



Foreign Direct Investment (FDI), Trade and Its Contribution to the Mining Sector of Guinea

Kimberly Racquel Elizabeth Chin

School of Management, Wuhan University of Technology,
Wuhan, P.R. China, 430070

E-mail: kymchyn@hotmail.com

Abstract: In order to objectively analyze Foreign Direct Investment (FDI) contribution to Guinea's mining sector, the granger casualty test was used to determine the relationship among variables and to determine whether any of these variables affect others and how. The variables used are Gross Domestic Product, Government Income, Trade, FDI inflow into Guinea mining sector and the exchange rate. The granger casualty test produced evidence of a bidirectional casualty relationship which suggests that FDI's influence on efficiency lies in the government relaxing its dependency on the mining industry for economic growth.

Key words: Foreign Direct investment; Economic growth; Mining sector

Recebido em: 30-05-2016

Aceito em: 04-07-2016

INTRODUCTION

Guinea is one of the richest countries in West Africa in terms of its mineral resources. Around one third of the world's reserves of bauxite are found in Guinea.

The economy relies heavily on the Mining sector as this attracts major foreign investment.

In general, mineral exports accounted for more than 90% of the country's total export about 35% of government revenues. Export share of GDP growth was in 2001 (3.8%), 2002 (4.2%), 2003(1.2%), 2004(2.3%), 2005 (3%), 2006(2.5%) 2007(1.8%), 2008(4.9%), 2009(-0.3%) 2010(1.9), 2011(3.6%), 2012(4.7%) respectively. This investment is for an amount comparable to the country's annual GDP. Mining industry is dominant sector in the Guinean economy and main source of foreign exchange. The role of the foreign direct investment (FDI) has been recognized as a growth-enhancing factor in the developing countries. Campos and kinoshita (2002) wrote: 'the positive impact of foreign direct investment (FDI) on economic growth seems to have acquired status of stylized fact in the international economic literature'.

OVERVIEW OF GUINEA MINING SECTOR

The mining sector in Guinea contributes around 25% of the country's income, with bauxite production by far the most important contributor.

It is estimated that Guinea contains an estimated 24% of global bauxite reserves. Guinea accounts for 94% of Africa's bauxite production. Bauxite accounts for 20% of Guinea's GDP and 90% of exports. Gold and diamonds are also major export products. Although Guinea has significant commodity reserves, the country has been poorly explored and future potential exists for gold, base metals, iron ore and diamonds.

Guinea is underlain by the extensive Archaean West African craton.

LITERATURE REVIEW

In Guinea the Mining sector is still the most important of the Government Economy. FDI is one of only a handful of mining companies to have successfully commercially mined the ocean. Gold and Diamond Fields' strategy has capitalized on that experience to target, obtain and develop promising marine mineral prospects such as Guinea Conakry West Africa. Soon it became the most important sector in the mining industry.

Policies target at improving funding either through public sector or private sector investment will not help to meet the mining sector needs of the ever-bulging populace but also help socio-economic problems that come with such increase, one of which for example is unemployment in Guinea.

However, Guinea remains involved in two of the stages in the bauxite to aluminum chain, namely bauxite mining and alumina refining. During the period 1987-90, real growth in the mining sector averaged 5.7 per cent annually, compared with GDP growth of 4.1 per cent(Economist Intelligence Unit,1995b:20).

Therefore, the foundation of national wealth is essentially the mining sector. Development on how the mining sector can best contribute to overall economic growth and modernization must be explored. The mining sector has the potential to be the industrial and economic catalyst from which a country's development can take off.

Ayanwale (2007) argued that most countries strive to attract FDI because of its acknowledged advantages as a tool of economic development. Africa and Guinea in particular joined the rest of the world in seeking FDI as evidenced by the formation of the New Partnership for Africa's Development (GEPAD), which has the attraction of foreign investment to Africa as a major component.

Improved research interest in FDI stems from the change of perspectives among developing countries. An important aspect of international economic integration is the larger role of foreign direct investment (FDI) in different economies.

RESEARCH METHODOLOGIES

1. Research design

The econometric model used to examine this study is Gross Domestic Product (GDP) as a dependent variable and Foreign Direct Investment (FDI), Government Income (GOVI), Trade volume (TRV), Exchange Rate(ER) as independent variables.

