Analysis of Commercial Bank Lendings to African Countries

Odedokun M. O.*

Résumé: *L'étude tente d'expliquer la diminution du volume des prêts des banques commerciales au profit des pays africains, notamment durant les années 1980. Parmi les facteurs évoqués, figurent ceux susceptibles d'avoir influencé l'attitude de la communauté bancaire internationale et, dans une certaine mesure, la nécessité du crédit bancaire extérieur pour ces pays mêmes. De nombreux autres facteurs sont également étudiés: menace de la dette actuelle; performance du service de la dette; niveau des réserves en devises; taille des échanges extérieurs; indicateurs économiques intérieurs; fluctuations des termes de l'échange; ouverture initiale à la communauté bancaire internationale; qualité de membre de la zone monétaire CFA; et enfin, les dispositions d'assainissement de portefeuille prises par les pays de l'OCDE envers leurs banques. Des données annuelles durant la période 1980-1990 concernant 39 pays, ont été collectées et mises à contribution dans l'analyse. Il semble que la plupart des facteurs considérés ont un impact sur les prêts octroyés par les banques commerciales.*

Introduction

As compared with bilateral and multilateral sources of external finance, external loans from commercial banks can be costly and disadvantageous when viewed from the perspectives of interest payments; the maturity structure; and periods of grace. Thus, the recent reductions or even terminations of commercial bank lendings to most African countries may be viewed as a blessing in disguise. However, this view needs not be correct. One reason, among many others, is the fact that different sources of external finance perform correspondingly different role so that what is called for is a proper mix. Second, one of the greatest aspects of the external debt problems of African countries especially since the latter part of 1980s even stem from multilateral debts (Stymne 1989:19).[1] For instance, net resource transfers have been recorded by these countries as a group to the IMF since

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1 As rightly pointed out by Stymne (1989, p.19), 'Multilateral institutions are by convention preferred creditors, which means that a significant share of African debt service cannot be relieved through rescheduling'. This inflexibility is a disadvantage, among others, of multilateral debts.

the latter part of 1980s and the situation with the World Bank too is not much different from this.[2] This is not to talk of the conditionalities and political consequences of having to approach these institutions as well as bilateral creditors for finance. Third, commercial banks provide rather unique ancillary services with their finance and these services are in need by the African countries, especially in connection with foreign trade. Therefore, while caution should be exercised by African countries in being more neck-deep in external debt, they also need a proper mix for a given level of total indebtedness.

Policies along this direction require an identification of how to attract various types of external finance and, hence, the factors that affect their flows to different countries. This is the issue addressed in this paper. A few recent studies have been undertaken on commercial bank lending to developing countries in general, e.g., Eaton and Gersovitz (1980, 1981a); Hajivassiliou (1987); and Gooptu and Peria (1992). The present study should enrich the existing scanty studies with recent experiences from Africa. This would complement a recent non-quantitative study reported on the subject by Sirleaf and Nyirjesy (1991).

The remaining discussion is organised into 4 sections. In the next section, we shall discuss the nature and magnitudes of commercial bank lendings to Africa. The methodology of the study is described in section 3 while the empirical results are presented and evaluated in section 4. The last section is on summary and conclusion, after which there is an appendix on the data employed and countries covered by the study.

Nature and Magnitudes of Commercial Bank Lendings to Africa

In this section, we shall briefly discuss the types and extents of commercial bank lendings to African countries. In Table 1, we present some statistics related to commercial bank credits in the region during 1980-90 period.

Four main risk categories of cross-border lendings by commercial banks to African countries have been identified by Sirleaf and Nyirjesy (1991). The first is *unsecured lending*, comprising (i) short-term revolving facilities provided to the central and commercial banks for meeting the obligations to offshore suppliers, usually in the form of letters of credit confirmations and negotiations and similar short-term advances; (ii) short-term loans to non-bank borrowers; and (iii) medium-term loans for investment projects. The second is export-secured lending, including pre-export finance. The

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2   For instance, in connection with IMF loans, according to World Debt Tables (1989-90, p. 82), the excess of debt service payments over disbursements in respect of Sub-saharan region amount to 41, 433, 954, 892, 492, and 673 millions of US dollars for the years 1984 to 1989.

third is *asset-based finance*, for financing acquisition of high-value and usually movable assets like ships and aircrafts and with liens on such assets. The last category is *secured lending*, which is collateralized by identifiable external sources of repayment, including offshore cash deposits; undertakings from official agencies; cross-guarantees among suppliers or customers; etc.

Apart from risk, we can also classify the lendings according to their maturity. In this regard, we would have short- medium- and long-term lendings. This is the criterion that form the basis of the figures presented in Table 1 below — available statistics do not permit total lendings to be analysed on the basis of risk — categories. The total lendings are classified into only short- and long-term maturity categories in the Table,[3] because this is what the available data source too does and, hence, permits. According to the source, long-term loans are those with *original* maturities of more than one year while others are short-term loans.

