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**Determinants of Foreign Direct Investment in Fast-Growing Economies: A  
Study of BRICS and MINT**

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Research Department

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January 2014

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**ABSTRACT**

This study employs panel analysis to examine the determinants of foreign direct investment (FDI) in Brazil, Russia, India, China, and South Africa (BRICS) and Mexico, Indonesia, Nigeria, and Turkey (MINT) using data for eleven years i.e. 2001 – 2011. First, it uses pooled time-series cross sectional analysis to estimate the model on determinants of FDI for three samples: BRICS only, MINT only, and BRICS and MINT combined; then, random effects model is also employed to estimate the model for BRICS and MINT combined. The results show that market size, infrastructure availability, and trade openness play the most significant roles in attracting FDI to BRICS and MINT while the roles of availability of natural resources and institutional quality are insignificant. Given that FDI inflow to a country has the potential of being mutually beneficial to the investing entity and host government, the challenge is on how BRICS and MINT can sustain the level of FDI inflow and ensure it results in economic growth and socio-economic transformation. To sustain the level of FDI inflow, governments of BRICS and MINT need to ensure that their countries remain attractive for investment. BRICS and MINT also need to ensure that their economies absorb substantial skills and technology spillovers from FDI inflow to promote sustainable long-term economic growth by investing more in their human capital. The study is significant because it contributes to literature on determinants of FDI by extending the scope of previous studies which often focus only on BRICS.

***Keywords: FDI, determinants, fast-growing economies, BRICS, MINT***

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## 1. Introduction

Investment - whether public or private, domestic or foreign – is crucial to the socio-economic transformation of any economy. In the 1970s and 1980s, many developing countries had policies of trade restrictions and capital controls which were implemented to protect indigenous industries from the domineering influence of their foreign counterparts and to conserve foreign exchange reserves (de Mello, 1997; Dupasquier & Osakwe, 2006). The result of these policies was the distortion of social and private returns to capital which reduced foreign direct investment (FDI) flows to the countries (de Mello, 1997) as well as impaired economic growth (Rodrik, 1998). In the late 1980s and early 1990s, many Latin American countries responded to the challenges of economic development facing them and begun reforms to remove restrictions on trade and FDI which resulted in an impressive economic growth of countries in the region (United Nations Economic and Social Commission for Asia and the Pacific, UNESCAP, 2000). Faced with the challenge of shortage in domestic resources to finance their development, many developing countries are looking abroad for financial resources and now have policies to attract FDI (United Nations Conference on Trade and Development, UNCTAD, 2013; Asongu, 2013a, 2014a).

FDI to developing countries has the potential of being mutually beneficial to the host country and multi-national company (MNC). To the host country, FDI provides additional financial resources through investment and taxes, creates employment, and generates spill-over effects such as transfer of skill, technology, managerial expertise, and corporate governance practices. On the other hand, MNCs gain access to market, site-specific natural resources, low-cost manpower, and exploit the advantages of bilateral and multilateral trade policies. According to the 2013 World Investment Report published by the UNCTAD, developing countries are increasingly receiving more FDI and accounted for 52% of global FDI inflows in 2012, with fast-growing economies like China, Brazil, and India being among the top twenty FDI recipients (UNCTAD, 2013). In terms of FDI spread to geographical sub/regions<sup>1</sup> in 2012, Nigeria received the highest FDI in Africa, Mexico in Central America, China in East Asia, Indonesia in South-Eastern Asia, India in Southern Asia, Brazil in South America, and Turkey in West Asia (World

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<sup>1</sup>Geographical sub/regions used in this study follows UNCTAD classification

Bank, 2013). Incidentally, these countries form the BRICS and MINT countries (i.e. including Russia and South Africa).

BRICS is an acronym for Brazil, Russia, India, China, and South Africa which are major emerging or newly industrialized countries and are distinguished by fast-growing middle class and significant influence in regional and/or global economy. In 2011, BRICS attracted 26% of global FDI, contributed 15% of global GDP, and accounted for 42% of the global population (World Bank, 2013). Another group of fast growing developing countries that has emerged comprises of Mexico, Indonesia, Nigeria, and Turkey, collectively called MINT<sup>2</sup>. MINT share some common features: first, they have relatively large and growing young populations as compared to ageing and shrinking populations in many developed countries (and China); second, they are geographically well placed to take advantage of large markets nearby - with Indonesia close to China, Turkey being contiguous to the European Union, Mexico on America's doorstep, while Nigeria has the potential to serve as economic hub of Africa. Of the four, only Nigeria is not already a member of the G20 group of developed and developing countries but has huge endowment of natural resource, especially oil and gas. BRICS and MINT have substantive policies to promote FDI inflows to their respective countries (especially to sectors that have significant multiplier effects vis-à-vis employment and output, promote technology transfer, or local innovation) albeit restrictions exist in sectors considered to be strategic for national security (US Department of State, 2013). Between 2001 and 2012, FDI to BRICS and MINT increased by 349% from US\$113.6 billion to US\$510.4 billion (World Bank, 2013). Moreover, BRICS and MINT attracted 30% of global FDI, contributed 19% to global GDP, and accounted for 51% of the global population in 2011 (World Bank, 2013). Other stylized facts on BRICS and MINTS are presented in Table 1.