2. Granger Causality Test

Granger causality test was conducted to identify causal relationship between the variables Gross Domestic Product, Government Income, Trade, FDI inflow into Guinea mining sector, Exchange rate, and to determine whether the current lagged values of one variable affect another. The granger test may be explained with the help of the following equations.

$$X_t = a_0 + \sum_{j=1}^m a_j x_{t-j} + \sum_{j=1}^n b_j y_{t-j} + e_t \quad (1)$$

$$Y_t = c_0 + \sum_{j=1}^m c_j x_{t-j} + \sum_{j=1}^n d_j y_{t-j} + w_t \quad (2)$$

Bidirectional causality exists if the null hypothesis, that X_t does not strictly Granger-cause Y_t , is also rejected.

3. Model specification

The model estimation will be done through the use of the ordinary method of estimation.
 $GDP_t = f(GOVI, FDI, TRV, ER,)$ (3)

Where

GDP_t is Gross Domestic Product

$GOVI_t$ is Government Income

FDI_t is Foreign Direct Investment inflows

TRV_t is Trade volume

ER_t is Exchange rate

μ_t is stochastic random term

In a more explicit and econometric form, equation (1) can be stated as
 $GDP_t = \alpha_0 + \alpha_1 GOVI_t + \alpha_2 FDI_t + \alpha_3 TV_t + \alpha_4 ER_t + \mu_t$ (4)

DATA ANALYSIS OF EMPIRICAL RESULT

1. Correlation test result

We want to examine the negative and positive relationship between all the variables and to determine if the p-values or significance values are more or less than 5% to make a decision.

Table 1 Correlation Test Results

Variables	GDP	FDI	GOVI	TRV	EXR
GDP	1	0.70278	0.90593	0.71944	0.8249
FDI	0.70278	1	0.70082	0.69055	0.75538
GOVI	0.90593	0.70082	1	0.74221	0.76783
TRV	0.71944	0.69055	0.74221	1	0.77631
EXR	0.8249	0.75538	0.76783	0.77631	1

Finding: The result of the table shows that the observation correlation relationship of each pair is positive, it can be concluded that each of the variables in this corresponding analysis testing has a positive significant correlation. This means our variables have a strong linear relationship with each other by +1.

2. Unit root test for order of integration

Table 2 Unit Root Test

Null Hypothesis: D(GDP) has a unit root				
Exogenous: Constant				
Lag Length: 3 (Automatic - based on SIC, maxlag=6)				
	Lag Length: 3 based on SIC, maxlag=6	Lag Length: 3 (Automatic - based on SIC, maxlag=6	Lag Length: 3 (Automatic - based on SIC, maxlag=6	
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-73.86446	0.0001
Test critical values:	1% level		-8.033476	
	5% level		-4.541245	
	10% level		-3.380555	
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(GDP,2)				
Method: Least Squares				
Date: 03/16/15 Time: 23:40				
Sample (adjusted): 3 5				
Included observations: 3 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.770991	0.023976	-73.86446	0.0086
C	-0.031396	0.005613	-5.593854	0.1126

ADF and Philips Perron at first difference with intercept and trend at 0.05 level of significance

Finding: From the result of table 2 the null hypothesis of the unit root shows all the variables are not stationary at conventional level since their p-value both ADF and PP test are not

significant at all conventional levels of significance. We can therefore reject the null hypothesis and accept the alternative hypothesis.

Table 3 Granger Causality Results

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	25	1.44655	0.2590
GDP does not Granger Cause FDI		3.66212	0.0441
GOVI does not Granger Cause GDP	25	0.99521	0.3872
GDP does not Granger Cause GOVI		0.50656	0.6101
EXR does not Granger Cause GDP	25	12.7336	0.0003
GDP does not Granger Cause EXR		5.45199	0.0129
TRV does not Granger Cause GDP	25	5.12698	0.0159
GDP does not Granger Cause TRV		0.96879	0.3967
GOVI does not Granger Cause FDI	25	1.26060	0.3051
FDI does not Granger Cause GOVI		1.78824	0.1930
EXR does not Granger Cause FDI	25	21.5382	1.E-05
FDI does not Granger Cause EXR		3.35995	0.0552
TRV does not Granger Cause FDI	25	7.25881	0.0043
FDI does not Granger Cause TRV		0.11011	0.8963
EXR does not Granger Cause GOVI	25	19.9202	2.E-05
GOVI does not Granger Cause EXR		2.30919	0.1252
TRV does not Granger Cause GOVI	25	1.56940	0.2328
GOVI does not Granger Cause TRV		0.53805	0.5921
TRV does not Granger Cause EXR	25	2.38872	0.1174
EXR does not Granger Cause TRV		7.94733	0.0029

Finding: FDI does not Granger Cause GDP and interchangeably GDP does not Granger Cause FDI. However there is a unidirectional relationship between the two variables which means the causal relationship between them (FDI > GDP) signifies FDI has improved the country's productivity which affected rapid GDP growth.

