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ABOUT THE JOURNAL

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CONTENTS

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International Reserve Pooling in the West African Monetary Union

ABSTRACT

The paper has focused on international reserve pooling in the West African region. Attempts have been made to situate the demand for and adequacy of foreign reserve in ECOWAS member countries. This is done in order to appreciate the adequacy of pooled reserve and its management in the ECOWAS envisaged monetary union. The gains and losses that are concomitant to having a monetary union at regional level for ECOWAS member states are equally investigated. The paper has established that the evolution of a monetary union for ECOWAS has been hindered largely by the inability of the member states to actualize both the primary and secondary convergence criteria even when the set timeline has since elapsed. ECOWAS sub-region cannot afford to be left out of the race toward regional integration. At the centre of the integration process is monetary integration as this will lubricate all other dimensions of regional integration such as trade integration. Regional collaboration has no substitute in the global economy and as such, the journey

towards ECOWAS monetary integration involving pooling of reserve and evolution of single currency is a worthy venture.

Keywords: ECOWAS, Convergence, UMEOA, Reserve pooling.

1. Statement of the Problem

The Economic Community of West African States (ECOWAS) was at its inception saddled with the primary responsibility of creating a West African common market and the formation of a monetary union. The latter requires that member countries adopt a common currency and this entails a joint Central Bank that controls pooled foreign reserves of member countries. Just as an adequate stock of external reserve is critical for a sustainable monetary union, a common currency in ECOWAS region that suffers less variation in purchasing parity enhances efficient allocation of capital amongst member countries. Consequently, member countries become insulated from exchange rate volatility and this enhances asset diversification.

Generally, countries that are desirous of a monetary union and subsequently make up the union are usually characterized by distinct macroeconomic fundamentals one of which is prudent management of external reserves at every instance of time. Presently, foreign reserve by the West African Monetary and Economic Union (WAEMU) is quite low relative to its other regional counterparts in Latin America and Asia given the uncertainty attached to early stages of the integration. For instance, some of the member countries have experienced temporary balance of

payment (BOP) difficulties and have had to resort to the rather costly international financial markets rather than request a special fund from the pooled and well managed stock of reserve. An adequately pooled and well managed reserve could help in smoothening imbalances that arise from an increasingly uncertain global economy.

The management of the pooled reserves is expected to reside in the central monetary authority or common central bank. The pooled reserves, therefore, afford the regional central bank a wider range of options to diversify and rationalize its investment portfolio with a view to maximizing earnings from the investments of reserve assets. However, the regional central bank remains a mirage and thus hampers the effective role of pooled foreign reserves. Critical factors that are important in a pooled reserve policy design but are lacking include amongst others the adequacy of the funding, the bases of common decision making, and the operational characteristics. The adjustment mechanism through which the pool would function, regulation of access to resources, replenishment and constitution, equalization of adjustment burdens are additional critical elements that have not been given adequate attention. Specifically, there is no uniform agreement as to what should be pooled at the outset at least optimally. New questions are bound to emerge and they include: should member countries surrender all their foreign reserve holding or part of it? If it is partial, what is the criterion for setting the benchmark quota? If reserve (assets) must be pooled; what about external debt and contingent liabilities?

The paper is therefore intended to examine the issue of demand for pooled reserve management, as well as the possible gain(s) if any that can be attained if the ECOWAS economies were to pool their reserve within the envisaged monetary union. Thus, the study is aimed at assessing the

demand for and adequacy of pooled reserve management in the ECOWAS envisaged monetary union; and the gains and losses associated with alternative reserve management approaches. Achieving the objectives of the study is expected to provide the benchmarks for evaluating the potential benefits accruable from reserve pooling in West Africa.

The paper is organized into five other sections after the introduction that presented the focus of the paper. Section 2 of the paper is devoted to the background of the study with in-depth discussion on the primary convergence criteria among other issues covered. Section 3 reviews the theoretical and methodological literature on reserve pooling. The analytical framework and methodology of the paper are the preoccupation of Section 4. The empirical discussion is found in Section 5. Section 6 summarizes and concludes with policy recommendations against the background of the findings of the paper.

2. Background of the Study

2:1 Macroeconomic Performance in ECOWAS Countries: UEMOA and Non-UEMOA

The West African sub-region lags behind in terms of economic growth and development compared to other sub-regions in Africa. The macroeconomic performance in the UEMOA and Non-UEMOA countries has been generally mixed. Economic activities in most ECOWAS member countries grew albeit slowly amidst adverse global economic conditions. Although there were improvements in some macroeconomic indicators, inflation accelerated rapidly to a double digit in all the countries owing largely to upward adjustments in the prices of petroleum products, high monetary growth rates occasioned by reliance on central bank resources for financing of fiscal deficits and the Euro zone debt crisis. There were

signs of improvement in the fiscal stance, albeit marginally, in most countries as the overall fiscal deficit, excluding grants narrowed. On the whole, however, the countries still remained fiscally fragile. Real GDP recorded better growth rates in most countries than in the previous year. In spite of the global economic slowdown, as shown in Table 1, the economic growth of the ECOWAS States improved in 2008 from 5.7 % in 2007 to 5.8% in 2008 and remained so in 2009. Within the UEMOA, economic activities recorded a growth rate of 3.9% as against 3.3% in 2007 and 4.9% in 2009. This growth may be attributed to persistent growth across member countries. The Non-UEMOA countries on the other hand posted growth rates of 6.3%, 6.0% and 6.7% accordingly in 2007, 2008 and 2009. This was as a result of the drop in the price of petroleum and also the increase in production for Nigeria (WAMA, 2008).

Table 1: Real GDP Growth Rates in ECOWAS Member States

		2002	2003	2004	2005	2006	2007	2008*	2009**
UEMOA		1.3	3.1	2.8	4.2	3	3.3	3.9	4.9
	BENIN	4.4	3.9	3.1	2.9	3.7	4.6	5.3	6.1
	BURKINA FASO	4.6	8	4.6	7.1	5.5	3.6	4.5	5.5
	COTE D'VOIRE	-1.6	-1.7	1.6	1.8	1.2	1.5	2.9	4.3
	GUINEA BISSAU	-7.1	0.6	3.2	3.5	2	2.7	3.1	3.2
	MALI	4.3	7.6	2.3	6.1	5.3	4.3	4.7	5.1
	NIGER	5.8	3.8	-0.8	8.4	5.8	3.3	5.9	4.5
	SENEGAL	1.2	6.7	5.6	5.6	2.3	4.8	3.9	5.2
	TOGO	-0.2	4.8	2.5	1.2	3.9	1.9	0.8	3.3
Non-UEMOA		4.9	5.3	4.6	5.3	6.5	6.3	6	6.7
	GAMBIA	1.3	7.4	6.6	6.9	7.7	6.9	6.1	6
	GHANA	4.5	5.2	5.6	5.9	6.2	6.3	6.2	5.8
	GUINEA	4.2	1.2	2.3	3	2.4	1.8	4.9	3.9
	NIGERIA	4.6	9.6	6.6	6.5	6	6.5	6.4	6.1

SIERRA LEONE	6.5	10.7	9.6	7.6	7.2	6.4	5.6	5.9
CAPE-VERDE	5.3	4.7	4.3	5.6	8.2	6.7	5.9	6.5
LIBERIA	7.8	-1.9	-2.8	1.4	7.8	9.5	7.1	12.7

Source: *West African Monetary Agency (WAMA), 2008. * implies estimated and ** means provisional*

2:2 Analysis of Primary Convergence Criteria in ECOWAS Countries: UEMOA and Non-UEMOA

Tables 2 and 3 provide numerical revelations about the extent of compliance to primary convergence criteria by UEMOA and Non-UEMOA ECOWAS countries. In terms of budget deficit/GDP ratio ≤ 4%, two UEMOA countries, namely: Benin and Cote d'Ivoire and four Non-UEMOA countries namely: The Gambia, Guinea, Liberia and Nigeria met the target during the year under review. All other member countries missed this criterion with degree of deviations. In the case of inflation rate ≤ 5 %, inflationary pressures accelerated during 2008, thus all the countries in UEMOA missed the target with the exception of Senegal. The zonal performance revealed that UEMOA sub-group experienced lower inflationary pressures (8.5%) than the Non-UEMOA (14.9%). On the criterion of Central Bank Financing of Budget Deficit/Previous Year's Tax Revenue ≤ 10%, the performance was quite poor as only 3 (Mali, Benin and Burkina Faso) of the UEMOA countries met the target in 2008. Similarly for Non-UEMOA, only four countries (Guinea, Cape Verde, Ghana and Nigeria) met this target. On the average, the Non-UEMOA zone posted an impressive performance with respect to this target compared to the UEMOA region during the period under review.