Given the increasing roles BRICS and MINT are playing in reshaping global economy, and their status as a destination of choice for FDI to emerging economies, there is need to examine the determinants of FDI to these countries. In particular, this study intends to answer the question: What are the determinants of FDI in BRICS and MINT?

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<sup>2</sup> The acronym "MINT" was coined by economist Terence James "Jim" O'Neill who also coined "BRIC"

**Table 1:** Stylized facts on BRICS and MINT

	GDP (constant 2005 US\$, billions)	GDP per capita (constant 2005 US\$)	GDP growth (annual %)	GDP per capita growth (annual %)	FDI net inflows (BoP, current US\$, billions)*	Population growth (annual %)	Population, total, millions	Natural resources, Share of GDP*	Human Development Index (HDI)
Brazil	1136.56	5721.23	0.87	0.00	71.54	0.87	198.66	5.72	0.73
China	4522.14	3348.01	7.80	7.28	280.07	0.49	1350.70	9.09	0.70
India	1368.76	1106.80	3.24	1.94	32.19	1.26	1236.69	7.36	0.55
Indonesia	427.47	1731.59	6.23	4.91	19.24	1.25	246.86	10.00	0.63
Mexico	997.10	8250.87	3.92	2.65	21.50	1.24	120.85	9.02	0.78
Nigeria	177.67	1052.34	6.55	3.62	8.84	2.79	168.83	35.77	0.47
Russia	980.91	6834.01	3.44	3.03	55.08	0.40	143.53	22.03	0.79
South Africa	307.31	6003.46	2.55	1.34	5.89	1.18	51.19	10.64	0.63
Turkey	628.43	8492.61	2.24	0.94	16.05	1.28	74.00	0.84	0.72
*2011 data									

Source of data: UNDP (2013), World Bank (2013)

The study is significant because it contributes to literature on determinants of FDI by extending the scope of previous studies which often focus only on BRICS (Jadhav, 2012; Jadhav & Katti, 2012; Vijayakumar, Sridharan, & Rao, 2010; etc). It also complements a recent strand of business literature that has focused on factors determining investment in developing countries (Bartels *et al.*, 2009; Tuomi, 2011; Kolstad & Wiig, 2011; Darley, 2012; Asongu, 2012, 2013b, 2013c, 2014b). The remaining part of the study is organized as follows: section two is a review of literature on FDI; section three presents the methodology employed by the study; section four presents and discusses the result; while section five will be the concluding remarks.

## 2. Review of Related Literature

Over the years, the motivations of multinational enterprises for engaging in FDI has been rationalized from several theoretical viewpoints which includes neoclassical trade theory, market imperfections, product lifecycle theory, eclectic paradigm etc. The neoclassical trade theory

builds on the Heckscher-Ohlin model which asserts that trade opportunities and capital flows between two countries depend on the relative endowment of factors of production. This implies that multinational enterprises invest in countries to take advantage of higher returns on investment or low production cost. The market imperfection theory argues that because markets are imperfect, multinational enterprises are able to locate their businesses or production activities in other countries to exploit economies of scale, ownership advantages, and government incentives (Kindlerberger, 1969; Eiteman *et al.*, 2007). Furthermore, the theory asserts that market imperfections in host countries propel multinational enterprises to internalize their operations in host countries which is the most economical means of safeguarding their intangible assets (Buckley & Casson, 1976; Hennart, 1982; Shapiro, 2006).

The product lifecycle theory developed by Vernon (1966) avers that the lifecycle of products are in four stages – introduction, growth, maturity, and decline – and follows a pattern whereby new products are first introduced in advanced countries and diffuse over time to developing countries. Therefore, the stages of the product lifecycle influences the decision of multinational enterprises between exporting or setting up production facility in foreign markets to achieve lower production cost, cater for the growing demand for its products in the foreign market as well as the home market at a competitive price. The eclectic paradigm, developed by Dunning (1988, 1993, 2000) is perhaps the most comprehensive theoretical viewpoint for rationalizing the decisions of multinational enterprises in engaging in FDI. The eclectic paradigm framework avers that scope, geography, and industrial component of FDI by multinational enterprises is influenced by the interaction of three sets of variables that are interdependent - which themselves are composed of the components of three sub-paradigms. These sub-paradigms are strategic advantages in ownership, location specificity, and internalization (OLI). A recent survey of theories on determinant of FDI has been carried out by (Faeth, 2009).

