PHD VIVA VOCE PRESENTATION

By

Anokye Mohammed Adam

TOPIC:

THE EFFECT OF CURRENCY UNION ON INTRA-REGIONAL TRADE IN ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

PURPOSE OF THE STUDY

➢ The study investigates the currency union effect on intra-ECOWAS trade; exploring both direct and indirect effects on intra-country and bilateral trade within the ECOWAS.

RESEARCH PROBLEM

(1)   **The Basis/Background:**

- *The Research Problem Setting*: Trade has always been a major component of the economic development of nations (see, for instance, Krueger 1990, Grossman & Helpman 1990). More especially, intra-regional trade promotes competition and help achieve economies of scale (Kimenyi, Lewis & Routman, 2012). Therefore intra-regional trade is an important vehicle for economic transformation of nations.

- Following the successful transformation of European Union (EU) into a currency union and the accompanying literature pointing to benefit of intra-regional trade in currency union, a number of regional trade blocs, such as ECOWAS, are pursuing currency union agenda as a strategy to increase intra-trade.

2

RESEARCH PROBLEM

(2) ***Prior Research Efforts***: Previous studies (Rose 2000 ; de Nardis & Vicarelli 2003; Flam and Nordstrom 2007; Bun and Klaasens, 2007 and Baldwin, 2008) have documented aggregate possible gains in intra-regional from currency union membership, but failed to look at the possible loses or gains of individual countries of the union and indirect channel(s) through which currency union could affect intra-regional trade.

The Research Gap*: Quantifying the intra-trade potential of individual currency union members, the effect of currency union membership on individual countries and identifying indirect channels of currency union effects on intra-trade .*

(3) **Why Address Research Gap**: Addressing the gaps is essential as it establish the asymmetric effect of currency union memberships on intra-trade to inform policies needed for successful currency union formation and theory.

3

SIGNIFICANCE OF THE STUDY

❖ **Policy/Practical Implications:**

- **Research Finding 1:** *There is a substantial intra-trade potential within the ECOWAS region*

- **Implications:** There is a possibility to increase intra-ECOWAS trade. It also signifies presence of barrier to intra-trade due lack of adherence to and activation of ECOWAS Protocols. Member countries should activate existing ECOWAS Treaties and Protocols.

- **Research Findings 2:** *Currency union in ECOWAS increases aggregate intra-ECOWAS trade in the long-run but not in the short run.*

- **Implications:** Currency union is a credible policy to improve intra-ECOWAS trade in the long-run and therefore commitment to achieve it should be intensified by ECOWAS commission.

- **Research Finding 3:** *The currency union indirectly influence intra-regional trade through FDI inflow- export diversification channel.*

- **Implications:** Policies towards creation of currency union should includes overhaul of micro and macro fundamentals to attract foreign direct investment to enable the bloc maximise the benefit of currency union.

❖ **Theory:**

- **Research Finding 1:** *There is high intra-trade potential within the ECOWAS*

- **Implications:** Heckscher -Ohlin theory is not sufficient in explaining trade between homogeneous economies.

- **Research Finding 4:** *Gravity model is adequate in explaining intra-ECOWAS trade, however, increase in economic size of country pair do not increase intra-trade .*

- **Implications:** Gravity model generalization that bilateral trade between a pair of countries should increase as their economic sizes increase is not supported.

4

LITERATURE REVIEW – THEORETICAL REVIEW

- Differences in efficiency in production

    - Absolute Advantage (Smith, 1776)

    - Comparative Advantage (Ricardo, 1871)

    - Competitive Advantage (Porter,1990)

- Relative factor endowments among countries (Hecksher,1919 ; Ohlin,1933; Vanek,1968; Porter,1990)

- Return differences and Diversification (Tobin,1958; Markowitz,1959)

- Internationalisation (Dunning,1977; Rugman, 1980)

- Market size Hypothesis (Argawal, 1980)

LITERATURE REVIEW – EMPIRICAL REVIEW

- Brada and Mendez (1988) formalized the conception of sensitivity of trade to exchange-rate volatility. Empirical evidence were produced to support this view by Belanger, Gutierrez & Raynauld (1992) and documented a weak relationship which is supported by Frankel and Wei (1993).