The last primary criterion of gross external reserves ≥6 months of imports cover as at the end of 2009 within ECOWAS remained virtually the same

with the eight UEMOA countries and Nigeria meeting the target as in previous years. The zonal performance shows that the UEMOA zone just attained the target (6.0 months) while the Non-UEMOA performance remained high at 13.3 months of import cover. It is pertinent to note that the high reserve accumulation of Nigeria during the period improved the Non-UEMOA zone's performance. ECOWAS-wide performance also remained high at 10.8 months but fell short of the target when Nigeria was excluded. Suffice to say that the extent of compliance of both the UEMOA and Non-UEMOA member countries to secondary criteria of convergence is as mixed as the extent of compliance to the primary criteria.

Table 2: Primary Convergence Criteria of UEMOA Countries

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Benin									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	2.50%	3.02%	4.20%	3.60%	1.47%	2.65%	1.41%	3.48%	7.02%
Inflation Rate	7.42%	2.50%	2.93%	1.27%	2.42%	4.75%	4.46%	1.30%	n.d %
Ceiling on central bank Financing of budget deficit	20.68%	16.12%	13.64%	11.61%	9.60%	0.35%	0.45%	1.98%	10.04%
Gross reserves	10.75	7.92	7.93	6.99	8.17	8.47	6.67	7.43	6.96
Burkina Faso									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	7.34%	8.41%	8.47%	8.81%	9.61%	11.11%	12.18%	8.35%	10.69%
Inflation Rate	3.49%	1.09%	3.81%	0.33%	2.97%	n.d %	-1.69%	6.90%	n.d %
Ceiling on central bank Financing of budget deficit	51.97%	46.76%	38.24%	29.03%	26.15%	11.20%	9.28%	9.51%	12.91%
Gross reserves	5.76	5.67	n.d	8.26	4.43	4.21	6.82	5.33	n.d
Cote d'Ivoire									

Ratio of budget deficit (excluding grants) to GDP (commitment basis)	-0.36%	1.91%	2.92%	2.59%	2.69%	1.52%	1.35%	0%	0%
Inflation Rate	5.02%	4.46%	3.23%	0.29%	4.86%	1.98%	2.53%	2.07%	7.12%
Ceiling on central bank Financing of budget deficit	41.24%	38.94%	35.89%	28.75%	24.72%	19.12%	17.45%	15.97%	28.19%
Gross reserves	4.63	6.96	3.75	3.7	2.86	3.36	4.02	3.58	n.d
Guinea Bissau									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	0%	8.73%	11.85%	16.60%	12.96%	1.73%	10.83%	4.51%	0%
Inflation Rate	n.d %	n.d %	n.d %	0.63%	4.04%	-1.10%	4.33%	n.d %	n.d %
Ceiling on central bank Financing of budget deficit	0%	120.11%	79.27%	79.95%	45.50%	38.23%	23.17%	26.27%	0%
Gross reserves	13.84	20.04	5.6	8.02	8.74	6.62	6.82	7.3	n.d
Mali									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	6.76%	7.01%	5.03%	6.51%	7.49%	8.98%	7.41%	5.36%	6.94%
Inflation Rate	n.d %	n.d %	n.d %	n.d %	n.d %	4.59%	-0.41%	4.09%	6.15%
Ceiling on central bank Financing of budget deficit	47.35%	38.12%	32.13%	24.39%	18.45%	3.93%	3.67%	5.40%	4.54%
Gross reserves	4.35	6.94	8.16	6.88	6.94	6.06	5.3	4.09	7.04
Niger									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	7.65%	7.83%	7.78%	9.40%	0%	5.89%	6.69%	4.47%	10.60%
Inflation Rate	3.82%	3.83%	0.11%	-1.14%	4.78%	3.23%	-0.41%	5.88%	11.81%
Ceiling on central bank Financing of budget deficit	66.38%	65.95%	70.68%	63.59%	59.16%	24.04%	22.86%	20.65%	27.38%
Gross reserves	3.19	3.15	5	3.86	n.d	4.44	n.d	5.29	3.98
Senegal									

Ratio of budget deficit (excluding grants) to GDP (commitment basis)	3.95%	2.36%	3.54%	4.97%	4.86%	7.53%	6.21%	0%	7.57%
Inflation Rate	n.d %	n.d %	n.d %	n.d %	n.d %	n.d %	n.d %	6.12%	2.26%
Ceiling on central bank Financing of budget deficit	50.63%	45.26%	37.76%	30.03%	23.62%	12.28%	9.98%	10.71%	21.98%
Gross reserves	3.43	3.85	5.11	5.31	4.62	4.2	3.89	3.76	5.4
Togo									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	0.64%	0.78%	-2.07%	0.31%	4.05%	0%	2.28%	2.52%	5.47%
Inflation Rate	-3.77%	6.61%	-0.19%	-0.80%	6%	n.d %	n.d %	4%	n.d %
Ceiling on central bank Financing of budget deficit	51.47%	45.97%	30.04%	21.18%	12.48%	0%	7%	15.54%	38.72%
Gross reserves	3.21	3.48	3.14	4.95	4.97	n.d	4.84	6.06	n.d

*Source: West African Monetary Agency (WAMA), 2008. * implies estimated and ** means provisional. The reference values of the Community's convergence are (i) Budget Deficit/GDP Ratio ≤ 4%, (ii) Inflation Rate ≤ 5% (iii) Central Bank Financing of Budget Deficit/Previous Year's Tax Revenue ≤ 10% and (iv) Gross External Reserves ≥ 6 months of imports cover.*

Table 3: Primary Convergence Criteria of Non-UEMOA Countries

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cape Verde									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	12.49%	13.19 %	10.57 %	9.86 %	11.02 %	10.04 %	3.61%	0.21%	0%
Inflation Rate	n.d %	n.d %	n.d %	n.d %	n.d %	0%	7.83%	0%	5.87%
Ceiling on central bank Financing of budget deficit	0%	0%	0%	0%	0%	0%	0%	0%	0%
Gross reserves	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Ghana									

Ratio of budget deficit (excluding grants) to GDP (commitment basis)	7336.23%	5087.79%	7402.05%	9055.75%	6928.22%	12444.36%	27495.48%	18220.10%	15674.06%
Inflation Rate	59.51%	19.59%	13.48%	28.95%	16.83%	12.76%	10.89%	12.81%	19.86%
Ceiling on central bank Financing of budget deficit	0.02%	0.34%	0.05%	0.06%	0.05%	0.05%	0%	0%	0%
Gross reserves	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Guinea									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	7.41%	8.39%	10.99%	6.42%	0.88%	2.53%	-0.73%	1.55%	7.17%
Inflation Rate	n.d%	n.d %	n.d %	n.d%	n.d%	29.50%	-25.77%	109.03%	11.56%
Ceiling on central bank Financing of budget deficit	40.73%	59.80%	74.55%	82.79%	47.80%	94.40%	71.09%	72.56%	104.38%
Gross reserves	6.01	3.66	2.98	2.15	1.59	0.71	0.38	0.57	3.22
Liberia									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	147.35%	0%	0%	472.57%	0%	0%	0%	0%	0%
Inflation Rate	n.d%	n.d %	n.d %	n.d%	n.d%	n.d%	n.d%	n.d %	n.d%
Ceiling on central bank Financing of budget deficit	2607.38%	0%	0%	1689.29%	0%	0%	0%	0%	0%
Gross reserves	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Nigeria									

Ratio of budget deficit (excluding grants) to GDP (commitment basis)	7.54 %	7.46 %	6.35 %	2.57 %	0.8 1%	- 3.1 2%	1.5 7%	0.46%	20. 99 %
Inflation Rate	17.7 1%	18.18 %	n.d %	- 1.14 %	8.0 5%	9.8 2%	6.0 9%	6.53%	15. 92 %
Ceiling on central bank Financing of budget deficit	0%	0%	1.64 %	0%	0.2 0%	22. 27 %	0%	0%	0%
Gross reserves	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d
Sierra Leone									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	10.0 3%	11.74 %	9.25 %	8.64 %	9.5 7%	8.6 1%	5.1 2%	8.73%	9.8 1%
Inflation Rate	n.d %	n.d %	n.d %	n.d %	5.4 4%	12. 90 %	9.2 7%	11.01 %	9.6 7%
Ceiling on central bank Financing of budget deficit	336. 18%	291.7 6%	254.5 1%	196. 11%	168 .79 %	135 .25 %	124 %	22.28 %	10. 47 %
Gross reserves	n.d	n.d	2.84	5.67	6.1 5	6.1 7	5.4 1	n.d	3.9 2
The Gambia									
Ratio of budget deficit (excluding grants) to GDP (commitment basis)	0%	0%	0%	0.01 %	0.0 1%	0%	0%	0%	0%
Inflation Rate	n.d %	n.d %	n.d %	n.d %	0%	3.9 9%	2.0 1%	5.10%	6.9 6%
Ceiling on central bank Financing of budget deficit	89.5 5%	89.91 %	90.17 %	61.3 2%	56. 15 %	0%	12. 24 %	11.74 %	7.1 1%
Gross reserves	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d	n.d

