

## Effect of capital inflows on financial development in Ghana

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### Abstract

The study examines the effect of capital inflows on financial development in Ghana. The study employs the Johansen and Juselius multivariate cointegration approach in analysing the interactions between the variables using annual data spanning 1970 to 2014. The results show that foreign direct investment (FDI), external debt, and remittance inflows have significant negative impact on financial development in the long run. Furthermore, there were significant negative relationships between external debt, remittance inflows, and financial development in the short run. However, the relationship between FDI and financial development in the short run was not significant. The study was only limited to Ghana. However, the study will help countries particularly developing countries in analysing inflows of capital and their effect on the development of financial sector for policy purposes. Furthermore, this study provides avenues for policy makers to properly formulate policies containing capital inflows for effective financial sector development. Also, the study will help policy makers in terms of how issues of capital flight must be addressed and how to take pragmatic steps to channel remittances inflows to productive sectors of the economy.

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**Keywords:** *Capital inflows, Financial development, Cointegration analysis*

**JEL classification:** C01, C32, F21

### INTRODUCTION

The financial systems of most economies have witnessed remarkable development over the past two decades (Ma & Lin, 2016). Ghana's financial sector deteriorated considerably during the late 1970s and the 1980s due to economic misalignment and mismanagement often blamed on the series of military coup that took place during this period (Fosu, 2002; Owusu, 2008). The poor state of the country and the financial sector then, led to implementation of the economic recovery programme (ERP) followed by the structural adjustment programme (SAP) (Fosu & Aryeetey, 2008). The financial sector structural adjustment programme (FINSAP) was part of SAP aimed at transforming the financial sector. This development was characterised by a big development in business and policy practice that saw rapid growth in the number of bank and non-bank financial institutions, products offered and regulation of the financial sector (Kwakye, 2012; Ncanywa & Mabusela, 2019). A well-developed financial system is fundamental in achieving viable and sustainable economic growth (Eso, 2010). Developed financial system intensifies the availability of capital by mobilising savings from the surplus spending unit, expediting transactions as well as attracting foreign investments. Such markets are characterised by efficient allocation of monetary resources and better risk management, enhanced transparency and good corporate governance practices (Kwakye, 2012; Ayadi, Arbak, Ben-Naceur & De Groen, 2013). Furthermore, a developed financial

sector could ease access to credit to first-time businesses as well as low-income (low collateral) borrowers such as small- and medium enterprises (Ayadi, Arbak, Ben-Naceur & De Groen, 2013).

The savings-investment gap theory suggested that, inadequate savings mobilization in developing economies translate into inadequate investment resulting in savings investment constraints as well as balance of payment deficit (Adepoju, Salau & Obayelu, 2007). Hence, the need to source for external capital flows to complement domestic savings so as to achieve the desired level of growth and development of the economy. These foreign capital inflows in perspective could be in the form of foreign direct investment (FDI), foreign remittances, external debt, and foreign portfolio investment among others. Capital inflows and mobility of capital across economies generally allow economies with limited savings to attract finance for industrious investment projects, promote diversification of investment risk, encourage international trade, and more importantly contribute greatly to financial markets development (IMF, 2010).

Proponents of foreign capital inflows suggest that foreign capital inflows to developing economies could be of great benefit to receiving economies as it augments domestic investment. This would ultimately stimulate economic growth and development as well as ease prospective balance of payments constraints (Siddiqui, 2014). Some authors also argue that multinational companies, via foreign capital inflows, could assist in filling the gap existing between developed and developing economies (Romer, 1993). Added to the above, foreign capital inflows are essential for the stability of the macro economy as they influence a number of macroeconomic variables such as the exchange rates, the interest rates of borrowing, foreign exchange reserves, monetary policy mechanisms as well as national savings and investments. Foreign capital inflows stimulate economic development; support employment; encourage the development of human capital; improve income level of citizenry; encourage capital formation among others. To speed up the rate of fixed capital formation via investment, there is the need for domestic savings mobilization to be improved far beyond the percentage point recorded in Ghana (Angmortey & Tandoh-Offin, 2014).

Improvement in growth and development of the economy further attracts investment and more investments invite further inflows of foreign capital. Ghana as a developing economy is characterised by huge current account deficit, which triggers the enormous inflow of foreign capital (Angmortey & Tandoh-Offin, 2014). Domineering capital inflows to developing economies is perceived to enhance external constraints confronting such economies. Feldstein (1994) argued that theoretically, the effect of foreign capital influxes on domestic investment is materially ambiguous. Suggesting that, incoming capital may promote domestic investment, nonetheless it could also escalate imports and hence, can reduce domestic production and investment. He further contends that, if access to foreign capital permits a firm to raise capital for investment, that firm's growth may cause another firm to decrease investment.

This study is motivated by the fact that, literature on the role foreign capital plays in the development of developing economies is inconclusive. The empirical question that however arises is the implication of foreign capital inflows for financial development of developing economy like that of Ghana. This is compelled by the misgivings being raised as to whether the enormous inflows of foreign capital into developing economies like Ghana over the period have translated to financial development. Further, empirical evidence on the factors that influence financial development in Ghana to govern policy makers is few (Takyi & Obeng, 2013; Acheampong, 2007; Adam & Tweneboah, 2009). Given this background, the role of foreign capital inflows in influencing financial development in the Ghanaian economy needs to be examined critically, since the financial sector is found to have played a significant role in stimulating economic growth. The rest

of the paper is organised as follows: section 2 considers the literature review, section 3 presents the methodology, section 4 discusses the empirical results, and the last section presents the conclusion and recommendations of the study as well as the references.

## LITERATURE REVIEW

There exist a number of theories offering justification for the movement of capital across borders. Capital inflow theories are mainly based on imperfect market situations but for a few among them which are based on imperfect capital market conditions. Others are based on institutional factors. Others as well explained the arrival of Multi-National Corporations (MNCs) entirely in developing economies. The current study is grounded on the MacDougall-Kemp theory.