Empirically, several studies have examined the determinants of FDI to developing countries. Studies focusing on a single country often use time-series analysis while multi-country studies often employ panel data analysis (Asiedu, 2002; Biswas, 2002; Jadhav, 2012; Rogmans & Ebbers, 2013; etc). The choice of dependent as well as explanatory variables also differs depending on the country/ies in focus. For the dependent variable, studies have used

unidirectional FDI inflow to host countries (Rogmans & Ebbers, 2013), net FDI inflow (Jadhav, 2012), ratio of FDI inflow to GDP (Suliman & Mollick, 2009; Lehnert *et al.*, 2013) and ratio of net FDI flows to GDP (Asiedu, 2002).

The choice of explanatory variables used in empirical studies also varies, although some variables are largely consistent. Market size (often represented by real GDP or real GDP per capita) has been used by many empirical studies (Cheng & Kwan, 2000; Moosa & Cardak, 2006; etc) because it captures the demand for goods and services in the host country. Other explanatory variables that are often used include: level of trade openness, growth rate, an indicator for infrastructure availability, inflation, and availability of natural resources, as well as indicators to capture political risks and institutional strength (Asiedu, 2002; Moosa, 2002; Moosa & Cardak, 2006; Jadhav, 2012; Sichei & Kinyondo, 2012; Rogmans & Ebbers, 2013; etc).

UNCTAD (2002) classifies these variables into five major groups as shown in Table 2. Non-traditional variables such as type of regime in host country (democracy, autocracy, monarchy etc), regime duration, and risk of expropriation of private investment have also been used in some studies (Biswas, 2002).

**Table 2:** UNCTAD's Classification of FDI determinants

<b>Determining Variables</b>	<b>Examples</b>
Policy variables	Tax policy, trade policy, privatization policy, macroeconomic policy
Business variables	Investment incentives
Market-related economic determinants	Market size, market growth, market structure
Resource-related economic determinants	Raw materials, labor cost, technology
Efficiency-related economic determinants	Transport and communication costs, labor productivity

Source: UNCTAD (2002)



Jadhav (2012) explored the role of economic, institutional, and political factors in attracting FDI to BRICS economy using panel data for ten years i.e. 2000 – 2009. The findings of the study indicate that market size, openness to trade, and rule of law play significant roles in attracting FDI to BRICS while natural resource availability had a negative impact, implying that FDI to BRICS is largely market-oriented. Jadhav & Katti (2012) observed that governance effectiveness and regulatory quality had a positive effect on FDI inflow in BRICS while political instability, voice and accountability, and control of corruption had negative effects. Similarly, using data from 1975-2007, Vijayakumar *et al.* (2010) employed panel analysis to examine the determinants of FDI to BRICS and observed that market size, labor cost, infrastructure, and gross capital formation contributed positively while trade openness and inflation were insignificant.

Asiedu (2002) examined the determinants of FDI to developing countries with special focus on Africa. Building on the premise that developing countries in sub-Saharan Africa (SSA) attracted little FDI in the 1990s despite economic reforms, the study sought to understand whether the determinants of FDI in developing countries in other regions are different from those in SSA and employed panel data for 71 developing countries between 1988 and 1997. The result showed that low infrastructure development and return on capital as well low unfavourable geographic location of many SSA countries are responsible for the low FDI inflow. Similarly, Asiedu (2005) examined the role of natural resources, market size, government policy, institutions and political instability in attracting FDI to countries in SSA.

Rogmans & Ebbers (2013) examined the determinants of FDI to the Middle East and North Africa (MENA) region using panel data from 1987 -2008 and observed that natural resources endowment contributed negatively to FDI flows while trade openness had a positive effect. The study rationalized that the negative contribution of natural resource endowment to FDI was because countries that are highly endowed are more likely to have protectionist policies thereby limiting potential resource-seeking FDI. Hayakawa *et al.* (2013) investigated the effects of various components of political and financial risk on inward FDI flow using panel data for 89 developing countries for the period 1985-2007 and observed that internal conflict, military in politics, corruption, and bureaucracy quality have negative influence on FDI flow while lower

financial risk have no significant impact. Cleeve (2012) examined the role of several institutional factors and political stability in attracting FDI to 40 countries in sub-Saharan Africa using panel data. In addition to the institutional variables included in many other previous studies, the study included ethnic tensions, religious tensions, and disaggregated conflicts into internal and external. A summary of results from earlier studies that have examined the determinants of FDI can be found in (Asiedu, 2002; Moosa, 2002; Moosa & Cardak, 2006). Other studies that have examined the determinants of FDI include (Sekkat & Veganzones-Varoudakis, 2007; Ranjan & Agrawal, 2011; Buchanan *et al.*, 2012; etc).