*Source: West African Monetary Agency (WAMA). 2008. * implies estimated and ** means provisional. The reference values of the Community's convergence are (i) Budget Deficit/GDP Ratio ≤ 4%, (ii) Inflation Rate ≤ 5% (iii) Central Bank Financing of Budget Deficit/Previous Year's Tax Revenue ≤ 10% and (iv) Gross External Reserves ≥ 6 months of imports cover.*

2:3 Analyses of Reserve Holdings in ECOWAS Countries: UEMOA and Non-UEMOA

Regarding gross external reserves, Table 4 shows that no other country, apart from Nigeria and the eight UEMOA countries that share common external reserves have been able to meet this target even though the data indicates that most countries recorded marginal gains during the period. The level of gross external reserves for countries of UEMOA (which are sharing external reserves managed by BCEAO under the first sub-regional monetary union arrangement) declined marginally from 7.7 months of imports cover in 2004 to 7.4 months in 2005. The external reserve position of Nigeria rose significantly from 16.1 months of imports cover in 2004 to 17.4. At UEMOA zonal level, Table 4 reveals that external reserve holding in the UEMOA zone has been characterized by an upward movement albeit slight fluctuations in the light of domestic and external disturbances.

Table 4: Foreign Exchange Reserve Accumulation in the UEMOA Zone

Year	Benin	Burkina Faso	Cote d'Ivoire	Guinea-Bissau	Mali	Niger	Senegal	Togo
1991	0.191619128	0.34605377	0.013356101	0.014577095	0.319342191	0.202752104	0.013216361	0.36488054
1992	0.245220846	0.3413064 98	0.006939855	0.0177515 96	0.307916373	0.224979215	0.012372 66	0.272493028
1993	0.243962721	0.3822582 65	0.002259636	0.0141670 94	0.332426902	0.192045124	0.003414921	0.156328657
1994	0.258240056	0.2372435 65	0.204292997	0.0184263 48	0.221409423	0.110263374	0.179614148	0.094413957
1995	0.197945 48	0.3473764 93	0.529015472	0.0202660 42	0.322950389	0.094726 68	0.271792266	0.130394605

199	0.261830	0.3385889	0.605773	0.0115284	0.442845	0.078483	0.288300	0.088496
6	147	64	777	15	502	473	18	836
199	0.253079	0.3448379	0.618369	0.0337053	0.414894	0.053266	0.386193	0.118610
7	051	58	424	18	711	395	415	74
199	0.261487	0.3733315	0.855478	0.0357620	0.402878	0.053056	0.430807	0.117745
8	883	48	345	02	745	689	742	07
199	0.400066	0.2950124	0.630373	0.0352836	0.349687	0.039242	0.403014	0.122053
9	582	54	882	98	908	103	313	051
200	0.458113	0.2436084	0.667859	0.0667347	0.381256	0.080392	0.383992	0.152310
0	352	86	801	48	473	434	826	643
200	0.578069	0.2605054	1.019035	0.0694755	0.348890	0.106986	0.447268	0.126386
1	533	39	164	18	881	988	407	666
200	0.615723	0.3133982	1.863302	0.1027124	0.594454	0.133904	0.637367	0.205106
2	362	44	881	27	541	379	209	109
200	0.717874	0.7521846	1.303858	0.0328999	0.952478	0.260094	1.110917	0.204887
3	587	94	672	09	637	608	826	479
200	0.639970	0.6690941	1.693626	0.0730876	0.860705	0.257951	1.386385	0.359685
4	92	26	018	92	783	79	634	906
200	0.656771	0.4383958	1.321549	0.0798148	0.854560	0.249537	1.191000	0.194607
5	199	17	764	7	001	756	443	894
200	0.912223	0.5548576	1.797693	0.0820247	0.969533	0.370889	1.334245	0.374504
6	755	03	087	34	304	716	207	892
200	1.209202	1.0291803	2.518959	0.1129071	1.087121	0.592959	1.660041	0.438089
7	351	71	978	78	418	363	103	068
200	1.263350	0.9275755	2.252699	0.1245614	1.071545	0.705211	1.602200	0.581817
8	031	32	333	82	625	86	366	734
200	1.229837	1.2958408	3.266820	0.1685925	1.604476	0.655544	2.123228	0.703156
9	679	63	888	12	586	255	913	274

Source: World Development Indicators (online), 2011

For Non-UEMOA zone as presented in Table 5, Nigeria is the only country in the Non-UEMOA bloc that has witnessed significant reserve holdings during the period considered. Ghana came second with about USD3.2bn as at 2009. The trend of reserve holding in the zone has continued to weaken the attainment of the primary convergence criteria regarding reserves in the zone. The increasing crude oil prices on the international commodities market positively affected the external position

of Nigeria (an oil producing country) whilst it impacted negatively on that of the non-oil producing countries.

Table 5: Foreign Exchange Reserve Accumulation in the Non-UEMOA Zone

Year	Cape Verde	Gambia, The	Ghana	Guinea	Liberia	Nigeria	Sierra Leone
1991	0.065100094	0.067615	0.550245	0.080053	0.001308	4.4351	0.009629
1992	0.075755926	0.094034	0.319911	0.086956	0.000977	0.96711	0.018925
1993	0.057690218	0.105753	0.409681	0.132118	0.002362	1.372067	0.028965
1994	0.042078709	0.098016	0.583874	0.087847	0.005069	1.38588	0.04064
1995	0.036891764	0.106147	0.697465	0.086759	0.028089	1.443416	0.034618
1996	0.027566289	0.102134	0.828725	0.08734	0.000376	4.075717	0.026592
1997	0.019323246	0.096038	0.537824	0.121632	0.00042	7.581883	0.038465
1998	0.008316974	0.106362	0.37698	0.236707	0.000617	7.100827	0.043857
1999	0.042616415	0.111246	0.453774	0.19968	0.000431	5.450324	0.039475
2000	0.028257101	0.109431	0.232055	0.147907	0.000268	9.910901	0.049207
2001	0.045425898	0.106013	0.29824	0.200231	0.00048	10.45664	0.051312
2002	0.079797208	0.106877	0.539747	0.171398	0.003298	7.331337	0.08469
2003	0.093606389	0.059307	1.352814	0.169971	0.007377	7.128437	0.066617
2004	0.139530729	0.083774	1.626651	0.110482	0.018743	16.95564	0.125104
2005	0.173970607	0.098313	1.752904	0.095056	0.025395	28.27962	0.170506
2006	0.254455343	0.120616	2.090295	0.068047	0.07199	42.29874	0.183927
2007	0.364462266	0.142784	2.522838	0.040921	0.119359	51.33425	0.216555
2008	0.361467112	0.116517	2.872957	0.013794	0.16086	53.00177	0.220168
2009	0.366210649	0.224175	3.223075	-0.01333	0.372457	44.76271	0.404964

Source: World Development Indicators, 2011

2:4 Management of Foreign Reserve in ECOWAS Countries: UEMOA and Non-UEMOA

The Monetary Authority's intervention is decisive in the success of reserve accumulation in UEMOA and Non-UEMOA countries. In practice, the dollar is the most widely used currency especially as the bulk of the reserves of non-UEMOA countries are mainly held in dollars. Concerning the underlying economic strength of the reference currency, the choice is between the US dollar and the SDR. For the sake of stability, the SDR being a composite currency is more stable than the US dollar ($).The SDR is a creation of the IMF to provide sufficient liquidity in the world economy.

For UEMOA countries, the CFA Franc remained pegged to the French Franc then to the Euro. In August 1993, the BCEAO abolished the convertibility of CFA bank notes outside the UEMOA Zone. This partial restriction in the exchange control was aimed to check capital flight. Subsequently, on 12 January 1994, the CFA Franc was devalued and a new parity was established with a rate of 1 CFA Franc to FF 0.01. At the end of December in the same year, the rate of the CFA Franc in relation to the SDR was fixed at 1 SDR to790.44 CFA Franc. Guinea Bissau joined the Franc zone in 1997. Since January 1999, with the introduction of the Euro, the CFA Franc and the Cape Verdian Escudo have been pegged to this currency. (1 Euro =655.9570 FCFA, EURO = 110.27 CVE).