The MacDougall-Kemp theory is one of the initial theories of capital inflows developed by MacDougall (1960) and consequently expounded by Kemp (1964). According to the MacDougall-Kemp hypothesis, in a two-country model – one representing an investing economy and the other representing host economy, when the price of capital is assumed to be equal to the countries' marginal productivities, capital would move liberally from a capital abundant economy to a capital scarce economy. When this happens, the marginal productivity of capital will in turn equalize between the two economies. This would lead to enhancement in efficiency in the usage of capital across nations. Even though the output in the investing economy decreases as a result of foreign investment outflow, Gross Domestic Product (GDP) does not drop in so far as the investing economy receives returns on the capital invested overseas, which is practically equivalent to the marginal productivity of capital invested times the volume of foreign investment. As long as the income received from foreign investment is more than the loss in output, the investing economy should continue to invest overseas as it enjoys greater national income prior to foreign investment. The host economy on the other hand would as well witness rise in national income as a result of greater level of investment, which could not have been possible in the absence of foreign capital inflow.

Empirically, Takyi & Obeng (2013) examined the determinants of financial development within the Ghanaian economy using ARDL. Using quarterly data for the period 1988 to 2010, they found a relationship between FDI inflow and financial development. They concluded that FDI inflow is an essential cause of financial development in Ghana.

Aurangeb & Haq (2012) examined the influence of FDI inflow in bringing about growth of the Pakistan economy using annualised data for the period of 1981 to 2010. Unit root test confirms the stationary of all variables at first difference. As a result of adopting the multiple regression estimation technique, their results showed FDI inflow has a positive and significant association with growth of the Pakistanis economy. They resolved that FDI inflow is actually essential for the growth of any economy.

Adeniyi, Omisakin, Egwaikhide & Oyinlola (2012) studied the causal relationship between FDI and financial development in Ghana, Gambia, Nigeria, Cote d'Ivoire and Sierra Leone for the period of 1970 to 2005 by applying Granger causality test. Measuring financial development by three variables - liquid liabilities/GDP, banking sector credit/GDP and credit to the private sector/GDP, the findings support the view that FDI matters for financial development in the economies considered except for Nigeria.

Adam & Tweneboah (2009) adopted a multivariate cointegration and the vector error correction model to ascertain the effect of FDI on stock market development in Ghana. The result showed that there exists a long run relationship between FDI and stock market development. Girma & Gong (2008) found FDI inflow to various sectors to be positively related with domestic innovative activity and improve access to domestic finance.

Baltagi, Demetriades & Law (2007) conducted a study using annual panel data methods and their findings indicate that trade openness and financial openness collectively determines financial development across different economies. Their outcomes revealed that economies that are slightly open could benefit greatly in relation to financial development if they are open to trade or foreign capital accounts. These economies could have greater benefits if they open both trade and capital accounts, even though opening at least one could still influence financial development.

Acheampong (2007) also examined the work of McKinnon-Shaw within the context of the Ghanaian financial sector. He specifically examined the savings-real interest rate nexus; the investment-real interest rate relationship as well as the investment-growth link by employing the VAR methodology and making use of quarterly data from 1988 to 2004. His results justified the savings-real interest rate relationship, the investment-real interest rate connection as well as the investment-economic growth interconnection in the long run. Moreover, the causality test authenticated the real interest rate-savings nexus and the investment-financial development nexus while an inverse causality runs from growth to savings. Capital inflows do not only lead to financial development but also to overall economic growth.

**METHODS**

**Model**

The study aimed at analysing the effect of capital inflows on financial development in Ghana. The study employed the quantitative research approach with the help of causal research design and secondary data. To examine the role played by capital inflows in influencing financial development; the study followed the approach in Obeng & Takyi (2013); Huang (2010); Chinn & Ito (2006); McKinnon & Shaw (1973) to estimate an economic model for financial development. The study used access to credit by the private sector and liquid liability as proxies for financial development. The models are stated Model 1 and Model 2:

Model 1: Access to credit by the private sector and capital inflows

$$\begin{aligned} \Delta ACC_t = & \beta_0 + \beta_1 ACC_{t-1} + \beta_2 FDI_{t-1} + \beta_3 ED_{t-1} + \beta_4 RI_{t-1} + \beta_5 GDPPC_{t-1} + \\ & \beta_6 BD_{t-1} + \beta_7 BM_{t-1} + \beta_8 INFL_{t-1} + \beta_9 LLB_{t-1} + \sum_{i=1}^p \alpha_1 \Delta ACC_{t-i} + \\ & \sum_{i=1}^p \alpha_2 \Delta FDI_{t-i} + \sum_{i=1}^p \alpha_3 \Delta ED_{t-i} + \sum_{i=1}^p \alpha_4 \Delta RI_{t-i} + \\ & \sum_{i=1}^p \alpha_5 \Delta GDPPC_{t-i} + \sum_{i=1}^p \alpha_6 \Delta BD_{t-i} + \sum_{i=0}^p \alpha_7 \Delta BM_{t-i} + \\ & \sum_{i=0}^p \alpha_8 \Delta INFL_{t-i} + \sum_{i=0}^p \alpha_9 \Delta LLB_{t-i} + \pi ECM_t + \epsilon_t \dots\dots\dots (1) \end{aligned}$$