- Rose (2000) waved into the empirics to look at the effect of a common currency as distinct from that of exchange-rate variability – he found an extremely large positive impact of currency union on trade.

- Subsequent work on European Monetary Union by de Nardis & Vicarelli (2003); Faruqee (2004); Berger and Nitsch (2005); and Flam and Nordstrom (2007), Bun and Klaasens (2007) and Baldwin (2008) , all supported the positive impact view.

- UNECA (2010) and Ezekwesili (2011) observed similar findings on Africa.

- This has been attributed the reduction in trade cost, enlarged market size, increase in price transparency and uncertainty

- McCarthy (2008) and Masson (2008) hypothesised that these gains are bloc and country specific and that not all blocs and individual countries are likely to benefit from currency union membership.

- Previous studies have concentrated on currency union aggregate effect on intra-regional trade and ignored the impact on individual countries, in terms of between individual countries and the regional bloc or bilateral trade within a bloc.

  [*This study addressed this gap by examining the currency union effect on aggregate intra-trade and individual bilateral trade*]

- On size of trade potential, Alesina and Barro (2002) has observed that countries that may benefit from currency union membership are those with potential to increase their trade.

- Previous studies that have estimated trade potential of regional trade blocs, (Ogunkola,1998), ITC(2012) and individual countries, Armstrong (2007) , failed to linked it to currency union membership.

[*This gap is addressed by estimating and quantify trade potential of would be currency union*]

7

- Concerning the increase in intra-regional trade within the various blocs, Petroulas (2006) and De Sousa and Lochard (2006) identified that a proportion of the increment can be attributed to FDI flow.

- Moreover, Dingová (2009) argue that uncertainty about future exchange-rate movements affects FDI decisions and that currency union is associated with a more stable business environment.

- The implication of these is that currency union affect intra-regional trade in two ways:

  - *Direct, through removal exchange rate risk*

  - *Indirect, through attraction of FDI into the region*

- The empirical works to validate the indirect channel of Currency union effect on intra-trade is however missing in the literature.

[*we empirical investigate the indirect channel of currency union effect on intra-trade to address this gap*]

8

LITERATURE REVIEW CONT.

- Evidence from the literature shows that, studies on aggregate effect of currency union on intraregional trade are well documented

- What was lacking were:
  - *Nature and size of the trade potential of the would be currency union members and the bloc.*
  - *The Investigation of how currency union membership influence individual country's share of intra-trade.*
  - *the indirect channel of the effect of currency union membership on intra-regional trade.*

- These gaps have been addressed by conducting the study of currency union effect on intra-regional trade in ECOWAS.

9

THE RESEARCH METHODOLOGY

➢ **Research design & Approach** – Causal & Quantitative

- The research paradigm employed is positivism which emphasis on the objectivist approach.

- This paradigm and approach support quantitative and secondary data research which this thesis employs.

➢ *Data Collection*: The data for this study is secondary data covering a period of 16 years (1995-2010). The study uses annual bilateral trade, GDP data and other social and economic indicators of fifteen (15) ECOWAS countries (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo).

10

THE RESEARCH METHODOLOGY

Table 1: Data Description, Proxies and Sources

Data Description	Proxy	Source
Bilateral Trade among countries (M)	Total Trade	IMF- IFS Direction of trade (DOT) database
Real GDP (GDP)	Economic size of respective countries	World Bank World Development Indicator (WDI)
Population	Respective Market size	WorldBank WDI
Distance between capital Cities of bilateral countries (d)	Cost of Trade	Calculated using the Great Circle distance between the capital cities of ECOWAS member countries
Total trade as a percentage of GDP(TT)	Trade openness	World Bank WDI
Export concentration index	Homogeneity of exports	UNCTAD Statistics Division (UNCTADSTAT)
Foreign Direct Investment inflow (FDI)	Accessibility of overseas investment	UNCTAD Statistics Division (UNCTADSTAT)
Capita Account Openness	Unilateral foreign investment regulatory reforms	Chinn and Ito (2011)
Political constraint Index	Institutional development of host country	Polcon Database, 2011
Dummy variable (CU=1 if a country is a member of WAEMU, CU=0 if otherwise	Currency union	Authors' construct
Dummy varaiable (COL=1 if countries i and j were colonised by same state)	Colonial experience	Authors' construct

11

THEORETICAL MODEL

The study analyses was done within Gravity Model frameworks and estimated with pooled Dynamic Ordinary Least Square (DOLS)

The gravity model has been derived from Newton's "Law of Universal Gravitation," which states that the force of attraction between two objects is a function of the masses of the objects and the distance between the two objects.