In the Non-UEMOA countries, the exchange rates are market oriented. Hence, the value of each country's currency against the dollar is arrived at through an array of floating exchange rate regimes. For example, the Dalasi is determined on the inter-bank market through the participation of the Central Bank of The Gambia, commercial banks and bureau de

change. The value of the cedi is also determined on the inter-bank market, while the Leone is money market oriented. The Guinean Franc (GNF) followed a floating regime with a rate determined by inter-bank foreign exchange market up to September 1999. Since that date, its rate has been determined by the foreign exchange auction market.

UEMOA is a full monetary union with common currency, central bank and a partial pool of external reserves. Their common currency is the CFA Franc which is pegged to the French Franc. An integral part of the union is the operation of a common central bank (BCEAO) with one of its main responsibilities being to oversee the external operations of the member countries. A critical requirement for successful reserve pooling scheme is one characterized by non-decadent behavior on the part of all members. In other words, members should maintain the same pattern of reserve use after pooling otherwise the benefits expected from the pool will not be realized and the breakdown of the arrangement becomes inevitable. By controlling credit allocations in the union, BCEAO is better equipped to control wasteful reserve users than would be the case if pooling, but no monetary union, existed. Each country maintains a separate account with BCEAO where 65percent of its official foreign reserves are maintained in the operations account. In the first instance, each country draws down its own account of pooled and un-pooled reserves. If these are fully drawn down, the other countries' pooled reserves may used. It should be noted that the French augmentation of the operations account occurs only when all union reserves have been fully drawn down. Considerably, there is no statutory limit on a member country's use of another's reserve. A crisis management scheme takes over when the BCEAO's reserves fall below a prescribed threshold, not when a country's reserve fall below it. Thus, in the short run, a single country can draw down its partners' reserves, but

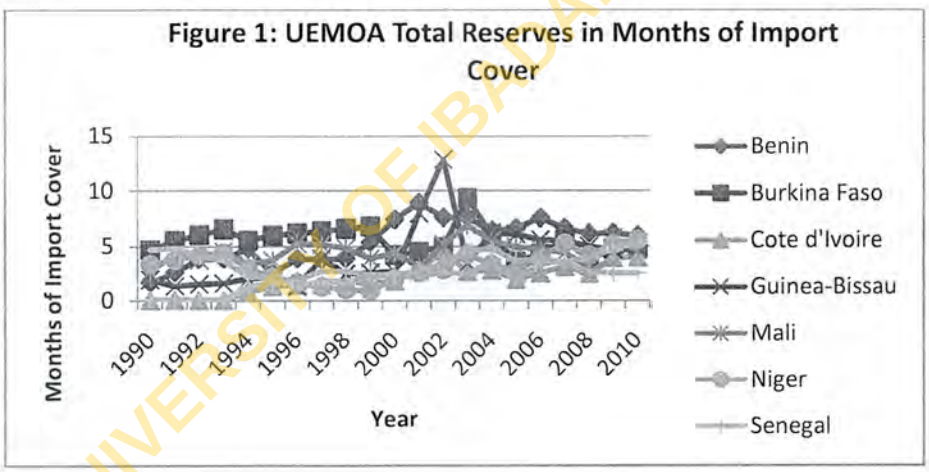
the BCEAO can attempt to control this when it makes its credit allocation decisions each year.

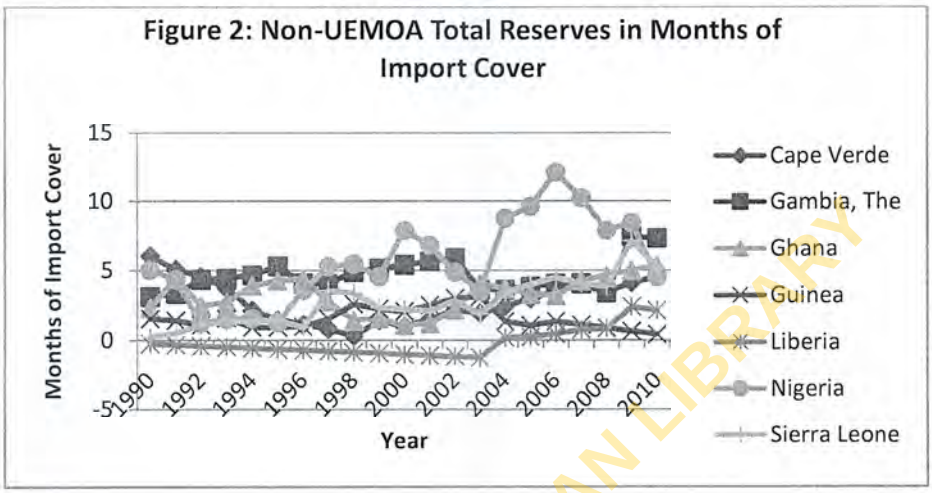
Coming to Non-UEMOA, preparation for monetary union has been tackled through the design of the policy and institutional frameworks and surveillance of member countries' economies to assess the state of macroeconomic convergence. Reserve management by non-UEMOA member countries have focused on the need for liquidity, safety and income in that order. The intent is to ensure that enough resources are available to intervene in the foreign exchange market to stabilise the exchange rate of the domestic currency and prevent it from appreciating in real terms. In order to establish a regime of stable exchange rates and provide adequate support to efforts at macroeconomic adjustment, an Exchange Rate Mechanism (ERM) was put in place in April 2002. The ERM has an initial fluctuation band of ±15%. Market exchange rates are applied, while the reference currency is the dollar. The ERM would be the basis for the non-UEMOA unit of account, which would be the numeraire for valuing transactions in the non-UEMOA. Its external value would be determined in terms of the dollar. Central to the operations of the West African Central Bank (WACB), is the pursuit of price stability, issuance of a common legal tender currency that would circulate throughout the zone and be well managed so as not to lose competitiveness. The currency would be backed by strong economic fundamentals once the convergence process is sustained and fiscal rules are applied to stem the phenomenon of fiscal dominance. It is envisaged that monetary policy would be the sole responsibility of the WACB. Also, West Africa Monetary Zone (WAMZ) is out to introduce a regional currency that will be legal tender in all member countries. This would involve agreeing on a common name for

the ECOWAS single currency in addition to having to negotiate with the BCEAO/CFA franc zone in West Africa.

2.5 Indicators of Efficient and Effective Reserve Management

Figures 1 and 2 show reserve-import ratio for UEMOA and non-UEMOA countries, respectively. UEMOA's reserve on R/M ratio appeared healthy in 2003 as 3 countries met the convergence criteria of 6 months of import cover. The non-UEMOA zone exhibited a somewhat similar pattern as only 3 countries met the minimum requirement of 6 months of import cover during the period considered.





Figures 3 and 4 depict the foreign reserve-external debt ratio in UEMOA and non-UEMOA countries, respectively. A measure comparing reserves and external debt could be a relevant measure of risks associated with adverse developments in international capital markets. In the UEMOA zone, external debt (STED) has not decreased significantly since 1990, while foreign currency assets (FCA) have been stagnant. The trend shows that between 1990 and 2005 the ratio has increased rapidly due to the loans obtained to fast track development as well as the accumulated interest on the loans obtained. This has led to declining foreign exchange reserves due to debt servicing obligations. With the successful negotiation with multilateral creditors, the UEMOA countries were able to secure debt relief under the HIPC which has reduced the pressure on reserves as observed in the trend of reserves to external ratio. For the Non-UEMOA zone, the ratio was stable during the period except Nigeria and Sierra

Leone who witnessed significant improvements as from 2005 and 2009, respectively.