Model 2: Liquid liability and capital inflows

$$\begin{aligned} \Delta LLB_t = & \beta_0 + \beta_1 LLB_{t-1} + \beta_2 FDI_{t-1} + \beta_3 ED_{t-1} + \beta_4 RI_{t-1} + \beta_5 GDPPC_{t-1} + \\ & \beta_6 BD_{t-1} + \beta_7 BM_{t-1} + \beta_8 INFL_{t-1} + \beta_9 ACC_{t-1} + \sum_{i=1}^p \alpha_1 \Delta ACC_{t-i} + \\ & \sum_{i=1}^p \alpha_2 \Delta FDI_{t-i} + \sum_{i=1}^p \alpha_3 \Delta ED_{t-i} + \sum_{i=1}^p \alpha_4 \Delta RI_{t-i} + \\ & \sum_{i=1}^p \alpha_5 \Delta GDPPC_{t-i} + \sum_{i=1}^p \alpha_6 \Delta BD_{t-i} + \sum_{i=0}^p \alpha_7 \Delta BM_{t-i} + \\ & \sum_{i=0}^p \alpha_8 \Delta INFL_{t-i} + \sum_{i=0}^p \alpha_9 \Delta ACC_{t-i} + \pi ECM_t + \epsilon_t \dots\dots\dots (2) \end{aligned}$$

Where:

|                       |  |
|-----------------------|--|
| $\Delta$              | = denotes the first difference operator,     |
| $\beta_0$             | = the constant,                              |
| $\beta_1 - \beta_8$   | = long run coefficients,                     |
| $\alpha_1 - \alpha_8$ | = parameters of the short run dynamic model, |
| $\pi$                 | = the error correction term and              |
| $\varepsilon_t$       | = the error term                             |
| t                     | = time period                                |
| ACC                   | = access to credit by the private sector/GDP |
| LLB                   | = Liquid liability/GDP                       |
| FDI                   | = FDI /GDP                                   |
| ED                    | = External debt/GDP                          |
| RI                    | = Remittance inflows/GDP                     |
| GDPPC                 | = Gross Domestic Product per capita          |
| INFL                  | = Inflation Rate                             |
| BM                    | = Broad money supply                         |
| BD                    | = Bank deposit/GDP                           |

### Data source

Secondary data was used. Data on access to credit by private sector per GDP, banks liquid liability per GDP and remittance inflows per GDP, gross domestic product per capita (GDPPC), Consumer price index (inflation) and bank deposit per GDP were obtained from Global Financial Development Dataset. Data on FDI, external debt and broad money supply were obtained from the World Bank World Development Indicators. Data spanned from 1970 to 2014.

Mostly, time series data contain unit root (non-stationary) at levels (Engle & Granger, 1987). To avoid spurious regression results, a unit root test was conducted. The results showed that, the variables were stationary at first difference (Table 3). This informed the decision to estimate the cointegration within the Johansen and Juselius (1990) multivariate cointegration model. This model allows combination of variables stationary at first order of integration I (1) in the same model. It permits the model to take adequate number of lags that captures the data generating procedure from a general to a more specific modelling framework. It supports the derivation of Dynamic Error Correction Model (ECM) from the multivariate cointegration model that helps integrate the short-run dynamics with the long-run equilibrium without losing long-run information.

### Measurement of the variables

**Endogenous variables:** Financial development was the endogenous variable in the study and was proxied by access to credit by the private sector credit/GDP and banks liquid liability/GDP. In seeking to collectively test the hypotheses advanced above so as to achieve the objective of the study.

**Exogenous variables:** The exogenous variables of the study included capital inflows proxied by FDI inflows/GDP, external debt/GDP and remittance inflows/GDP.

**Control Variables:** The study employed a number of macroeconomic variables as control variables. These included economic growth per capital; year on year inflation; broad money supply and banks deposit/GDP. These control variables are said to have considerably contributed to financial development.

The description of the above-mentioned variables is summarized in Table 1.

**Table 1.** Description and explanation of variables and source of data

| <b>Variables</b>                           | <b>Explanation</b>   | <b>Data source</b>                                |
|--|--|---|
| Access to credit by the private sector/GDP | Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment | Global Financial Development Dataset 1970-2014    |
| Liquid liability/GDP                       | Ratio of liquid liabilities to GDP. Liquid liabilities are also known as M3.   | Global Financial Development Dataset 1970-2014    |
| FDI/GDP                                    | FDI inflows to Ghana as a percentage of GDP  | World Bank World Development Indicators 1970-2014 |
| External debt/GDP                          | Total external debt stocks to gross national income. Total external debt is debt owed to non-residents repayable in currency, goods or services.   | World Bank World Development Indicators 1970-2014 |
| Remittance inflows/GDP                     | Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by non-resident workers.  | Global Financial Development Dataset 1970-2014    |
| Broad money supply                         | Demand deposits other than those of the central government.  | World Bank World Development Indicators 1970-2014 |
| Bank deposit/GDP                           | The total value of demand, time, and saving deposits at domestic deposit money banks as a share of GDP.  | Global Financial Development Dataset 1970-2014    |
| GDPPC                                      | Gross Domestic Product Per the total population  | Global Financial Development Dataset 1970-2014    |
| Inflation                                  | Year on year percentage change in consumer price index   | Global Financial Development Dataset 1970-2014    |

*Source: World Bank, World Development Indicators*

## **RESULTS AND DISCUSSION**

### **Descriptive statistics of the variables**

Table 2 presents the descriptive statistics of the variables. The average level of domestic credit to the private sector is 8.4 units with a standard of deviation of 5.2. This mean is however characterized by a median, minimum and a maximum of 5.9, 1.5 and 19.9 units respectively. It is, therefore, apparent that outliers do not have any significant impact on the mean value of domestic credit to the private sector. Over the period under review, the average of liquid liability to GDP was 20.4 with variability of 5.6, and a range of 10.2 units to 29.3 units. The mean of FDI of the economy was about 2.3 units ( $\sigma=2.9$ ) while recording median, maximum and minimum values of .96, 9.52 and -.7 units respectively.