Furthermore, the results indicate that the variable trade volume TRV does not Granger Cause FDI. However, FDI Granger Cause TRV which means that they are unidirectional between the two variables, which mean that there is an improvement of the mining trade system to attract more foreign direct investment to the sector. However, with inefficient policies and political instability, private investment and investment in research and development are struggling in the sector. Boosting local economic growth in mining and other sectors will only be profitable if the government is able to access new technologies to assist in attracting FDI and improving R&D investment.

The result shows that Exchange rate EXR Granger causes GDP while GDP does not cause Exchange rate EXR. This indicates there is a bidirectional causality relationship which means they are statistically significant in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

CONCLUSION AND POLICIES RECOMMENDATION

In this research on Foreign Direct Investment (FDI), Trade and its Contribution to Guinea's Mining sector our investigation indicates there is a bidirectional causality relationship which means they are statistically significant in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

Therefore, in order to attract FDI that improves efficiency in the mining sector; the government should prioritize the sector and reduce its dependence to grow the economy. Macroeconomic stability must be ensured and distinct, it should also be predictable and have an "easy-to-access" policy environment inclusive of incentives. There is also the need to improve infrastructural development especially in both primary and secondary infrastructures and this investment will lead to higher productivity which in turn increases productivity and improves efficiency in all sectors of the economy. This creates a multiplier effect which stimulates job creation, economic growth, productivity national welfare and investment and functional development.

Thus, we conclude that if Guinea wants to increase the mining production it is imperative to develop effective FDI policies. However, the expansion of agricultural production, reduction in reliance of import, and attainment of food security requires capital, energy, technology, and international business connections. This is the second list of factors that Guinea is lacking, but FDI can serve as a channel to supply such inputs.

1) Government should seek additional FDI for the Mining sector since the success of the sector is essential to the attainment of true economic stability

2) Factors such as foreign ownership restrictions and multiple corporate taxes that discourage Foreign investors should be reviewed and addressed.

3) Government should not just focus on attracting FDI to the sector but on attracting the type of FDI that seeks to enhance the capacity of investment.

4) The Government of Guinea must further target specific types of FDI that are able to generate spillover effects in the entire value chain of the Mining sector and by extension the overall economy.

BIBLIOGRAPHIC REFERENCES

- [1] Andreas, J. The Effect of FID Inflows on host Country Economic Growth [C]. CESIS Electronic UK . Working paper series. 2006: 58
- [2] Akinkugbe, O. Flow of Foreign Direct Investment to hither to neglected developing countries [J]. discussion paper.Word institute for development economic reach, Helsinki.2003, 02
- [3] Australian Bureau of Statics, Autralia now- A Statistical Profile Mining.[EB/OL]2000.http:www.abs.gov.au/.
- [4] Akinlo, A..Foreign direct investment and growth in Nigeria: an empirical investigation [J].Journal of policy modeling, 2004, 26: 627-639
- [5] Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S. FDI and economic growth: the role of local financial markets'' [J].Journal of International Economics. 2004, 64: 89-112
- [6] Alsan et al. The effect of population hath on foreign direct investment inflows to low and middle countries'', [J]. World development. 2006, 34(4): 613-630
- [7] Asiedu E. on the determinant of foreign direct investment to developing countries'': Is Africa different? [J] World development. 2002, 30(1), 107-118
- [8] Ayanwale, A.B. FDI and Economic Growth: Evidence from Nigeria' 'Africa Economic Reach Consortium, Nairobi April 2007. [J] AERC Reach Paper .2007: 165
- [9] Bellak, C., Albrecht, M. and Riedl, A. Labor cost and FDI flows into Central and Eastern European Countries'': A survey of the literature and endogenous growth: Multiplier effects from a small dynamic model for Taiwan 1959-1995''. [J] World Development. 2008, 26(7): 1315-30
- [10] Beugelsdijk, S., Smeets R, &Zwinkels, R. The impact of horizontal and vertical FDI on host's country economic growth''. [J]International Business Review. 2008, 17:452-72
- [11] Bezuidenhout, H. A Regional Perspective on Aid and FDI in Southern Africa'' World Development paper, [M]. North West University, Potchefstroom, South Africa.2009: 147
- [12] Bitzenisa, A., Tsitouras, A., Vasileios, A. and Vlachos. Decisive FDI obstacles as an explanatory reason for limited FDI inflows in EMU member state'': The case of Greece. [J]The Journal of socio-Economics. 2009, 38: 691-704
- [13] Blomstromkokko Home country determinants of foreign direct investment'': Evidence from Sweden, CEPR discussion paper, [C] Center for economic policy research, London.1994: 931