Figure 3: UEMOA Total Reserve and Debt Ratio

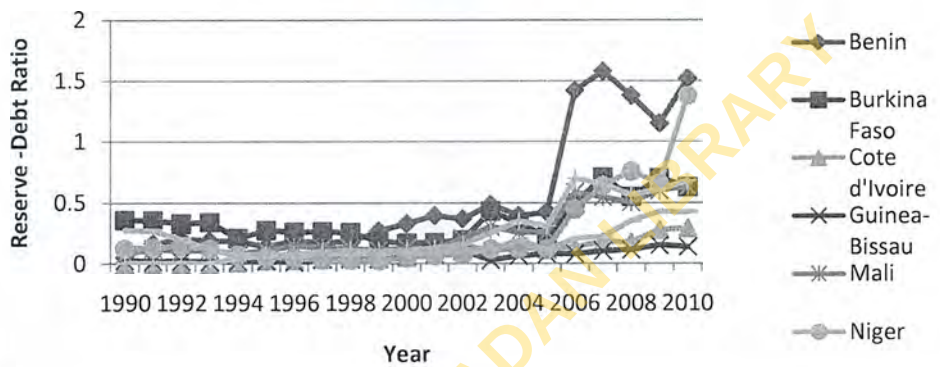
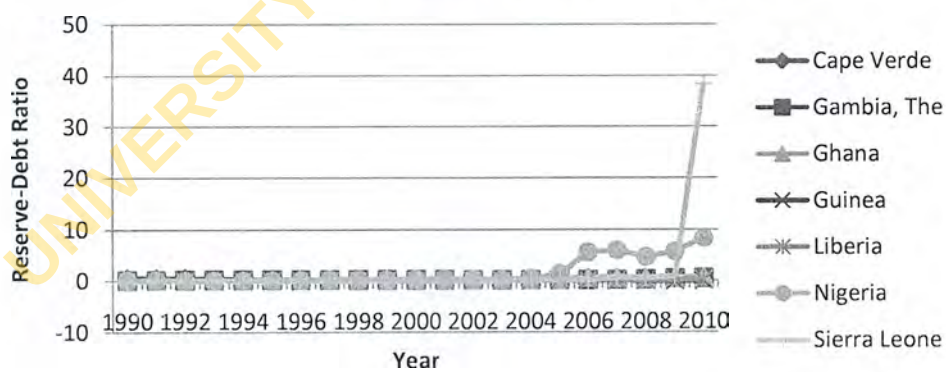


Figure 4: Non-UEMOA Total Reserve-Debt Ratio



3. Literature Review

3.1 Theoretical Issues

The debate on reserve adequacy has taken a new dimension from what should constitute its optimal level to a more policy oriented issue of reserve pooling for macroeconomic stability in favour of areas likely to constitute 'optimal currency area'. Monetary cooperation is characterized by a closer monetary policy coordination which may appear in the form of a regional liquidity fund as a binding commitment for mutual provision of liquidity in the event of extra-regional shocks, either through intraregional swap arrangements, credit lines, or intra-regional reserve pooling. This implies that the role of a regional reserve pool cannot be understated. Indeed, significant economic savings and benefits are to be gained from partial reserve pooling (Rajan and Siregar, 2004).

At the country level, the theories of demand for foreign reserves can be viewed from the traditional approach[i] (See Heller, 1966; Hamada and Ueda, 1977; Frenkel and Jovanovic, 1981; Kelly, 1970) and modern approach[i] (Aizenman and Marion, 2004; Distayat, 2001). Monetary authorities around the world have significantly increased their stock of international reserves in recent times. The literature provides two main explanations for this behaviour (see Aizenman and Lee 2007): First, the stocks of reserves might be regarded as precautionary savings intended to prevent and manage future economic crises. In fact, stock of reserves help to mitigate the impact of terms-of-trade shocks on the real exchange rate. Second, the accumulation might be driven by a mercantilist motive: it allows maintaining an undervalued exchange rate, which, in turn, promotes exports (Aizenman and Lee, 2007).

Dodsworth (1992) makes use of the theory of clubs to empirically test the viability of the European Community (EC) proposal. He integrates reserve pooling into the theory of clubs within a unified framework that could explain reserve pooling patterns, cost and benefits. Similarly, from a simple cost-benefit perspective that relies heavily on the theory of clubs, Rajan and Serigar (2004) showed that there is a strong rationale for East Asian economies to consider establishing some sort of reserve pooling mechanism, particularly in view of the regional character of financial crises. Also, Machinea and Tetelman (2007), following Williams, Polius and Hazel (2001) and Eichengreen (2006), calculated the degree of protection implied by international reserves in view of their size and variability by making use of the individual country and pooled coverage ratio under the assumption that coverage increases as international reserves rise or as their volatility falls.

Aizenman and Marion (2003) make use of the buffer stock model in line with the precautionary motive for reserve holding in some 125 selected developing economies to examine the behavioral patterns of external reserve holding over time. Eichengreen (2006) in line with the precautionary demand for reserve, examined the huge accumulation of international reserves by emerging markets and tries to answer the following questions: how to best utilize these funds; in particular if they should be held as a war chest to guard against the risk of financial crisis or if they should be used to recapitalize and strengthen weak banking systems. A third issue is if the resource cost could be limited by pooling the holdings of different central banks as well as the objectives of the pool. Dellatte and Fouquau (2010) investigate in a single time-varying relationship, whether the precautionary benefits are still predominant after 2000 or if mercantilist motives have substituted them as suggested by the

literature on global imbalances by presenting a standard linear specification that includes determinants from the mercantilist and precautionary perspective.

The recent accumulation of reserves by countries in the West African sub region and other developing countries alike has been largely interpreted as a form of self-insurance precipitated by the desire to meet the West African monetary Union convergence criteria. This has been found to be consistent with the idea that regional reserve pools provide ample opportunity for increasing the availability of short-term liquidity via pooling especially where speculative attacks on currencies follow a sequential rather than a concurrent path, as they appear to do (Bird and Rajan, 2002). The pooling of reserves through a regional body such as the ECOWAS and using them for coinsurance has direct benefits such minimizing reserve cost, avoiding limitations of central as lender of last resort, enhance macroeconomic and financial stability amongst others. The indirect benefits include lower enhances regional capital market development, de-dollarisation, minimal external funding cost and so on. However, despite the prevalent of diverse advantages associated with reserve pooling, there are limitations of regionally embarking on the idea. Prominent limitations include but not limited to contagion, moral hazard, monitoring and enforcement to mention a few.

3.2 Methodological Issues

The question of reserve pooling has been subjected to a number of methodologies. Kojima (1970) analyzed the effect of reserve pooling in the pacific and covered the period 1955-1967 using descriptive statistics. Results from the correlation analysis, standard deviation and covariance suggest that reserve pooling is mutually beneficial. Eichengreen (2010)

explores two routes through which the pooling of reserves could enhance stability and welfare. First, the reserve pool could be used for emergency lending in response to sudden stops. Second, a portion of the reserve pool along with borrowed funds could be used to purchase contingent debt securities issued by governments and corporations, helping to solve the first-mover problem that limits the liquidity of markets in these instruments and hinders their acceptance by private investors.

Cheung and Ito (2007) use data from more than 100 economies for the period of 1975 to 2004 to conduct an extensive empirical analysis of the determinants of international reserve holdings considering four groups of determinants, namely, traditional macro variables, financial variables, institutional variables, and dummy variables that control for individual economies' characteristics. Imbs and Mauro (2007) make use of combinatorial analysis via a computational algorithm to analyze all possible combinations for any pool size within a universe of 31 countries. They argue that the algorithm can easily handle, for example, the universe of 26 emerging market countries with about 67 million combinations. Their analysis covers the period 1974-2004 for a sample of 25 advanced countries and 26 emerging markets.

Eichengreen (2010) examines the benefits of regional reserve pooling, building on the work by McKay, Volz, and Wolfinger (2010), by considering five features of how regional reserve pools are likely to shape their effectiveness as mechanisms for mutual balance-of-payments insurance and they are (1) the adequacy of the finance they are able to provide, (2) their capacity to undertake economic and financial surveillance, (3) the speed of their decision making, (4) their perceived legitimacy, and (5) their ability to work together with the multilaterals, notably the IMF.

Mlodowski (2008) examines the management of foreign exchange reserves in countries under monetary integration and shows that central banks in European Union countries exert a major influence on global financial markets because they manage a common pool of foreign exchange. Reserve assets are a crucial resource for common monetary and exchange rate policies. The author highlights the important role of foreign reserve towards common monetary policy under a hard peg arrangement. Aizenman and Lee (2008) assert that the rationale for regional pooling is independent of the risk-sharing argument, which in fact militates against regional pooling. This is due to the fact that if the risks facing countries in the region are more positively correlated among themselves than with those facing countries outside the region, risk sharing outside the region will dominate the risk sharing that can be attained within a region. However, even in the presence of positive correlations, reserve pooling can still be useful if shocks affect different countries with different intensities, since this allows some of the reserves of countries experiencing lower effects to be lent to countries suffering more severe effects (Machinea and Titelman, 2007).

4. *Theoretical and Methodological Framework*

The analytical framework employed in this study is the cost-benefit approach. The approach models the behavior of reserves through the analysis of the optimal trade-off between costs and benefits of holdings reserves[i]. The central thesis of the approach is that central banks should choose a level of reserves to balance the macroeconomic adjustment cost incurred in the absence of reserves with the opportunity cost of holding reserves (Aizenman and Marion., 2003). The benefits of holding reserves revolve around reducing the probability of crisis and the resulting output

loss in the context of a welfare-maximizing framework for a small open economy considered vulnerable to sudden stops in capital flows and with risk-averse policy makers that are out to choose a level of reserves meant to maximize the utility of consumers. This approach believes that that when there is a sudden stop in the inflow of capital, external debt cannot be rolled over and output is bound to fall below its long-run growth path. When this happens, the quantity or volume of reserves being held by countries then help them to mitigate the fall in output and smooth consumption. As it would be expected, the cost to holding reserves emerges out of the fact that reserves held yield a lower return than other assets in the economy.