**Table 2.** Descriptive statistics of the variables

| Variables | Mean ( $\mu$ ) | Median  | Maximum | Minimum | Std. Dev. ( $\sigma$ ) | Obs. |
|-----------|----------------|---------|---------|---------|------------------------|------|
| ACC       | 8.389          | 5.903   | 19.907  | 1.542   | 5.214                  | 45   |
| LLB       | 20.418         | 19.770  | 29.332  | 10.162  | 5.635                  | 45   |
| FDI       | 2.286          | .956    | 9.517   | -.660   | 2.899                  | 45   |
| ED        | 54.561         | 44.894  | 129.315 | 18.109  | 30.689                 | 45   |
| RI        | .634           | .115    | 5.395   | .010    | 1.297                  | 45   |
| BD        | 13.456         | 13.419  | 23.015  | 4.520   | 5.223                  | 45   |
| BM        | 23.004         | 22.858  | 34.108  | 11.305  | 6.395                  | 45   |
| GDPPC     | 461.596        | 431.941 | 763.938 | 320.781 | 106.763                | 45   |
| INFL      | 30.836         | 22.296  | 122.875 | 3.030   | 28.440                 | 45   |

Source: World Bank World Development Indicators

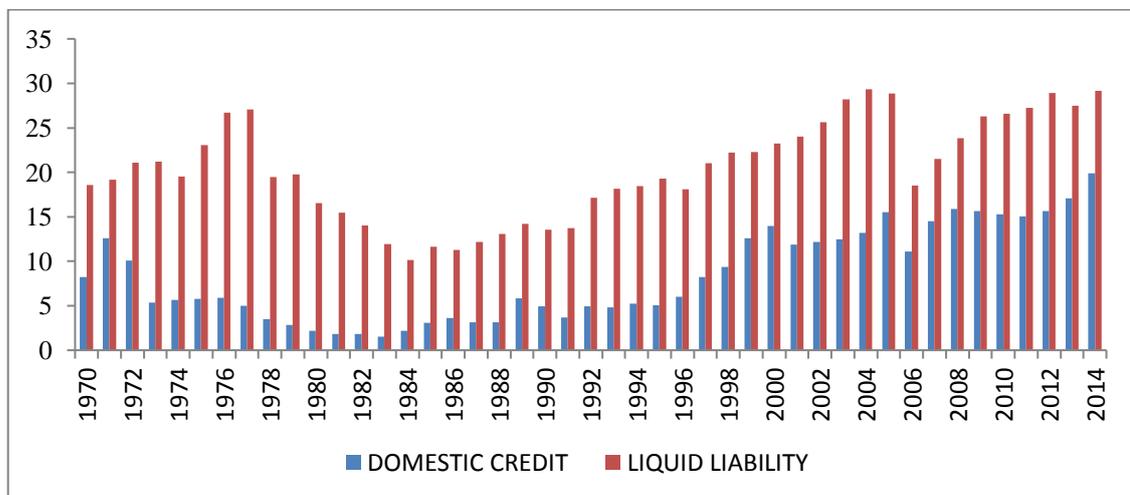
Note: ACC = domestic access to credit by the private sector, LLB = liquid liability, FDI = FDI, ED = external debt stock, RI= remittance inflows, BD = bank deposit, BM = broad money supply, INFL = inflation and GDPPC = for gross domestic product per capita.

The country recorded an average external debt stock of 54.6 ( $\sigma=30.7$ ) units during the period. The minimum external debt value was 18.1 units and a maximum value of 129.3 units. The average remittance inflows into the economy during the period were 0.6 units ( $\sigma=1.3$ ). The minimum remittances were of 0.01 units and maximum were 5.4 units. The results also showed an average bank deposit to GDP of 13.5.

Regarding the control variables, bank deposit to GDP, broad money supply ( $\mu=23.0, 13.6; \sigma=6.4; 5.2$ ) respectively, GDP per capita ( $\mu=461.0, \sigma=107$ ) and inflation ( $\mu=30.8, \sigma=28.4$ ). An average of 30.8 in inflation is a cause for concern in terms of the changes in consumer prices. The variations in the variables ( $\sigma$ ) show the level of volatility in the macroeconomy of Ghana.

**Trend analysis of financial development**

The trend analysis of a variable offers a pictorial view of the behaviour of the variable over a period of time. Trend analyses are essential as they reveal any pattern developed by the variables over a period. Over the years, the Ghanaian economy witnessed a much more increase in domestic credit to the private sector and banks liquid liability. However, there have been discrepancies in domestic access to credit by the private sector and banks liquid liability in the Ghanaian economy over the years. This section presents the trend of how the Ghanaian economy fared regarding domestic access to credit by the private sector and bank liquid liability over the period 1970 to 2014.



**Figure 1.** Trend of financial development variables

Source: World Bank World Development Indicators

Figure 1 presents the trend of domestic access to credit by the private sector from 1970 to 2014. The curvature of the domestic access to credit by the private sector plots shows the economy has been erratic over the period. The graph shows a downward trend in access to credit from 1972 to 1982. This is the period the country suffered its major economic setbacks. This period was characterized by volatile political and economic situations including frequent changes in governments through political coup d'état. This situation could impact adversely on the ease of doing business. This could impair savings mobilization and ultimately access to credit. To correct the imbalances in the economy, the Structural Adjustment Programme (SAP) was rolled out to propel growth in the entire economy including the financial sector. Following the introduction of the SAP, there was a rise in financial development (access to credit) for the period 1982 to 2000. However, there was a dip in the period between 1990 and 1992. The reason for the dip during this period was attributed to impending general elections under the 4<sup>th</sup> Republican constitutional rule. Certainly, financial institutions acted cautiously during such periods. This could be a constraint to the private sector. Subsequent to the change in government in the year 2000 that saw a slight fall in access to credit, the economy witnessed an increased access to credit by the private sector from the year 2000 to 2014. However, there are still some occasional dips as indicated in the years 2004 to 2006. From Figure 1, the changes in access to credit are largely influenced by events such as general elections and major economic policies of the country such as SAP.