The model predicts that bilateral trade between a pair of countries should increase as their economic sizes (M_i and M_j) increase and decrease with the transaction costs', D_{ij} increase. The model can be expressed as follows:

$$T_{ij} = G \frac{M_i M_j}{D_{ij}}$$

T_{ij}= trade flows from origin country, i, to destination country,j ; usually, it is expressed as a country's exports, imports or total trade value. G is constant.

12

RESEARCH METHODOLOGY: DATA ANALYSIS

Research Question	Analysis Method	Reasons
What is the nature and size of intra-ECOWAS trade	Gravity model and estimated with Pooled DOLS estimator	The Gravity model is grounded on theory and the DOLS estimator augment the model with leads and lags to deal with stationarity and endogeneity problem in econometrics Good for small data size
How does intra-ECOWAS trade react to currency-union membership	Gravity model and estimated with Pooled DOLS estimator	The Gravity model is grounded on theory and the DOLS estimator augment the model with leads and lags to deal with stationarity and endogeneity problem in econometrics
Do currency unions promote intra-trade through FDI inflow and export diversification	Gravity model and estimated with Pooled DOLS estimator Toda- Yamamoto Non-Causality	The Gravity model is grounded on theory and the DOLS estimator augment the model with leads and lags to deal with stationarity and endogeneity problem in econometrics Appropriate for testing causal direction and robust in the presence of unit root as against the tradition Granger-Causality Test

PRESENTATION AND ANALYSIS OF STUDY RESULTS

Research Question	Model ling the Problem	Model Diagnostic Test
What is the nature and size of intra-ECOWAS trade	1. Gravity Model for ECOWAS and intra trade potential estimated for: a. Aggregate ECOWAS trade. b. Country individual Trade .	a. Good-of-Fit Test $$R^2 = 0.610 - 0.99$$ b. Joint Significance $$F - Statistics = 8.55 - 1512$$ c. Autocorrelation $$DW = 1.84 - 2.20$$
How does intra-ECOWAS trade react to currency-union membership	1. Tested Gravity Model for ECOWAS and currency union efect extracted for: a. Aggregate ECOWAS trade. b. Country individual Trade .	a. Good-of-Fit Test $$R^2 = 0.59$$ b. Joint Significance $$F - Statistics = 167.28$$ c. Autocorrelation $$DW = 1.74$$
Do currency unions promote intra-trade through FDI inflow and export diversification	3. Variant of Gravity model for FDI estimated followed by causality test between FDI and export diversification	a. Good-of-Fit Test $$R^2 = 0.99$$ b. Joint Significance $$F - Statistics = 1139$$ c. Autocorrelation $$DW = 1.98$$

14

Table 2 Results of Bilateral Trade Potential between ECOWAS Members

	B	BF	CV	CD	GA	GH	GU	GB	LB	M	N	NG	SG	SL	TG
B		2.47	1.36	2.77	1.75	2.54	2.55	1.44	2.09	3.07	2.48	2.76	2.63	1.75	2.66
BF			1.91	3.03	1.37	2.14	1.61	1.19	1.40	2.32	3.01	2.92	2.73	1.41	2.13
CV				2.60	3.71	1.58	2.14	1.91	1.21	1.16	2.50	2.99	2.84	1.47	1.11
CD					2.21	2.83	2.63	2.26	2.46	2.80	2.83	2.75	2.73	2.46	2.74
GA						2.24	2.35	2.42	2.64	1.33	1.17	3.44	2.87	2.14	1.71
GH							2.54	0.97	2.93	2.93	2.58	2.84	2.70	2.96	2.90
GU								2.38	2.54	2.60	2.40	2.69	2.69	2.70	2.57
GB									1.46	1.29	1.14	1.42	2.58	2.32	1.19
LB										1.21	1.66	3.11	2.38	2.33	2.22
M											2.86	2.80	2.60	0.93	2.47
N												2.83	2.97	1.45	2.56
NG													2.60	2.17	2.66
SG														2.53	2.57
SL															1.93
TG															