### **3. Methodology**

#### **3.1 Data and Variables**

Following previous studies, this study adopts a panel analysis procedure using data for eleven years i.e. 2001 -2011. The choice of variables used in our model is also influenced by previous studies. For the dependent variable, the study uses net FDI inflow (Jadhav, 2012). This is expressed in billion US\$ and is denoted by *NetFDI*. As noted by UNCTAD (2002), determinants of FDI may be market-related, resource-related, efficiency-related, or sound policies. In addition, indicators for institutional and governance quality have also be used as explanatory variables (Jahdav, 2012, Jadhav & Katti, 2012; etc) because they affect investment risks in fast-growing economies, and in-turn, the attractiveness of the country for FDI. Consequently, our explanatory variables are as follows:

- (i) *GDP*, the gross domestic product (in constant 2005 US\$, expressed in billions) - used as a proxy for market size i.e. market-related economic determinant.
- (ii) *NResGDP*, the share of natural resources in GDP (expressed in percentages) - used as a proxy for resource-related economic determinant.
- (iii) *Infrastructure*, an indicator for level of infrastructure availability [number of mobile phones per 100 persons the proxy (Asiedu, 2002; Sekkat & Veganzones-Varoudakis, 2007)] - used as a proxy for efficiency-related economic determinant.
- (iv) *Inflation*, the inflation rate (consumer price index) of a country – used as a proxy for macro-economic stability.

(v) *Trade*, representing openness to trade i.e. ratio of total trade (exports + imports) to GDP – used as a policy variable.

(vi) *InstIndex*, the first principal component from a principal component analysis (PCA) of six governance and institutional-related indicators from the World Bank's world development indicators namely: Voice and Accountability, Political Stability/No violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption (Asongu, 2013d). The definitions of these indicators are in the appendix and the values of each indicator range from approximately -2.5 (weak) to 2.5 (strong).

Data used in the study were obtained from the world development indicators and world governance indicators databases of the World Bank.

### **3.1.1 Principal Component Analysis of Governance and Institutional Indicators**

The indicators for institutional and governance quality capture different broad dimensions of the quality of institutions and governance in a country which implies that including all the indicators as explanatory variables in a model has the potential of increasing the model's explanatory powers. However, because these variables capture different dimensions of governance, there is a high likelihood that they will be highly correlated which implies that a model with all the indicators is likely to suffer from multicollinearity. The matrix of pair-wise correlation coefficient of the variables as shown in Table 3 confirms this suspicion and shows that the correlations between all pairs of indicators are significant. Moreover, including all the variables may lead to over-parameterization of the model which will affect the reliability of the model. Therefore, the study uses principal component analysis (PCA) to reduce the dimension of the variables.

**Table 3:** Matrix of pair-wise correlation coefficients for institutional and governance indicators

<b>Legend</b>	<b>Indicators</b>	<b>V. A.</b>	<b>P. S.</b>	<b>G. E.</b>	<b>R. Q.</b>	<b>R. L.</b>	<b>C. C.</b>	
Correlation	<b>V. A.</b>	1						
t-Statistic		-----						
<i>Probability</i>		-----						
	<b>P. S.</b>	0.3294	1					
		3.4364	-----					
		0.0009	-----					
	<b>G. E.</b>	0.4571	0.7597	1				
		5.0613	11.5077	-----				
		0.0000	0.0000	-----				
	<b>R. Q.</b>	0.5429	0.7742	0.8836	1			
		6.3675	12.0485	18.5806	-----			
		0.0000	0.0000	0.0000	-----			
	<b>R. L.</b>	0.5386	0.5793	0.8279	0.7166	1		
		6.2964	7.0005	14.5361	10.1199	-----		
		0.0000	0.0000	0.0000	0.0000	-----		
	<b>C. C.</b>	0.6329	0.7521	0.8618	0.8868	0.8189	1	
		8.0509	11.2397	16.7292	18.9009	14.0510	-----	
		0.0000	0.0000	0.0000	0.0000	0.0000	-----	
	<b>V.A.</b> - Voice and Accountability; <b>P.S.</b> - Political Stability; <b>G.E.</b> - Governance Effectiveness; <b>R.Q.</b> - Regulatory Quality; <b>R.L.</b> - Rule of Law; <b>C.C.</b> - Control of corruption							

Principal component analysis (PCA) is a statistical technique applied to reduce the dimensionality of a larger set of possibly correlated variables into a smaller set of linearly uncorrelated variables called principal components in such a way that the first principal component account for the largest possible variance from the original data set and each successive principal component accounts for a variance smaller than that of the preceding principal component (Jolliffe, 2002). The PCA for the governance and institutional indicators is computed using ordinary correlations with Eviews and the summary of results is presented in Table 4. From Table 4, we observe that the first eigen value encompasses up to 75% of the information on institutional and governance indicators therefore the corresponding eigen vector

(i.e. eigen vector for PC 1) is selected to compute the principal component from the institutional and governance indicators.