Similar to the trend of domestic access to credit by the private sector (Figure 1), the trend of liquid liability was erratic. The periods when this peaked includes 1976-1978; 2003-2005 and 2012-2014. The political instability of the late 1970s and early 1980s has been found to have had country experienced a rise in liquid liability from 1970 to 1978 after serious negative effect on the economy (Fosu & Aryeetey, 2008; Nanywa & Mabusela, 2019). Consequent to this downturn, the Ghanaian economy began to experience an upward trend of financial development-liquid liability as it endeavoured to outperform previous year's average. It is however clear from Figure 1 that, from the start of 1983 to 2014, liquid liabilities of banks have been increasing except for the period 2004 to 2006 where there was a sharp fall in liquid liability of banks.

It is argued that the rise in the trend of financial development variable is as a result of a rise in FDI, external debt and remittance inflows (Comes, Bunduchi, Vasile & Stefan, 2018; Njangang, Nembot, Noubissi & Fosto, 2018). However, this assertion is hypothetical and required empirical examination.

### **Test for stationarity of variables**

Table 3 presents the results of the stationarity test using the Augmented Dickey-Fuller test with lag length of 9. This was chosen based on the Schwarz Information Criterion (SIC). The test for stationarity of the variables was subjected to the null hypothesis that the data have a unit root. The results indicated that the variables were not significant at levels 1%, 5%, and 10% level of significance. It is obvious from Table 3 that none of the variables under discussion; dependent and independent variables is stationary at levels I (0) when the Augmented Dickey-Fuller test was deployed. However, at 1 percent significant level, Augmented Dickey-Fuller test results indicate that all the variables under consideration are stationary at first order I (1).

**Table 3.** ADF unit root test

| Variables | ADF results at levels I(0) | ADF results at first difference I(1) |
|-----------|----------------------------|--------------------------------------|
| ACC       | -.0010<br>(.9533)          | -7.0390<br>(.0000)***                |
| LLB       | -1.1397<br>(.6916)         | -.6243<br>(.0000)***                 |
| FDI       | -.5993<br>(.8603)          | -6.4159<br>(.0000)***                |
| ED        | -10.4957<br>(.5265)        | -5.1395<br>(.0001)***                |
| RI        | 4.1533<br>(1.0000)         | -4.9355<br>(.0002)***                |
| BD        | -.4318<br>(.8945)          | -5.8971<br>(.0000)***                |
| BM        | -1.0881<br>(.7123)         | -6.2461<br>(.0000)***                |
| INFL      | -2.5246<br>(.1169)         | -11.6812<br>(.0000)***               |
| GDPPC     | .9372<br>(.9951)           | -3.9553<br>(.0038)***                |

Notes: \*\*\*; \*\*; \* significant at 1%; 5%; 10%

The study further used Philip-Perron (PP) unit root test to examine the robustness of the ADF results. The PP test results confirmed the variables were not stationary at level. This means the study fails to reject the null hypothesis that the variables contain unit. The variables attained stationarity upon first difference. This confirms a prerequisite assumption of cointegration. Hence, the study proceeds to test for the presence of cointegrating relationship between the variables.

**Table 4.** Philip-Perron unit root test

| Variables | Philip-Perron results at levels I(0) | Philip-Perron results at first difference I(1) |
|-----------|--------------------------------------|--|
| ACC       | .2453<br>(.9725)                     | -7.0158<br>(.0000)***                          |
| LLB       | -1.2028<br>(.6650)                   | -6.2401<br>(.0000)***                          |
| FDI       | -.4906<br>(.8833)                    | -6.4765<br>(.0000)***                          |
| ED        | -1.7782<br>(.3861)                   | -5.1191<br>(.0001)***                          |
| RI        | -1.5372<br>(.5057)                   | -8.2244<br>(.0000)***                          |
| BD        | -.5110<br>(.8792)                    | -5.8623<br>(.0000)***                          |
| BM        | -1.2086<br>(.6625)                   | -6.2510<br>(.0000)***                          |
| INFL      | -4.3829<br>(.1100)                   | -13.8872<br>(.0000)***                         |
| GDPPC     | 1.7481<br>(.9996)                    | -3.9179<br>(.0042)***                          |

Notes: \*\*\*; \*\*; \* significant at 1%; 5%; 10%

**Johansen cointegration test**

To test for cointegration, the study employed the unrestricted cointegration rank (trace) test and the unrestricted cointegration rank (maximum eigenvalue) test. The significant trace statistics and max-eigen statistics indicate the presence of cointegration relationship between the variables. Table 5 presents the results of Johansen unrestricted cointegration rank (trace) test. The outcome of the Unrestricted Cointegration Rank (Trace) test indicates the presence of 3 cointegration relationship between financial development components and capital inflows variables at 5 percent significance level. This outcome means that there exist short and long-run associations between financial development components and capital inflows variables.

**Table 5.** Johansen cointegration Test: Unrestricted test cointegration rank (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | .05 Critical Value | Prob.** |
|---------------------------|------------|-----------------|--------------------|---------|
| None *                    | .9107      | 188.7422        | 69.8189            | .0000   |
| At most 1 *               | .6508      | 84.8727         | 47.8561            | .0000   |
| At most 2 *               | .5208      | 39.6279         | 29.7971            | .0027   |
| At most 3                 | .1528      | 7.9929          | 15.4947            | .4662   |
| At most 4                 | .0199      | .8649           | 3.8415             | .3524   |

*Trace test indicates 3 cointegrating equation at .05 significance level*

**Table 6.** Johansen cointegration test: Unrestricted cointegration rank test or maximum eigenvalue test

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | .05 Critical Value | Prob.** |
|---------------------------|------------|---------------------|--------------------|---------|
| None *                    | .9107      | 103.8696            | 33.8769            | .0000   |
| At most 1 *               | .6508      | 45.2447             | 27.5843            | .0001   |
| At most 2 *               | .5208      | 31.6349             | 21.1316            | .0012   |
| At most 3                 | .1528      | 7.1280              | 14.2646            | .4741   |
| At most 4                 | .0199      | .8649               | 3.8415             | .3524   |

*Maximum Eigenvalue test indicates 3 cointegrating equations at the .05 significance level.*

Table 6 presents the results of the unrestricted cointegration rank (maximum eigenvalue) test. The results were tested against the hypothesis that there is no cointegrating relationship between financial development components and capital inflows variables. The results show that at most, two of the max-eigen values are statistically significant at 5% level of confidence. This means that the unrestricted cointegration rank (maximum eigenvalue) test confirms the presence of three (3) cointegration equation as observed by the trace test. This implies that, there exist long-run relationships between financial development components and capital inflows variables.