B-Benin, BF-Burkina Faso, CV-Cape Verde, CD-Cote d'Ivoire, GA-Gambia, GH-Ghana, GU-Guinea, GB-Guinea Bissau, LB-Liberia, M-Mali, N-Niger, NG-Nigeria, SG-Senegal, SL-Sierra Leone, TG-Togo

Table 3 Results of Currency Union Effect on Intra-ECOWAS Trade

Countries	Long-Run		Short-Run	
			Estimation	
	Estimation	EXP(CU)	CU	EXP(CU)
Benin	2.59	13.38*	-0.61	0.54*
Burkina Faso	11.22	74458.71*	0.78	2.19*
Cote d'Ivoire	0.06	1.06	-0.01	0.99
Guinea Bissau	-0.83	0.44	0.06	1.06
Mali	-0.14	0.87	-0.11	0.89*
Niger	6.14	465.44*	1.20	3.32*
Senegal	1.52	4.57*	-0.03	0.98
Togo	1.47	4.33*	0.081	2.24*
Aggregate	2.60	13.64*	0.04	0.96

Table 4 Results of Intra-ECOWAS Trade Gains in a Hypothetical Currency Union

	B	BF	CV	CD	GA	GH	GU	GB	LB	M	N	NG	SG	SL	TG
B	0.00	0.00	1.14	0.00	1.04	7.57	23.19	0.00	-0.25	0.00	0.00	0.86	0.00	33.07	0.00
BF		0.00	1.32	0.00	1.39	7.60	111.45	0.00	0.25	0.00	0.00	3.08	0.00	95.87	0.00
CV			0.00	1.07	-0.16	1.09	-74.41	-1.69	0.01	1.21	1.06	-1.81	1.10	-50.77	1.20
CD				0.00	0.92	7.56	-7.66	20.97	-0.25	0.00	0.00	0.64	0.00	11.12	0.00
GA					0.00	0.11	-2.41	20.85	0.08	1.73	0.85	-0.50	0.97	-1.71	1.15
GH						0.00	8.61	2.37	0.02	7.58	7.56	0.32	7.57	4.65	7.58
GU							0.00	-79.31	20.05	56.67	-24.63	-0.14	5.70	4.54	50.84
GB								0.00	1.29	0.00	0.00	-1.65	0.00	-56.32	0.00
LB									0.00	-0.25	-0.25	0.50	-0.25	14.38	-0.25
M										0.00	0.00	1.70	0.00	56.89	0.00
N											0.00	-0.34	0.00	-0.96	0.00
NG												0.00	0.42	0.17	1.55
SG													0.00	20.63	0.00
SL														0.00	52.74
TG															0.00
ECOWAS	8.84	31.64	-17.72	0.87	0.34	10.02	-11.35	4.61	4.92	17.49	-3.78	0.5	4.32	9.62	15.98

17

Table 5 Results of Panel Long -Run Regression for FDI Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	1.19	0.05	26.36	0.00
GDPW?	1.49	1.51	0.99	0.32
TT?	1.86	0.04	46.56	0.00
P?	-0.33	0.06	-5.68	0.00
KAOPEN?	0.24	0.02	11.45	0.00
POLCON?	1.16	0.13	8.86	0.00
CU?	-0.76	0.04	-21.55	0.00
C	-30.12	20.57	-1.46	0.15

Currency union effect on FDI inflow $=0.467(\exp(-0.7598))$

DISCUSSIONS OF STUDY RESULTS

Research Objectives	Research Question	Research Findings	Deductions from the Results
To evaluate the intra-regional trade potential within the ECOWAS sub-region	What is the nature and size of intra-ECOWAS trade	There is a high trade potential within the ECOWAS region	There are impediments in to intra-regional trade. 1. Lack of commitment to existing treaties and protocols 2. Poor trade infrastructure across the region 3. External pressure due to partnership agreement and aid
To examine the direct effect of currency union on intra-ECOWAS trade	How does intra-ECOWAS trade react to currency-union membership	Currency union effect on trade is high for aggregate intra-trade and bilateral but mixed for individual countries	1. Different currencies negatively affect intra-regional trade 2. Differences in economic structure of member countries
To investigate the FDI-Export diversification channel of currency-union effect on intraregional trade	Do currency unions promote intra-trade through FDI inflow and export diversification	Currency union influence trade through FDI-export diversification channel.	1. Currency union increase transparency and credibility of rules and policies. 2. FDI to further diversify export base of the member countries. 3. Export diversification is key to intra-regional trade.