**Table 4:** Result of principal component analysis showing eigen values and eigen vectors

Eigen values				Eigen Vectors (loadings)						
Number	Eigen Value	Proportion	Cumulative Proportion	Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
1	4.5148	0.7525	0.7525	V. A.	0.3053	0.8482	0.3365	0.1214	0.2422	-0.0253
2	0.7316	0.1219	0.8744	P. S.	0.3848	-0.4612	0.5319	0.5811	0.1086	0.0829
3	0.3855	0.0643	0.9386	G. E.	0.4405	-0.2075	-0.2397	-0.2685	0.5824	-0.5424
4	0.1929	0.0322	0.9708	R. Q.	0.4400	-0.1153	0.1925	-0.6364	-0.0374	0.5913
5	0.1072	0.0179	0.9887	R. L.	0.4089	0.0956	-0.7136	0.4078	-0.0231	0.3841
6	0.0680	0.0113	1	C. C.	0.4516	0.0477	0.0117	-0.0645	-0.7671	-0.4484

V.A. - Voice and Accountability; P.S. - Political Stability; G.E. - Governance Effectiveness; R.Q. - Regulatory Quality; R.L. - Rule of Law; C.C. - Control of corruption

### 3.2 Model Specification

We specify our model as follows:

$$NetFDI_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 NResGDP_{it} + \beta_3 Infrastructure_{it} + \beta_4 Inflation_{it} + \beta_5 Trade_{it} + \beta_6 InstIndex_{it} + \varepsilon_{it} \dots(1)$$

Where  $i$  represents the  $i$ th country and  $t$  represents year.

*A priori*, the study expects that the coefficient of  $GDP$  will be positive since market size is expected to have a positive influence on FDI inflow. Although natural resources availability in developing countries can attract resource-seeking FDI, studies have argued that resource-seeking FDI to resource-rich developing countries depends on existing investment policies and market orientation (Rogmans & Ebbers, 2013). In some studies, natural resources availability contributes positively to FDI (Asiedu, 2005; Sichei & Kinyondo, 2012) while in others, it contributes negatively (Jahdav, 2012; Rogmans & Ebbers, 2013). Therefore, the expected sign of

the coefficient of *NResGDP* is not certain. The availability of good infrastructure reduces transaction cost; therefore, the study expects the coefficient of *Infrastructure* to be positive. The coefficient of *Trade* is expected to be positive because countries that are more open to trade tend to attract market-seeking FDI while the coefficient of *Inflation* is expected to be negative because a low and stable inflation rate reduces macroeconomic risks associated with investment and makes the host country more attractive to FDI. Furthermore, high political risks and inefficient institutions generally discourage FDI (Asiedu, 2005; Dupasquier & Osakwe, 2006), therefore *InstIndex* is expected to have positive coefficient<sup>3</sup>. The analysis is done using Eviews

#### 4. Results and Discussions

We present the descriptive statistics for BRICS and MINT in Table 5. We observe from Table 5 that net FDI inflow to BRICS between 2001 and 2011 range from US\$-0.18billion to US\$280.07 billion with an average of US\$43.15billion and standard deviation of US\$58.05 billion. Similarly, the maximum and minimum GDP are US\$4194.94 billion and US\$210.30 billion respectively while the mean and standard deviation are US\$1119.96billion and US\$922.76 billion respectively. For institutional index, the maximum and minimum values are 1.71 and -2.12 respectively while the mean and standard deviation are -0.11 and 0.82 respectively. On the other hand, the maximum and minimum net FDI inflows to MINT for the years under consideration are US\$31.38billion and US\$-2.98 respectively, with mean of US\$11.26 billion and standard deviation of US\$9.41 billion. Institutional index in MINT ranges from -3.08 to 0.13, with mean of -1.20 and standard deviation of 1.12.

**Table 5:** Descriptive statistics of the variables used in the analysis

<b>BRICS</b>	<b>NetFDI</b>	<b>GDP</b>	<b>Infrastructure</b>	<b>NResGDP</b>	<b>Inflation</b>	<b>Trade</b>	<b>InstIndex</b>
Maximum	280.07	4194.94	179.31	38.41	21.46	0.71	1.71
Minimum	-0.18	210.30	0.61	3.01	-0.77	0.23	-2.12
Mean	43.15	1119.96	57.43	10.76	6.77	0.48	-0.11
Median	22.46	882.19	46.35	6.32	5.86	0.51	-0.08
Std Dev.	58.05	922.76	44.94	9.74	4.34	0.14	0.82

<sup>3</sup> Based on their calibrations, the values of the political risks and institutional quality variables in countries that are highly instable and have inefficient institutions are closer to -2.5 while those that are stable and have efficient institutions have values closer to 2.5. Countries that are more stable and have efficient institutions are expected to have greater FDI inflow hence the expected positive coefficient.