The International Monetary Fund (2011) argued that Low Income Countries (LICs) are meant to maximize the net benefit of holding reserves (NBR) and this behavioural objective is characterized as follows:

$$\underset{R}{\text{Max}} \quad NBR = -q.P(R,Z).C(R,Z) - r.R \qquad (1)$$

where P and C represent the conditional probability of a crisis given a large shock event and the cost of a crisis, respectively, both of which depend on reserves (R) and other control variables (Z). q and r refer to the unconditional probability of a large shock event and the unit cost of holding reserves, respectively. The benefit of holding reserves is captured by the first term in the right hand side and it is meant to reduce the expected cost of a crisis. The second term in the right hand side captures the cost of holding reserves. Given the dependence of the probability and cost of a crisis on Z, the maximization of NBR would yield optimal

reserves as a function of Z and r (and the estimated parameters of P and C).

Against the background of the analytical framework of the study, the methodology revolves around the examination of the reserves pooling experiences of different economic groupings with a view to situating the benefits and costs of reserves pooling in those experiments. To strengthen the empirical findings from previous reserves pooling arrangements, further empirical analysis anchored on the estimation of an econometric model earlier specified was carried out. Essentially, the econometric analysis is meant to present the quantitative evidence regarding behavior of ECOWAS member states with respect to the question of reserves pooling.

5. Empirical Analysis

5.1 Design of Reserve Pooling System for ECOWAS: International Experience Survey

Weak macroeconomic conditions occasioned by domestic and external imbalances as well as inability to finance these gaps have made the issue of creating regional alternatives imperative. The case of Greece and Germany in the Euro zone have strengthened the call for a more responsive regional financial architecture; especially the puzzling absence of a lender of last resort, a regional surveillance mechanism, and a mechanism for coordinating fiscal policies among member nations. Over the last decade, central banks in several emerging market economies have amassed substantial holdings of foreign exchange reserves. This trend has been particularly marked in Asian economies such as China, South Korea and Singapore amongst others. More recently, regional groupings such as

the Chiang Mai Initiative in Asia, and the Latin American Reserve Fund (FLAR) in northern Latin America, have initiated discussions on establishing mechanisms to pool external reserves. Such regional financing arrangements in the form of reserve pooling arrangements are meant to provide insurance to members facing external imbalances. Their development reflects amongst others, regional economic integration and potential dissatisfaction with multilateral pools such as the International Monetary Fund (IMF)[i].

Regional Experiences

The Asian Experience

The Asian Surveillance Process (ASP) was created in 1999 by the ASEAN countries. The ASP was basically a starting point of creating and justifying a regional reserve pool in view of its role towards predicting risks to regional financial markets and identifying circumstances motivating the activation of regional lender of last resort facilities. By 2000, the ASEAN+3 countries took a modest step in the direction of creating a reserve pool by establishing the Chiang Mai Initiative (CMI) to provide liquidity support to countries experiencing short run BOP problems. The CMI is a set of basic principles and procedures for expanding the pre-existing ASEAN swap arrangement and creating a new network of bilateral swap arrangements. In August 2003 ASEAN+3 finance ministers then endorsed an Asian Bond Markets Initiative (ABMI) to foster an active and liquid secondary market in local currency denominated bonds and develop the infrastructure needed for the growth of local bond markets, by inter alia using official resources to create and fund an Asian regional guarantee facility to provide credit guarantees. For the CMI to be

built upon as a way of providing short-term liquidity at the regional level, the facility needs to be extended to establish a fully fledged regional reserve pooling mechanism or liquidity support program (Henning, 2002)

The total amount in the Asian Foreign Reserve Pool is US$120 billion. Among them, the "Plus Three" countries of China, Japan, and South Korea contributed 80 percent, while the 10 ASEAN countries share the remaining 20 percent. Of the total amount, Japan contributed USD38.4 billion to the pool, as did China (in conjunction with Hong Kong), while Korea contributed USD19.2 billion. Within ASEAN, the contributions of the member economies were primarily by Indonesia, Malaysia, Thailand, Singapore (each contributing US$4.76 billion) and the Philippines (US$3.68).

The Latin American Experience

The Latin American Reserve Fund (FLAR) was created in 1978 as the result of accession of third countries to the Andean Reserve Fund (FAR). The FLAR operates as a credit cooperative in which the member countries' central banks are able to take out loans, in proportion to their capital contributions, through different credit facilities. Its objectives are to (i) support the balance of payments of member countries by granting loans or guaranteeing third-party loans; (ii) improve the conditions of international reserve investments made by member countries; and (iii) contribute to the harmonization of exchange rate, monetary, and financial policies of member countries.

The membership of FLAR includes Bolivia, Colombia, Costa Rica, Ecuador, Peru, Uruguay and Venezuela and it acts largely as a credit cooperative that lends to members' central banks in proportion to the capital contributions. FLAR has a capitalization of just over USD2.3

billion. Basically, the fund acts as a credit cooperative that uses a variety of credit facilities to lend to member countries' central banks in proportion to the capital they have contributed. FLAR has three objectives: (i) to provide financial support for its member countries' balances of payments; (ii) to improve the terms for its member countries' reserves investments; and (iii) to help harmonize its member countries' monetary and financial policies. FLAR has been quite successful in providing short term financing to its member countries. Thus, the arrangement has resulted in speedy and timely financing, giving FLAR an operational advantage over the IMF.

The Caribbean Experience

In the Eastern Caribbean Currency Union (ECCU), deposit money banks are not obliged to surrender their foreign exchange earnings to the Eastern Caribbean Central Bank (ECCB), they nonetheless submit their foreign exchange to settle foreign transactions and to take advantage of interest bearing facilities with the central bank. The ECCB does not allocate external reserve to any country because the only meaningful balance of payments in a currency union is at the aggregate level. Nevertheless, with the introduction in 1986 of coding of bank notes by country of origin, it became possible to prepare separate balance of payment accounts for ECCU member countries using the concept of imputed international reserves for each country. The formula for calculating imputed reserves is based on the following identity: $NFA_i = RM_i - NDA_i$; where NFA_i stands for net foreign assets, RM_i is reserve money and NDA_i represents net domestic assets for country i.

In determining its annual credit limit, the central bank takes into account the existing level of net foreign assets, demand liabilities at the beginning of the fiscal year and the statutory requirement of 60percent foreign assets cover but after deducting a margin of 30percent of credit allocated to finance governments for contingency lending to banks. Credit is allocated to each government based on the ratio of its recurrent revenues to total revenues for all members. Governments are free to draw on their allocation anytime to finance budget deficits, and the central bank advises them on the appropriate mix of treasury bills and long term securities. A closer examination of the ECCU's arrangement suggests that member countries have credit allocations at the ECCB, which cannot be overdrawn when depleted. Therefore, there is no spill-over effect in regards to member's demand for credit.

European Experience

The European Union (EU) Balance of Payments (BOP) facility does not entail an outright pooling of external reserves by member countries. It is more like a fund readily available to member countries should they witness temporary BOP fluctuations and imbalances. Although the European Union does not have a reserve pooling arrangement in place for all its members, its BOP facility introduced by the European Commission (EC) under Council Regulation 332/2002 allows BOP support to non-Euro area EU members. The European Central Bank (ECB) also offers short-term financing to national central banks through the Very Short-Term Financing Facility (VSTF).

Real reserve pooling took the form of the European Monetary Cooperation Fund (EMCF), which in effect collected the funds pledged under the Very Short Term Facility agreement. The Fund was set up as an independent body managed by the central bank Governors. In addition to administering

the funds, the Governors were meant to harmonize their policies, an arrangement that supposed some surveillance. In the end, the EMCF never really functioned. The amounts were small and the Governors displayed no willingness to exercise surveillance over each other.

5.2 Benefits from Regional Reserve Pooling

The argument underlying regional reserve pooling schemes is seemingly straight forward. According to Dodsworth (1978), so long as the risk of abnormal demands on the reserve position is proportionately less when spread over a number of countries, then reserve economies are possible. Thus, either total reserves required can be reduced or countries can benefit from an increased level of insurance cover. Any savings in foreign exchange can be utilized by the countries themselves, or possibly by the regional authorities, to expand the development potential of the region. Accordingly, the extent of the benefits will therefore be greater; the larger the number of countries participating, and the greater the dissimilarity of members as regards their deficit/surplus positions at any one moment in time. Thus, an ideal scheme would include members subject to different seasonal and short-term cyclical fluctuations in their existing reserve fund.

