but favorable impact on foreign direct investment. In particular, it was discovered that a rise in inflation will result in an increase in foreign direct investment of 0.0368 points. At 1%, this is statistically significant. According to economic theory, a modest inflation rate is advantageous for a country, whereas hyperinflation is harmful to both economic productivity and economic growth [14].

According to long-term data on the labor force, FDI was positively impacted by labor. A point rise in the workforce results in an 88.096-point rise in FDI inflow. This fits with the long-term estimate.
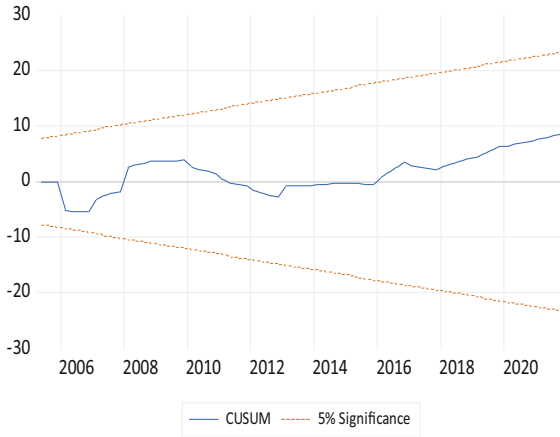
Fig. 1. Cusum. Source: Generated by the author (2021), Eview 12

Increasing the economy's capital stock will raise FDI by 0.0457 points, according to the capital's current value index coefficient. In contrast, capital's one-period lag likewise has a positive impact of 0.462 points on FDI in the nation.

The findings indicated that trade openness has statistically significant negative short-term effects on foreign direct investment. Accordingly, a point rise in OPN will cause a decrease of 1.471 points in the nation's FDI. At a 1% level of significance, this result was significant and in line with the long-run forecasts. But OPN with a lag of one period reveals that OPN possesses a statistically significant relationship with FDI.

How quickly the dynamic model adjusts to equilibrium following a disturbance is − 0.639, according to the model for correcting errors from ARDL estimate. This suggests that following a disequilibrium to the model, approximately 64% of deviation from the long-term impacts brought on by disturbances in earlier periods will eventually return to long-term equilibrium at the current state.

Institutions by ensuring long-term macroeconomic stability, along with the development of homegrown risk-hedging tools and financial markets to buck the trend of dollarization in Ghana in other to attract foreign direct investment.

The limitation of the article was that the Central Bank of Ghana could not provide us with data on financial dollarization before the year 2000 (Figs. 1 and 2).

3.1.3 Check for Robustness in the ARDL Model

Breusch-Godfrey Serial Correlation LM test for autocorrelation's presence is shown in Table 5. The test's outcome indicates that the p-value is bigger than the crucial value of 0.05, at 0.517. (5%). This demonstrates that autocorrelation does not occur. The probability value for the white heteroscedasticity test above is around 0.083, which is higher than the threshold of 0.05 or 5%. In other words, we acknowledge the absence of heteroscedasticity. Table 6 further demonstrates that the probability value for the Ramey RESET test is 2.497, which is higher than the threshold of 0.05 or 5%. This demonstrates
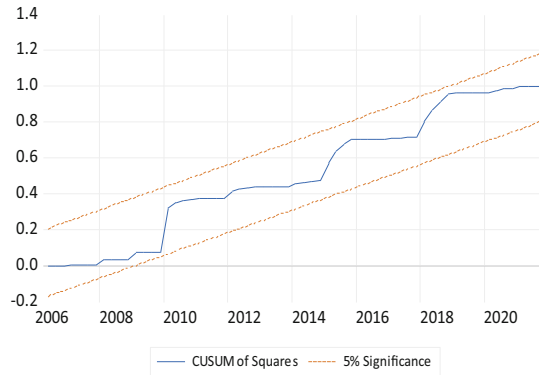
Fig. 2. Cusum sum of squares. Source: Generated by the author (2021), EViews 12

Table 5. Diagnostics and Stability Tests

Test Statistics		F-statistics	Probability
Functional form	X^2_{Reset}	0.121	2.497
Serial Correlation	X^2_{auto}	0.612	0.517
Heteroscedasticity	X^2_{BP}	0.072	0.083
Test for Normality	$X^2_{Norm.}$	–	0.445

Source: Authors Estimate (2021) EViews 12.0

that the regression equation appears to be linear, following the conclusion that the linear model is suitable for estimation.

3.1.4 Test for Stability

The model estimates were tested for stability during the sample period using the cumulative sum of squares of recursive residuals (CUMSUMSQ) and the cumulative sum of recursive residuals (CUMSUM). The findings show that the model estimations are stable, which is supported by test results that fall within the critical intervals at a significance level of 5%. This demonstrates that the model's parameters are stable.

4 Conclusions

The study looked at how financial dollarization affects FDI. The study's consequence is that the Bank of Ghana should maintain stability in key macroeconomic indicators including inflation and capital stock.

While the monetary policy authorities face high expectations, proper coordination of the fiscal and monetary policies is necessary to successfully prevent policy divergence and inconsistencies in the economy of Ghana.

According to the results, financial dollarization has a negative long- and short-term impact on FDI in Ghana. Therefore, it is advised that government policies should concentrate on maintaining trust and credibility in the domestic currency and institutions by ensuring long-term macroeconomic stability, along with the development of homegrown risk-hedging tools and financial markets to buck the trend of dollarization in Ghana in other to attract foreign direct investment.

The limitation of the article was that the Central Bank of Ghana could not provide us with data on financial dollarization before the year 2000.

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