<b>MINT</b>							
Maximum	31.38	995.03	102.49	17.22	54.40	0.86	0.13
Minimum	-2.98	70.84	0.21	0.29	3.41	0.38	-3.08
Mean	11.26	451.95	46.18	6.81	10.84	0.56	-1.20
Median	8.61	382.46	43.15	7.52	8.66	0.54	-0.92
Std Dev.	9.41	294.52	29.96	4.67	9.79	0.10	1.12

To examine whether the determinants of FDI to BRICS are different from those of MINT, we employ pooled time-series cross sectional technique (i.e. OLS) to estimate equation (1) for three samples: BRICS only, MINT only, and BRICS and MINT combined. Pooled analysis is preferred to panel analysis for the BRICS only and MINT only subsamples because panel analysis will involve testing whether the model follows a fixed effect model or random effect model, and random effects estimation requires the number of cross sections to be greater than the number of coefficients. The results of the pooled analysis are presented in Table 6. We observe from Table 6 that GDP is a significant determinant of FDI to BRICS and MINT respectively; the coefficient of *NResGDP* is positive and insignificant in the subsample of only BRICS but negative and insignificant in the subsample of only MINT; and the coefficient of infrastructure is positive and significant in BRICS but not significant in MINT. For *Inflation*, its coefficient is negative in MINT as expected although insignificant but positive in BRICS; the coefficient of *Trade* is negative and insignificant in BRICS but positive and significant in MINT; while the coefficient of *InstIndex* is positive and significant in BRICS as expected but negative in MINT. Thus, we observe that depending on the set of countries considered, the determinants of FDI to fast-growing developing differ. For the combine sample of MINT and BRICS estimated using OLS, the signs of the coefficients of *GDP*, *Infrastructure*, and *Trade* are in line with *a priori* expectation and also significant suggesting that these are the main determinants of FDI to BRICS and MINT.

We go further to ascertain the appropriate specification (i.e. fixed-effect or random-effect) to use in estimating the model for combined sample of BRICS and MINT. We carry out the *Hausman specification test* (Hausman, 1978) under the null hypothesis that the individual effects are uncorrelated with the other regressors in the model (i.e. estimates from the random-effect model are consistent and efficient). The p-values (0.0000) of the chi-square statistic (35.06) from the

*Hausman specification test* for cross-section random effect is less than 0.05 indicating that the null hypothesis be rejected. Consequently, the fixed effect model specification is employed to estimate the panel model and the summary of the result is presented in Table 6.

**Table 6:** Random-effect model result of panel regression analysis

Dependent Variable: NETFDI								
	Pooled time-series cross sectional analysis						Fixed-effect model	
	BRICS only		MINT only		BRICS and MINT combined			
Explanatory Variables	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
C	-44.134	0.000	-12.478	0.081	-47.136	0.000	-44.140	0.000
GDP	0.063	0.000	0.027	0.000	0.056	0.000	0.056	0.000
NRESGDP	0.150	0.666	-0.388	0.122	-0.132	0.519	-0.200	0.381
INFRASTRUCTURE	0.222	0.000	0.014	0.708	0.134	0.003	0.156	0.042
INFLATION	1.197	0.091	-0.118	0.225	0.389	0.075	0.302	0.198
TRADE	-10.028	0.606	25.561	0.023	39.164	0.005	31.942	0.032
INSTINDEX	11.903	0.000	-0.319	0.849	-1.131	0.506	-2.282	0.245
<b>Adjusted R<sup>2</sup></b>	0.944		0.779		0.905		0.913	

We observe from Table 6 that the coefficient of *GDP* is positive as expected and significant indicating that market size is an important determinant of FDI flows to BRICS and MINT. It shows that *ceteris paribus*, if the GDP of BRICS and MINT increases by US\$1billion, on average, inward FDI to the countries will increase by US\$56million. The sign of *NResGDP* is negative but insignificant, and indicates that BRICS and MINT countries that are less dependent on natural resources are likely to receive more FDI. It also suggests that FDI flows to BRICS and MINT are not resource-oriented but market-oriented. The sign of the coefficient of the *Infrastructure* is in line with *a priori* expectations and also significant. It shows that for every unit increase in the number of mobile phones user per 100 persons in BRICS and MINT, on average, FDI inflow to the countries will increase by \$US156million all other things being equal. This further emphasized the importance of infrastructure in reducing cost of transacting business in a country thereby encouraging investment. The study expected the coefficient of *Inflation* to be negative but the result yielded a positive and insignificant coefficient. This suggests that



BRICS and MINT countries that have higher inflation rate tend to attract more FDI. A more plausible explanation is that macro-economic stability in BRICS and MINT tends to play a lesser role in investment decisions by multinational companies. The coefficient of *Trade* is positive as expected and significant, indicating that countries that are more open to trade are more likely to attract more FDI. The coefficient of the *InstIndex* is negative contrary to *a priori* expectations but insignificant. This indicates that MNCs are more likely to invest in BRICS and MINT countries with lower institutional and governance quality or that the quality of governance and institutions in host countries plays a less important role in FDI decisions by MNCs.