**Long run cointegration relation between capital inflows and domestic access to credit**

Table 7 presents the results of model 1 and 2 using Johansen’s multivariate cointegration test. This test was conducted after controlling for bank deposit to GDP, broad money supply, GDP per capita (GDPPC) and inflation (INFL). Added to the above, statistical significance of the variables is pegged at an absolute value of two and above.

**Table 7.** Long-run cointegration results

| VARIABLES | MODEL 1                            | MODEL 2                         |
|-----------|------------------------------------|---------------------------------|
| FDI(-1)   | -1.6519<br>(-3.6111)***<br>[.0057] | .6623<br>(3.6919)***<br>[.0079] |
| ED (-1)   | -.0443<br>(-2.2293)**<br>[.0199]   | .0296<br>(3.5502)***<br>[.0083] |
| RI(-1)    | -2.3293<br>(-2.2239)**<br>[.0474]  | -.2692<br>(-.7297)<br>[.3689]   |
| C         | -.5836                             | -23.2621                        |

*FDI (-1) refers to long-run FDI lag one, ED (-1) stands for long-run external debt stock lag one, RI (-1) refers to long-run remittance inflows lag one and C denotes the constant value. Values in bracket ‘()’ are the t-statistics, figures in parenthesis ‘[]’ are the standard errors while values other than those in bracket and in parenthesis are the coefficients.*

***Hypothesis 1: There is no significant long run relationship between foreign direct investment and financial development in Ghana.***

Column 2 (model 1) of Table 7 presents the results of the long run relationship between capital inflows components and access to credit by the private sector in Ghana. The absolute t-statistics of 3.611 units indicate that, FDI inflows have a significant negative long run relationship with financial development (access to credit by the private sector). The results suggest a unit change in FDI inflows to the Ghanaian economy would cause a 1.652 units decrease in financial development (access to credit by the private sector) in the long run. Even though the study found a significant relationship between FDI inflows and financial development the relationship is negative.

The study, therefore, rejects the hypothesis that there is no significant long run relationship between FDI and financial development in Ghana. This implies that improvement in FDI inflow to the Ghanaian economy deters financial development in the long run. FDI inflows to the various sectors of the Ghanaian economy do not pass through the financial system. It is however argued that the results could be justified by the repatriation of profit by foreign investors to their home countries at the expense of reinvestment in the Ghanaian economy. Additionally, the finding could be as a result of the fact that FDI inflows to the economy have not been directed to the real sectors of the Ghanaian economy to trigger the development of the economy. The result corroborates the findings of Jilenga, Xu & Gondje-Dacka (2016); Azeez, Oladapo & Aluko (2015) where they found a significant but negative effect of FDI.

***Hypothesis 2: There is no significant long run relationship between external debt stock and financial development in Ghana.***

Further, the results in Table 7 (model 1) show a statistically significant but inverse (absolute t-statistics = 2.229 units) relationship between external debt and financial development in the long run. Therefore, hypothesis two that says there is no long run relationship between the variables is not supported. Specifically, a unit change in external debt stock to the Ghanaian economy would lead to .044 units fall in financial development in the long run. This implies that, increasing domestic debt accumulation depresses financial development especially if the FDI inflows are not applied in productive sector. Furthermore, in most cases, external investors tend to repatriate profit to their home country. This tends to affect the volume of credit and ultimately credit to the private

sector. The other possible implication is when government borrows from the external source and exceeds certain thresholds and so would have to rely on domestic financial markets for credit. Since government is the biggest client of financial institutions, an attempt to contract credit from the domestic financial market crowds out private sector. Factors such as corruption could account for such happenings (Ahmed, 2017), especially if external funds inflow are mismanaged or misapplied. Similar results were obtained in Arshad, Aslam, Fatima & Muzaffar (2015) where they observed an inverse relationship between external debts.

***Hypothesis 3: There is no long run significant positive relationship between remittance inflows and financial development in Ghana.***

Table 7 (models 1) show a statistically significant but inverse (absolute t-statistics = 2.224 units) relationship between remittance inflows and financial development in the long run. Therefore, hypothesis three that says there is no long run relationship between the variables is not supported.

Particularly, a unit change in remittance inflows to the Ghanaian economy would cause a 2.329 units decrease in financial development in the long run. This means that the higher the level of remittance inflows, the lower the level of financial development in the long run. It is, therefore, argued that remittance inflows are not channelled to the real sector of the Ghanaian economy to trigger the desired level of economic growth. This result is similar to the findings of Chami, Jahjah, Fullenkamp (2003) and Barajas, Gapen, Chami, Montiel, & Fullenkamp (2009) where they found an inverse relationship between remittance and economic growth.