Sub-regions characterized by deepened trade and financial integration would benefit from cooperative regional arrangements, including regional swap-lines and international reserves pooling arrangements. Asia is a good example of a region that has benefited substantially from collective regional insurance in the form of reserve pooling. Illustratively, intra-Asian trade has grown rapidly in recent years following the CMIM[i] and this trend is likely to gather speed in light of the general weakness of the industrialized countries and hence their reduced global demand for imports. The resulting shift of intra-Asian trade from parts and

components to final goods will make trade among Asian economies less dependent upon final demand from outside the region. While intra-Asian financial integration lags far behind intra-Asian trade integration, it is expected that financial linkages will grow as the regional economies become financially more developed. Thus, a further impetus for intra-regional financial integration may come from heightened reluctance to invest in industrialized countries in the wake of the global crisis. Other characteristics of Asian countries which work in the favor of swap arrangements and regional reserve pooling include high reserve-GDP ratios, high saving rates and lingering mistrust of the IMF.

Another benefit for countries that join a reserve pool is that they gain access to increased reserve holdings. When their debt capacity with FLAR is added to the member countries' international reserves, the short-term debt/international reserves ratio drops significantly as observed in some FLAR member countries such as Bolivia, Costa Rica and Ecuador. Also, a regional fund could help to curb mechanisms of crisis transmission between countries, thereby reducing the correlation between them. The ability of a reserve pool to cushion the impact of external shocks depends on member countries not all being affected by these simultaneously. As Machinea and Titelman (2007) observed, a correlation analysis of such shocks in 10 Latin American economies indicates that, indeed, the countries are not thus affected and that it would accordingly be possible to extend the regional coverage of the Latin American Reserve Fund (FLAR).

In sum, pooled reserves within a sub-regional body can be used unconditionally for meeting any external financing need of member countries. They could be invested in assets that are liquid and have little credit risk, thus limiting uncertainty as regards immediate availability and

amount. Also, their role towards crisis prevention efforts cannot be understated as they help prevent balance of payment crisis through several channels, including the signaling associated with the ability to meet short-term obligations and stem a sharp depreciation of the currency. Moreover, regionally pooled reserves can be used to dampen the need for costly adjustments against temporary shocks, thereby mitigating the economic consequences of a crisis.

Costs of Regional Reserve Pool

One of the main problems of reserve pooling is that access to credit may change the policies of the member countries; there may be a less disciplined approach to the foreign balance position. This may be likened to the problem of moral hazard where drawings are made by individuals from a free group resource. The moral hazard problem can be overcome to some extent by a well- devised cost-sharing scheme, or by discretionary control over the amount of credit granted. In either case, however, some changes in policy can be expected which will reduce the potential benefits of the reserve pooling scheme. The marginal cost of accumulating reserves is associated with the opportunity cost of foregone consumption and investment, which tends to be higher for lower income levels where the marginal utility of consumption is higher and needs for investment in physical infrastructure are larger. Identifying member countries whose financial problems are exclusively related to liquidity may be straightforward in theory, but doing so is difficult in practice. As long as a pooling club lends to countries with fundamental problems of debt sustainability, either reserves will be squandered if loans are not repaid or the financial burdens of the country will be heightened if they are. The moral hazard associated with this insurance would weaken crisis

prevention and recovery effort unless it is married with effective surveillance and conditionality.

Although overall there is only limited substitutability between swap lines and reserve accumulation, deepening swap lines and regional reserve pooling arrangements such as the Chiang Mai Initiative may weaken the precautionary motive for reserve accumulation. The Chiang Mai Initiative for instance requires more concrete and specific governance structure and implementation details. Formalizing and institutionalizing swap lines will help transform them from temporary anti-crisis measures to more long-term mechanisms for liquidity support. These measures will make it less likely that Asia will gravitate toward the dollar standard (Aizenman, Jinjarak and Park, 2010).

Also, it appears that political sensitivities (and rivalries) among regional neighbors tend to be high in some regions thus making the design of a regional surveillance mechanism the likely site of protracted negotiations. This fact limits the extent to which long term benefits of regional reserve pooling schemes can be attained. An important lesson in this regard is perhaps the evident costs of the EU's failure to resolve the surveillance matter in Europe which gives the Asian CMIM members the motivation to take up the matter seriously before the next crisis.

5.3 Viability of Pooling Reserve in ECOWAS

A stronger form of coordination consists of the sharing of foreign exchange reserves to take advantage of the benefits of resource pooling. This form of resource coordination can take a variety of forms, ranging from the negotiation of temporary *ad hoc* bilateral swap arrangements between ECOWAS member countries in limited amounts, with short maturities, restricted options for renewal, and available only under special

circumstances, to the creation of a common reserve pool containing large amounts of resources administered by a designated secretariat and with ultimate decisions on the conditions for the disbursement of funds made multilaterally by members. The model for the weaker form of resource pooling is the bilateral swap arrangement under the Chiang Mai Initiative, while the stronger form is represented by arrangements such as the multilateralization efforts which is a more advanced version of CMI as it entailed pooling resources and European Monetary Cooperation Fund (EMCF) that existed under the EMS but had no formal reserve pooling arrangement.

The ASEAN+3 countries are following a path not entirely different from Europe as they explicitly link a multilateralization of reserve pooling to surveillance, as did Europe when moving from its financing facilities to the EMCF and to the ERM. However, the Asian framework departs with respect to the missing anchor for surveillance. In Europe, the anchor was the fixed and adjustable exchange rate system. The requirement that every country's exchange rate be accepted by the other countries implied an in-depth discussion of many parameters such as inflation, monetary policy, production costs, the current account, etc. The debate was not whether national policies were correct or not, but whether they were compatible with the exchange rate regime and which parity was justifiable. In the absence of a criterion, such as the exchange rate anchor, surveillance inevitably involves value judgments. Interestingly, cooperation within the ERM was natural because the currency parities were fixed internally, not vis-à-vis the dollar.

As a complement to new ECOWAS credit lines, reserve pooling would significantly increase the Union's resources. Moreover, it's conceivable that the ECOWAS would invest a portion of the deposits in a portfolio

comprising not only sovereign debt but also diversified positions in other categories of assets. The ECOWAS could thereby offer liquidity transformation services on a wider regional scale. A benefit of this scheme would be high financial returns relative to those obtained from country-specific reserve holding used as self-insurance. The multilateral swaps as observed from other regional pooling frameworks could, over time, be institutionalized into a reserve pool (Chino, 2004). It is anticipated that cooperation will evolve over time, much as has been the case in Europe. It has started with a mutual credit arrangement in the form of bilateral swaps, which is being restructured into foreign reserve pooling without any commitment to exchange rate coordination.

From the perspective of the countries participating in this reserve pooling program, the benefits are immediate: increased access to liquidity during crises; and high returns (relative to those on reserves used for self-insurance) on reserves deposited in individual countries. Finally, at the systemic level, the transformation of maturity reduces the net demand for safe assets and thus further strengthens overall financial stability of the region. The proposed liquidity transformation function is similar to that of a conventional bank, which transforms illiquid loans into liquid deposits while credit lines to member country central banks guarantee the liquidity of deposits. The issue of membership of the reserve pooling arrangement also requires critical appraisal. A first element to consider is the correlation of external shocks across countries. High positive correlation ratios weaken the arguments for a reserve pool, as most contributing countries, being similarly affected by external shocks, would need to draw on the fund simultaneously. However, even in the presence of positive correlations, reserve pooling can still be useful if shocks affect different countries with different intensities, since this allows some of the reserves

of countries experiencing lower effects to be lent to countries suffering more severe effects. Furthermore, lending at the onset of a liquidity squeeze could prevent or cushion a crisis in a given country and thus reduce contagion in others.

6. *Policy Implications, Recommendations and Conclusion*

The study has unearthed a number of fundamental issues as far as the noble desire of ECOWAS member states pooling reserve for the benefits of all countries in the union is concerned. The dichotomy of the membership of the union along UMEOA and Non-UMEOA countries has both sides for the realization of the objective of reserve pooling and consequently resulting in emergence of a single currency for the union. The divergence in the extent to which member states have complied with the convergence criteria is the first unpleasant finding of the study. Neither primary nor secondary convergence criteria have been met by all the member states and this alone poses a lot of threats to the philosophy of reserve pooling regardless of the gains that members stand to experience when they reserves are pooled. Needless to say that the inability of the member states to individually and collectively satisfy the convergence criteria attests to the fact that each economy of member states lacks macroeconomic convergence. To say the least, the search for policy interventions to fix major macroeconomic fundamentals of member states becomes extremely imperative.