## **5. Concluding remarks**

The roles of BRICS and MINT in reshaping the global economic environment cannot be trivialized. In 2011, BRICS and MINT accounted for 51% of the global population, attracted 30% of global FDI, and contributed 19% of global GDP. Based on these facts, this study set out to examine the determinants of FDI to MINT and BRICS and observed that market size, infrastructure availability, and trade openness play the most significant roles in attracting FDI to BRICS and MINT while natural resources availability and institutional quality play insignificant roles. Given that FDI inflow to a country has the potential of being mutually beneficial to the investing entity and host government, the challenge is on how BRICS and MINT can sustain the level of FDI inflows and ensure it results in economic growth and socio-economic transformation. To sustain the level of FDI inflow, governments of BRICS and MINT need to ensure that their countries remain attractive for investment. This implies that in addition to the large market size and strategic geographical location, these countries need to ensure that the existing legal framework for investment protects investors and creates a level field for competition in the domestic market. BRICS and MINT also need to ensure political stability in their countries as this will reduce investment risk. The governments of countries with relatively low level or inefficient infrastructure, especially transportation and energy (e.g. India and Nigeria) need to invest more in these sectors.

Since market size is an important determinant of FDI flows, it follows that if FDI inflow promotes sustainable long-term economic growth in host countries the GDP of the host countries

will be increasing and will result in more FDI inflow. However, de Mello (1997) and Ouyang & Fu (2012)s have noted that FDI does not necessarily result in economic growth in host countries, but the level of economic growth as a result of FDI is contingent on the capacity of human capital in the host countries to absorb the skills and technical knowhow brought into the host country by the multinational enterprise. Therefore, BRICS and MINT need to invest more in their human capital to ensure FDI inflow result in sustainable long-term economic growth.

## References

- Asiedu, E. (2005, April). Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability. Working paper, United Nations University.
- Asiedu, E. (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different? *World Development* , 30 (1), 107-119.
- Asongu, S. A. (2012). Government quality determinants of stock market performance in African countries. *Journal of African Business*, 13 (3), 183-199.
- Asongu, S. A. (2013a). Investment and Inequality in Africa: Which Financial Channels are Good for the Poor? *African Finance Journal*, 12 (2), 43-65.
- Asongu, S. A. (2013b). African stock market performance dynamics: a multidimensional convergence assessment. *Journal of African Business*, 14 (3), 186-201.
- Asongu, S. A. (2013c). How would population growth affect investment in the future? Asymmetric panel causality evidence for Africa. *African Development Review*, 25 (1), 14-29.
- Asongu, S. A. (2013d). How has Politico-Economic Liberalization Affected Financial Allocation Efficiency: Fresh African Evidence. *Economic Bulletin* , 33 (1), 663-673.
- Asongu, S. A. (2014a). Financial development dynamic thresholds of financial globalization: evidence from Africa. *Journal of Economic Studies*: Forthcoming.
- Asongu, S. A. (2014b). Long-term effects of population growth on aggregate investment dynamics: selected country evidence for Africa. *African Journal of Economic and Management Studies*: Forthcoming.

- Bartels, F. L., Alladina, S. N., & Lederer, S. (2009). Foreign Direct Investment in Sub-Saharan Africa: Motivating Factors and Policy Issues. *Journal of African Business*, 10 (2), 141-162.
- Biswas, R. (2002). Determinants of Foreign Direct Investment. *Review of Development Economics* , 6 (3), 492–504.
- Buchanan, B. G., Le, Q. V., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of Financial Analysis* , 21, 81–89.
- Buckley, P., & Casson, M. (1976). *The Future of the Multinational Enterprise*. London: Homes & Meier.
- Cheng, L., & Kwan, Y. (2000). What are the determinants of the location of foreign direct investment? The Chinese experience. *Journal of International Economics* , 51, 379–400.
- Cleeve, E. (2012). Political and Institutional Impediments to Foreign Direct Investment Inflows to Sub-Saharan Africa. *Thunderbird International Business Review* , 54 (4), 469-477.
- de Mello, L. R. (1997). Foreign direct investment in developing countries and growth: A selective survey. *The Journal of Development Studies* , 34 (1), 1-34.
- Darley, W. K. (2012). Increasing Sub-Saharan Africa's Share of Foreign Direct Investment: Public Policy Challenges, Strategies and Implications. *Journal of African Business*, 13(1), 62-69.
- Dunning, J. H. (1988). *Explaining International Production*. London: Unwin Hyman.
- Dunning, J. H. (1993). *Multinational Enterprises and the Global Economy*. Wokingham, Berkshire: Addison Wesley.
- Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International Business Review* , 9 (2), 163-190. .
- Dupasquier, C., & Osakwe, P. N. (2006). Foreign direct investment in Africa: Performance challenges, and responsibilities. *Journal of Asian Economics* , 17, 241–260.
- Eiteman, D. K., Stinehill, A. I., & Moffett, M. H. (2007). *Multinational Business Finance* (11th ed.). Boston: Pearson Addison Wesley.
- Faeth, I. (2009). Determinants of Foreign Direct Investment: A Tale of Nine Theoretical Models. *Journal of Economic Surveys* , 23 (1), 165–196.
- Hausman, J. (1978). Specification Tests in Econometrics. *Econometrica* , 46 (6), 1251-1271.