**Long run relationship between capital inflows variable and liquid liability**

Table 7 (model 2) highlights the results of the relationship between capital inflows and financial development (liquid liability). With a t-statistics of 3.69, FDI has a significant positive relationship with financial development (liquid liability) in Ghana. Precisely, a unit change in FDI leads to .66 units increase in financial development (liquid liability) in Ghana. Also, by adopting a different measure of financial development, external debt has a significant positive relationship with financial development (liquid liability). Specifically, a unit change in external debt stock leads to a .03 unit increase in financial development (liquid liability). However, the relationship between remittances and financial development (liquid liability) was not significant. The implication is that although FDI, external debt and remittance inflows deter financial development in the long run, the first two increase the amount of liquidity in the Ghanaian economy in the long run.

**Short run dynamic results of the effect of capital inflows on financial development**

Table 8 presents the short-run dynamic results of the relationship between FDI, external debt stock, and remittance inflows and financial development using the Johansen's multivariate cointegration. From the short run estimation, any disequilibrium as a result of shocks in the short run can be corrected by the error correction term. Hence, the error correction term measures the speed of adjustment from disequilibrium to equilibrium. It should however, be statistically significant with negative sign.

From Table 8, the model shows that, about 62.3% ( $R^2 = .623$ ) of the changes in the financial development is explained by the predictor (FDI, external debt and remittance inflows). An F-Statistic value of approximately 3.561 units is significant for that matter affords a good fit for the model estimated.

To check for the period of adjustment to both short run changes in variables and deviations from equilibrium, Vector Error Correction Model (VECM) framework was

used. From the results, the error correction term (ECT) was significant at a t-statistics of 4.801 units. The estimated model is dynamically reliable and stable due to the negative coefficient of the ECT. Moreover, the statistical significance of the ECT is a sign of dual significance of the measurements in VECM. The projected coefficient of the ECT of -.406, suggest that shocks in the short run is corrected by less than 5 periods to restore equilibrium in the long run.

The results presented in model 1 of Table 8 indicate that both ACC (-1) and ACC (-2) of domestic access to credit by the private sector have insignificantly positive and negative relationship with present days' domestic access to credit by the private sector in Ghana respectively. This means that previous years' credit granted does not affect present year's credit grant to the private sector.

It was observed that, GDP per capita (t-statistics = 2.111) has a significant negative relationship with financial development. This means that, a unit change in GDP per capita leads to a .009 unit fall in financial development.

**Table 8.** Vector Error Correction Model results

| Variables | Model 1                           | Model 2                            |
|-----------|-----------------------------------|------------------------------------|
| ACC(-1)   | .0315<br>(.2264)<br>[.1390]       |                                    |
| ACC(-2)   | -.1080<br>(-.8859)<br>[.1219]     |                                    |
| LLB(-1)   |                                   | -.0258<br>(-.3456)<br>[.0746]      |
| LLB(-2)   |                                   | -.0086<br>(-.1246)<br>[.0686]      |
| FDI(-1)   | -.1782<br>(-.8885)<br>[.2006]     | .1402<br>(1.0915)<br>[.1285]       |
| FDI(-2)   | -.0879<br>(-.5199)<br>[.1689]     | .1117<br>(.8847)<br>[.1263]        |
| ED(-1)    | -.0729<br>(-3.8363)***<br>[.0019] | .044945<br>(3.10557)***<br>[.0015] |
| ED(-2)    | -.0292<br>(-1.1803)<br>[.0248]**  | .0293<br>(1.9203)<br>[.0153]**     |
| RI(-1)    | -.9782<br>(-3.878)***<br>[.0053]  | .1597<br>(1.0241)<br>[.1559]       |
| RI(-2)    | -.5847<br>(-1.8537)<br>[.3154]    | .0615<br>(.3054)<br>[.2012]        |

**Table 8.** Vector Error Correction Model results (*cont.*)

| Variables      | Model 1                            | Model 2                             |
|----------------|------------------------------------|-------------------------------------|
| ECM            | -0.4693<br>(-4.8014)***<br>[.0098] | -0.9191<br>(-13.1726)***<br>[.0069] |
| C              | 2.1418<br>(1.3627)<br>[1.5717]     | -16.5477<br>(-7.3861)***<br>[.0024] |
| BM             | .1423<br>(1.3069)<br>[.1089]       | .2733<br>(3.0010)*<br>[.0911]       |
| BD             | -.0146<br>(-.2525)<br>[.1648]      | .9045<br>(7.1674)<br>[.1262]        |
| GDPPC          | -.0086<br>(-2.1110)***<br>[.0094]  | -.0085<br>(-2.2889)***<br>[.0037]   |
| INFL           | -.0151<br>(-1.9759)<br>[.0077]     | -.0133<br>(2.0678)***<br>[.0065]    |
| R-squared      | .6231                              | .9278                               |
| Adj. R-squared | .4481                              | .8904                               |
| F-statistic    | 3.5606                             | 24.7811                             |
| Log likelihood | -59.5897                           | -44.6361                            |
| Akaike AIC     | 3.5043                             | 2.8398                              |
| Schwarz SC     | 4.0835                             | 3.4604                              |
| Mean dependent | .2344                              | .1928                               |
| S.D. dependent | 1.6484                             | 2.6379                              |

*FDI (-1) refers to long-run FDI lag one, EXD (-1) stands for long-run external debt stock lag one, RMT (-1) refers to long-run remittance inflows lag one and C denotes the constant value. Values in bracket ‘()’ are the t-statistics, figures in parenthesis ‘[]’ are the standard errors while values other than those in bracket and in parenthesis are the coefficients.*

**Hypothesis 4: There is no short run significant positive relationship between foreign direct investment and financial development in Ghana.**

The results presented in Table 8 (model 1) indicate that, FDI has an insignificant negative relationship with financial development (access to credit) in Ghana. The insignificant negative relationship observed is consistent with hypothesis 4 that there is no short run significant positive relationship between FDI and financial development. The short run verdict of the relationship between FDI and financial development contradict that there is a long run negative relationship between FDI and financial development.