19

DISCUSSIONS OF STUDY RESULTS

Relationship of Research Findings to Other Research

Finding 1, 2 and 3

- Achy (2006) and Ogunkola (1998) argued that intra-African trade potentials are enormous and therefore, further trade liberalisation and speedier economic integration effort is needed.

- Rose (2000);Baldwin (2008); Ezekwesili (2011) observed high aggregate positive effect. However, This positive effect vary across countries and does go for all the members which support MCarthy (2008), Masson(2008) hypotheses

- The finding that currency union attracts FDI is consistent with previous literature which found a positive relationship between currency union and FDI inflow (Petroulas ,2007; De Sousa and Lochard, 2011).

- Busse, Koniger and Nunnenkamp (2008) found no relation between stable political environment, capital-account openness , trade openness and FDI inflow

20

DISCUSSIONS OF STUDY RESULTS.

Research Findings	Implication of Research Findings
There is a high trade potential within the ECOWAS region	Policy/Practical Implications 1. The policies that minimise intra-trade impediment be pursued by ECOWAS. 2. ECOWAS stand to benefit from currency union. Theoretical Implications 1. The Heckscher-Ohlin theory which predicts little trade between homogeneous economies is challenged.
Currency union effect on trade is high for aggregate intra-trade and bilateral but mixed for ECOWAS-individuals trade	Policy/Practical Implications 1. Currency differences hinders intra-ECOWAS trade. 2. Difference in economic structure present asymmetric effect of currency union benefit. Theoretical Implications 1. In homogeneous economies increase in economic sizes reduces bilateral trade which is contrary to gravity model.
Currency union influence trade through FDI-export diversification channel.	Policy/Practical Implications 1. Export diversification is essential for intra currency union trade and should be looked at. 2. FDI is necessary for export diversification in ECOWAS region. Policies to attract FDI should no be overlooked. 3. Currency union attracts FDI and therefore can be used as a strategy attract FDI into ECOWAS region.

CONCLUSIONS AND SUMMARY.

Research Objectives	Research Findings	Implication of Research Findings
To evaluate the intra-regional trade potential within the ECOWAS sub-region	There is a high trade potential within the ECOWAS region	Policy/Practical Implications 1. The policies that minimise intra-trade impediment be pursued by ECOWAS. 2. ECOWAS stand to benefit from currency union. Theoretical Implications 1. The Heckscher-Ohlin theory which predicts little trade between homogeneous economies is challenged.
To examine the direct effect of currency union on intra-ECOWAS trade	Currency union effect on trade is high for aggregate intra-trade and bilateral but mixed for ECOWAS-individuals trade	Policy/Practical Implications 1. Currency differences hinders intra-ECOWAS trade. 2. Difference in economic structure present asymmetric effect of currency union benefit. Theoretical Implications 1. In homogeneous economies increase in economic sizes reduces bilateral trade which is contrary to gravity model.
To investigate the FDI-Export diversification channel of currency-union effect on intraregional trade	Currency union influence trade through FDI-export diversification channel.	Policy/Practical Implications 1. Export diversification is essential for intra currency union trade and should be looked at 2. FDI is necessary for export diversification in ECOWAS region. Policies to attract FDI should not be overlooked 3. Currency union attracts FDI and therefore can be used as a strategy attract FDI into ECOWAS region.

Four gaps in knowledge have been filled by the study as follows:

- It identifies and quantify the intra-regional trade potential which is high, signifying some presence of trade barrier for the attention of ECOWAS.

- Establish that there are possible beneficiaries and losers in trade in any currency union membership which are specific and have not been addressed by prior studies. Generally, there is predicted gains of intra-ECOWAS trade from currency union.

- The FDI-Export diversification nexus has been validated and factors necessary to attract FDI and consequent export diversification identified. Political and economic policies necessary to attract FDI should be pursued alongside currency union.

- The results of the study refines Hecksher-Ohlin and Gravity model by placing limitation on it generalisation, especially, for homogeneous economies.

23

THANK YOU