- Hayakawa, K., Kimura, F., & Lee, H.-H. (2013). How does Country Risk Matter for Foreign Direct Investment? *The Developing Economies* , 51 (1), 60–78.
- Hennart, J. (1982). *A theory of multinational enterprise*. Ann Arbor: University of Michigan.
- Jadhav, P. (2012). Determinants of Foreign Direct Investments in BRICS Economies: Analysis of Economic, Institutional and Political Factors. *Procedia-Social and Behavioral Sciences* , 37, 5-14.
- Jadhav, P., & Katti, V. (2012). Institutional and Political Determinants of Foreign Direct Investment: Evidence From BRICS Economies. *Poverty & Public Policy* , 4 (3), 49-57.
- Jolliffe, I. (2002). *Principal Component Analysis* (2nd Edition ed.). New York: Springer.
- Kindlerberger, C. (1969). *American Business Abroad: Six Lectures on Direct Investment*. New Haven: Yale University Press.
- Kolstad, I., & Wiig, A. (2011). Better the Devil You Know? Chinese Foreign Direct Investment in Africa. *Journal of African Business*, 12 (2), 31-50.
- Lehnert, K., Benmamoun, M., & Zhao, H. (2013). FDI Inflow and Human Development: Analysis of FDI's Impact on Host Countries' Social Welfare and Infrastructure. *Thunderbird International Business Review* , 55 (3), 285-298.
- Moosa, I. (2002). *Foreign Direct Investment: Theory, Evidence and Practice*. London: Palgrave.
- Moosa, I. A., & Cardak, B. A. (2006). The determinants of foreign direct investment: An extreme bounds analysis. *Journal of Multinational Financial Management* , 16, 199–211.
- Ouyang, P., & Fu, S. (2012). Economic growth, local industrial development and inter-regional spillovers from foreign direct investment: Evidence from China. *China Economic Review* , 23, 445–460.
- Ranjan, V., & Agrawal, G. (2011). FDI Inflow Determinants in BRIC countries: A Panel Data Analysis. *International Business Research* , 4 (4), 225-263.
- Rodrik, D. (1998). Trade policy and economic performance in sub-Saharan Africa. *National Bureau of Economic Research Working Paper 6562* .
- Rogmans, T., & Ebbers, H. (2013). The determinants of foreign direct investment in the Middle East North Africa region. *International Journal of Emerging Markets* , 8 (3), 240-257.
- Sekkat, K., & Veganzones-Varoudakis, M.-A. (2007). Openness, Investment Climate, and FDI in Developing Countries. *Review of Development Economics* , 11 (4), 607–620.

- Shapiro, C. A. (2006). *Multinational Financial Management* (8th ed.). United States of America: Jonh Wiley & Sons, Inc.
- Sichei, M. M., & Kinyondo, G. (2012). Determinants of Foreign Direct Investment in Africa: A Panel Data Analysis. *Global Journal of Management and Business Research* , 12 (18), 85-97.
- Suliman, A. H., & Mollick, V. A. (2009). Human Capital Development, War and Foreign Direct Investment in Sub-Saharan Africa. *Oxford Development Studies* , 13 (1), 47-61.
- Tuomi, K. (2011). The Role of the Investment Climate and Tax Incentives in the Foreign Direct Investment Decision: Evidence from South Africa. *Journal of African Business*, 12 (1), 133-147.
- UNCTAD. (2002). *World Investment Report: Transnational Corporations and Export Competitiveness*. New York: United Nations.
- UNCTAD. (2013). *World Investment Report 2013*. Retrieved December 19, 2013, from United Nations Conference on Trade and Development: [http://unctad.org/en/PublicationsLibrary/wir2013\\_en.pdf](http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf)
- UNDP. (2013). *Human Development Reports*. Retrieved January 26, 2014, from United Nations Development Programme: <http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf>
- UNESCAP. (2000). *Foreign Direct Investments in Latin America: Current Trends and Future Prospects*. Retrieved December 11, 2013, from United Nations Economic and Social Commission for Asia and the Pacific: <http://www.unescap.org/tid/publication/tipub2069.pdf>
- US Department of State. (2013). *Investment Climate Statements 2013*. Retrieved January 19, 2014, from <http://www.state.gov/e/eb/rls/othr/ics/2013/>
- Vernon, R. (1966). International Investment and International Trade in the Product Cycle. *Quarterly Journal of Economics* , 80, 190-207.
- Vijayakumar, N., Sridharan, P., & Rao, K. C. (2010). Determinants of FDI in BRICS Countries: A panel analysis. *Int. Journal of Business Science and Applied Management* , 5 (3), 1-13.
- World Bank. (2013). *World Development Indicators. UK Data Service*. Retrieved January 23, 2014, from World Bank.

## Appendix

These definitions of the indicators of governance and institutional quality are obtained from the World Governance Indicators database of the World Bank.

(i) Voice and accountability - reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

(ii) Political Stability/ No violence - reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

(iii) Governance effectiveness - reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

(iv) Regulatory quality - reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

(v) Rule of Law - reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

(vi) Control of Corruption - reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.