The domination of resource seeking firms and its inadequate interaction with the real domestic economy restricts the Ghanaian economy from garnering the benefits of FDI. They rather siphoned and repatriated all their profits by this means; impeding the economic growth of the Ghanaian economy (Orji, Uche & Ilori, 2014). This finding however, corroborates the findings of David, Mlachila & Moheput (2014) who concluded that there is no relationship between FDI and financial development in Sub Saharan African economies.

***Hypothesis 5: There is no short run significant positive relationship between external debt and financial development in Ghana.***

Further, the results presented in Table 8 (model 1) highlight that, with an absolute t-statistics values of 3.836, 1.180 units respectively; the pass values ((-1), (-2)) of external debt have significant negative relationships with financial development in Ghana. Specifically, a unit change in external debt ((-1), (-2)) would result in .073, .029 units decreases in financial development in Ghana. Although there is a significant relationship between external debt stock and financial development, this relationship is negative, inconsistent with hypothesis 5 that there is no significant positive relationship between external debt stock and financial development. These results are however consistent with the position of the long run results that external debt negatively influences financial development in Ghana.

This implies that, as government persistently borrows from the external source, domestic credit to the private sector falls in the short run. Government is the biggest client of most financial institutions therefore an attempt to contract credit facilities from external market means a fall in the domestic credit granted to the private sector in the short run. These results confirm that increase government external borrowing crowds out domestic credit to the private sector. Factors such as corruption of public official could account for the fact that external borrowings are not channelled to the real sector of the economy to generate the required growth (Tachiwou, 2014). The results are similar to the findings of Azeez, Aladapo & Aluko (2015) who also found that external debt negatively affects economic growth.

***Hypothesis 6: There is a short run significant positive relationship between remittance inflows and financial development in Ghana.***

In addition, the results in Table 8, column 2 (model 1) indicate a short run relationship between remittance inflows and access to credit by the private sector in Ghana. Thus, an absolute t-statistics value of 3.888 units means that remittance inflows have significant negative relationship with financial development (access to credit by the private sector) in the short run. Particularly, a unit change in remittance inflows to the Ghanaian economy would cause a 0.978 units decrease in financial development (access to credit by the private sector) in the short run. Even though the study documented a significant relationship between remittance inflows and financial development (access to credit by the private sector), this relation is negative and thus contradict the hypothesis 6. The study therefore, rejects the hypothesis 6 that there is no short run significant positive relationship between remittance inflows and financial development in Ghana.

This implies that higher level of remittance inflow deters financial development in Ghana in the short run. In line with the long run relationship, it is argued that remittance inflows are not channelled to the real sector of the Ghanaian economy to generate the required level of financial development. This result is similar to the findings of Chami, Jahjah & Fullenkamp (2003) and Barajas, Gapen, Chami, Montiel, & Fullenkamp (2009) who found a negative relationship between remittance inflows and economic growth.

**Short run relationship between capital inflows variables and liquid liability**

The results presented in Table 8 (model 2) displayed an R-squared of 0.928. This indicates that FDI, external debt and remittance inflows together account for about 92.8% of the variations in liquid liability in the Ghanaian economy. An F-statistic value of approximately 24.781 units is significant hence, affords a good fit for the model estimated. The projected coefficient of the Error Correction Term was significant with a t-statistics of 13.173 units generated an expected inverse value. The estimated model is

dynamically reliable and stable due to the negative coefficient of the Error Correction Term.

The estimated coefficient of the Error Correction Term (ECT) value of  $-0.919$  units suggest that, shocks in the short run takes about 9 periods to restore equilibrium in the long run. The results presented in model 2 of Table 8 indicate that external debt has a significant positive relationship with financial development (liquid liability) in Ghana. This means that when the study adopts liquid liability as surrogate measure of financial development, a unit change in the pass values ( $(-1)$ ,  $(-2)$ ) of external debt would mean a  $.045$ ,  $.029$  units respectively increases in financial development. FDI and remittance inflows have an insignificant relationship with liquid liability in Ghana from 1970 to 2014.

In order to ascertain the role capital inflows variables, play in influencing financial development in Ghana, the study controlled for some macroeconomic variables; gross domestic product per capita, inflation, money supply and bank deposits. The results displayed in Table 8 show that gross domestic product per capital have a significant negative relationship with financial development in the short run in all instances. Also, the results indicate that money supply and inflation have significant positive and negative effects on financial development in the short run. Thus, unit increases in broad money and inflation lead to  $.273$ ,  $-.013$  units increase and fall respectively in financial development. However, bank deposit has an insignificant relationship with financial development in Ghana.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

This section presents the conclusions relating to the empirical analysis of the role capital inflows variables play in influencing financial development in Ghana. The Johansen's multivariate cointegration test by Johansen & Juselius (1990) was used to test the long-run and short-run impact of the independent variables on the dependent variable. Annual data from 1970 to 2014 was used. The Augmented Dickey-Fuller (ADF) test and the Philip Perron (PP) unit root tests were used in examining the presence of unit root and the results show that the variables are stationary at  $I(1)$ . The study documents significant negative relationships between FDI, external debt, remittance inflows and financial development in the long run. In the short run however, the study documented a significant negative relationship between external debt, remittance inflows and financial development in Ghana but found an insignificant relationship between FDI and financial development.

### Recommendations

Since the study revealed that FDI has a negative relationship with financial development, the study recommends that, for FDI to fully contribute to financial development, issues of capital flight must be addressed by the government. This can be done by policy makers making policies that address issues of repatriation of profit made by foreign firms. The results of the study mean that heavy dependence on external borrowing must be discouraged. In order to speed up financial development, policy makers must adopt policies that are expected to reduce the level of debt burden, as well, the level of external debt must not reach unsustainable threshold. External debt must be kept at a level that avert debt overhang. Policy makers should take pragmatic steps to channel remittances inflows to productive sectors of the economy. Policy makers should make policies that will make foreign capital inflows complement domestic investment but not to replace domestic investment.

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