In terms of adequacy of foreign reserve of ECOWAS member states, it is also not entirely a positive story as countries have varying degree of months of importer cover. Despondently, the UMEOA countries barely managed to record the threshold of 6 months import cover, perhaps with the strength of pooling reserves among the UMEOA member countries

alone. For the Non-UMEOA group, the minimum of 6 months import cover remains out of reach for the whole group once magnitude of import cover of Nigeria is netted out. Indeed, the Non-UMEOA group has reserve that fails to meet the minimum import cover of six months.

While the gains of pooling reserve as found in both the theoretical and empirical literature need little or no further argument, the fact remains that the challenges of losing some degree of autonomy by member countries in a union when they choose to pool reserves are so real and will normally constitute the cost side of reserve pooling. Of course, the management of external reserves by all member states of ECOWAS is not homogenous. Foreign exchange management also differs among the countries nursing the idea of pooling their reserves.

Against the background of the various findings of the study, the following recommendations are put forward to help move the region in the direction of reserve pooling and possibly having a single currency. Firstly, there is the urgent need to work on the ECOWAS convergence criteria by member countries with a view to fostering the appropriate atmosphere for the idea of a monetary union to evolve. Apart from the fact that the convergence criteria are necessary and sufficient conditions for successful union, they also dictate disciplines that are required for each country to have a vibrant and healthy economy.

Secondly, the growth experience of the region as a whole needs to be improved upon with a view to eliminating sharp fluctuations in the growth rates of the economies of member states and by extension the regional economy. Except appropriate policy interventions are put in place to immune the region from global shocks arising from commodity and price

shocks, notable macroeconomic indicators are not likely to behave well let alone converge at the predetermined levels by the union.

Thirdly, reserve pooling makes little or no sense at all when countries are struggling with phenomenon of reserve inadequacy. As various indicators of reserve adequacy suggest, ECOWAS member states are faced with deteriorating foreign reserve and the prevailing global economic crisis can only exacerbate the deterioration. This puts the challenge right at the centre of the quest for reserve pooling as countries will have little or no motivation to want to pool reserve since available reserve can provide the import cover required for domestic and internal balance of the economy of member states. Put differently, growth must be high enough to produce excess reserve for member countries to support the agenda for reserve pooling at regional level.

The experience of UMEOA in the area of reserve pooling and having a single currency for the group provides a lot of reflections on how ECOWAS can embark on the idea of regional reserve pooling and evolution of a single currency. While, the experience has a lot of colonial legacy and may not lend itself to easy adaptation at ECOWAS regional level, the Non-UMEOA may wish to embark on similar experiment. Non-UMEOA groups stands to benefit from the varying degree of import covers that are found in the group, particularly with the strength of the economy of Nigeria in the sub-group. If the attempt succeeds, it will help to demystify some of the fears associated with the cost of surrendering the management of the domestic economies to the monetary union put in place.

Finally, ECOWAS has the obligation to learn from best practices as far as success story of a few monetary unions will show. The regional

experiences as revealed in the study will be useful to manage issues of how to share the benefits of pooling reserve and internalizing the costs of conceding the management of the domestic economy to the governance structure of the monetary union that oversees the reserve pooling arrangements.

The paper has focused on international reserve pooling in the West African region. The paper has established that the evolution of a monetary union for ECOWAS has been hindered largely by the inability of the member states to actualize or achieve both the primary and secondary convergence criteria even when the set timeline has since elapsed. ECOWAS sub-region cannot afford to be left out of the race toward regional integration. At the centre of the integration process is monetary integration as this will lubricate all other dimensions of regional integration such as trade integration. Regional collaboration has no substitute in the global economy and as such, the journey towards ECOWAS monetary integration involving pooling of reserve and evolution of single currency is a worthy venture.

References

Aizenman, J. and Lee, J. 2007. "International reserves: precautionary versus mercantilist views, theory and evidence", Open Economies Review 18(2): 191-214.

Aizenman, J. and Lee, J. 2008. "Financial versus Monetary Mercantilism: Long-run View of Large International Reserves Hoarding". The World Economy.

Aizenman, J., and Marion, N. 2004. International reserves holding with sovereign risk and costly tax collection. *The Economic Journal* 114: 569–591.

Aizenman, J, and Marion, N. 2003, "The High Demand for International Reserves in The Far East: What is Going on?" *Japanese and International Economies*, Vol. 17 (October), pp. 370–400.

Aizenman Joshua, Jinjarak Yothin and Donghyun Park, 2010, "International Reserves and Swap Lines: Substitutes or Complements," *NBER working paper* No. 15804.

Bird, G. and R. Rajan 2002. "Does FDI Guarantee the Stability of International Capital Flows? Evidence from Malaysia", Development Policy Review, 20, pp.191-202.

Cheung, Y. and Ito, H. 2007. A cross country analysis of international reserves. Paper presented at the 2006 *APEA Conference* (April). http://web.pdx.edu/~ito/Reserves-II_27April07.pdf.

Delatte, A. and Fouquau, J. 2010. "What Drove the Massive Hoarding of International Reserves in Emerging Countries? A Time-Varying Approach". *Review of International Economics*. Forthcoming

Disyatat, Piti, 2001, "Currency Crises and Foreign Reserves: A Simple Model," IMF Working Paper 01/18.

Dodsworth, John R. 1992. "Reserve Pooling: An Application of the Theory of Clubs," *Economia Internazionale* No. 44, pp.209-222.

Dodsworth, R. 1978. "International Reserve Economies in Less Developed Countries". *Oxford Economic Papers*, New Series, Vol. 30, No. 2 pp. 277-291

.

Eichengreen, B. 2006. "Insurance Underwriter or Financial Development Fund: What Role for Reserve Pooling in Latin America?" *National Bureau of Economic Research Working Paper* 12451.

Eichengreen, B. 2010."The International Financial Architecture and the Role of Regional Funds" Prepared for the fifth annual FLAR economic studies annual conference, Cartagena, Colombia. Culled from www.econ.berkeley.edu/~eichengr/intl_finan_arch_2010.pdf. Accessed 20/5/2011

Frenkel, Jacob A., and Boyan Jovanovic, 1981, "Optimal International Reserves: A Stochastic Framework," *The Economic Journal*, Vol. 91 (June), pp. 507–14.

Hamada, K. and Ueda, K. 1977. Random walks and the theory of the optimal international reserves. *The Economic Journal* 87.348: 722-742.

Heller, H. R. 1966. Optimal international reserves. *The Economic Journal* 76.302: 296-311.

Henning, R. 2002. "East Asian Financial Cooperation after the Chiang Mai Initiatives". Washington, DC: Institute for International Economics.

Imbs, Jean and Paolo Mauro, 2007, "Pooling Risk Among Countries", IMF Working Paper 07/132.

International Monetary Fund (IMF). 2011. "West African Economic and Monetary Union: Staff Report on Common Policies of Member Countries—Regional Consultation on Economic Issues and Policies—Staff Report" *IMF Country Report* No. 11/98.

Kelly, M. G. 1970. The demand for international reserves. *American Economic Review* 60: 655–667.

Kojima, K. 1970. "A Pacific Currency Area: A New Approach To International Monetary Reform". *Hitotsubashi Journal Of Economics* Pp. 1-17

Machinea, J. L. and Titelman, D. 2007. "Less volatile growth? The role of regional financial institutions" CEPAL Review No. 91.

McKay, J., Volz, U., and Wolfinger, R. 2010. "Regional Financing Arrangements and the Stability of the International Monetary System," unpublished manuscript, European Central Bank (January).

Mlodkowski, P. 2008."Monetary Integration and Foreign Exchange Reserves Management" *Gospodarka Narodowa (National Economy)* No. 9 Vol. 19 pp73-95

Rajan, Ramkishen and Reza Siregar. 2004. "Centralized Reserve Pooling for the ASEAN+3 Countries." Asian Development Bank, ed., *Monetary and Financial Integration in East Asia: The Way Ahead, Volume 2*, (Houndmills and New York: Palgrave MacMillan), pp. 285-329.

West African Monetary Agency (WAMA). 2009. "ECOWAS Monetary Cooperation Programme: *Macroeconomic Convergence Report 2008"*

Williams, O., T. Polius And S. Hazel. 2001. "Reserve Pooling In The Eastern Caribbean Currency Union And The Cfa Franc Zone: A Comparative Analysis". *IMF Working Paper* No. 01/104, Washington, D.C., International Monetary Fund (IMF), August.