The figures on long-term lendings in column 1 of the Table are the annual averages (in current US dollars) over 1980-90 period of disbursements from the commercial banks and the average of their annual ratios to that of the GNP over the same period are those presented in column 3. The trend movements of the annual dollar values and annual ratios in relation to GNP are as presented in columns 5 and 7 respectively. These trend values are respectively obtained by regressing the 11 annual dollar values and the ratios with respect to GNP on a constant and a trend variable.

Concerning the short-term debt, the available data do not. analyse between the commercial bank and non-commercial bank short-term debts. But the general presumption is that they are predominantly commercial bank type, e.g., *see* Sirleaf and Nyirjesy (1991:5).[4] Thus, in the absence of more disaggregated data on commercial bank short-term lendings, we employ the total short-term debt as the proxy. Unlike the long-term lendings that are in flow form by being annual disbursements, the short-term debt is the end-of-year outstanding value and it is taken to represent annual

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3   This is because the data source does not provide separate information on medium-term debt-only information on combined medium-and long-term debts is provided. It should therefore be understood within the context of our subsequent reference to 'long-term' debt in the paper that we are actually referring to the combination of both medium-term and the conventional long-term debts.

4   The data source is the World Debt Tables, by the World Bank. While there are alternative sources -*viz*.: The Maturity and Sectoral Distribution of International Bank Lendings, by the Bank of International Settlements (BIS), Basle and the OECD External Debt Statistics — they do not yield consistent annual series. Sirleaf and Nyirjesy (1992) discuss contradictions between data on commercial bank lendings as reported in these three sources.

disbursement because it has a maximum original maturity of 1 year, by definition. Thus, any outstanding end-of-year value is deemed to have been disbursed during the particular year. However, non-repayments when due and arrears of interest (in as much as they have not been formally rescheduled and hence re-classified as long-term debt) would tend to make the end-of-year value over-state the actual disbursements during the year in the same manner that a repayment before the end of year (in respect of disbursements during the year) would under-state it.

As it can be seen from the Table, the inflows of long-term commercial bank lendings are relatively small in dollar amount. In fact, some countries did not receive any lendings during the period. This smallness becomes more glaring when compared with the size of Gross National Product (GNP), as it can now be seen that only two countries received up to 10% of their GNP in form of long-term lendings (*viz.*: 12.7% and 10.5% Côte d'Ivoire and Congo respectively) while the next highest percentage recorded is that of 3.2% by Niger. Higher percentages are recorded for the outstanding short-term debt-GNP ratio, probably because of inability to repay or otherwise formally reschedule the debts as they mature;[5] the lower risk entailed by short-term loans that make them this category.

The Table also shows that there is the general tendency for a trend fall in the inflow of long-term lendings by the banks — both absolutely and in relation to GNP — during the decade. Thus, it is only in 8 countries that an upward trend of absolute dollar lendings are recorded while it is only in 4 countries that the loans disbursed in relation to GNP showed an upward trend. Again, a different situation characterises the short-term equivalents. For instance, it is in only 10 countries or just about 25% of the total that a decreasing trend of dollar value of short-term debt occurred and in only 12 countries where there was a decreasing trend of this debt in relation to GNP. The explanations given in the last paragraph might also be responsible in this case, concerning the tendency for an upward trend in the short-term debt and a downward trend in the case of the gross inflows of long-term lendings. In any case, further explanations of these are what the analysis in the remaining part of this paper is about.

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5   Non-repayment would swell the figures. Non-rescheduling (formally) of short-term debts too would have the same effect since formally rescheduled arrears of interest and principals are categorized under the long-term loans.

Table 1: Magnitudes and Trends in Commercial Bank Lendings to African Countries During 1980-90 Period. Average Value, 1980-90 Annual Trend, 1980-90

	$ Value		% of GNP		$ Value		% of GNP (in %)	
	(1) Long	(2) Short	(3) Long	(4) Short	(5) Long	(6) Short	(7) Long	(8) Short
Algeria	709	2064	1.4	4.2	-28.6	-69.7	-.09**	-.25**
Benin	14	122	1.2	9.5	-4.2**	-10**	-.36**	-.34
Botswana	3.4	4.2	0.4	0.4	-0.8	-0.1	-.09	-.05**
Burkina Faso	.2	51.4	.001	2.6	-0.2	-5.8***	-.01	.06*
Burundi	2.5	17.7	.02	1.7	-.4	.8	-.04	.05
Cameroon	177	533	2.0	5.7	4.0	60.0***	-.07	.33***
Central Africa Republic	.9	26.5	.001	2.9	-.01	2.6***	-.01	.10
Chad	0.0	20.2	0.0	2.4	-	3.2***		.26***
Congo	194	480	10.5	23.9	-16.6	74.7***	-1.12*	3.17***
Côte d'Ivoire	938	1412	12.7	17.2	-23.1	183.6***	.49*	1.91***
Egypt	238	5642	.9	20.1	12.7	254.7**	.02	.22
Ethiopia	23.5	102	.5	2.0	1.3	1.9	.02	-.05
Gabon	36.5	337	1.1	10.1	.8	41.7***	.04	1.23***
Gambia	1.6	22.6	.8	13.9	-.6**	-1.5	-.30	-.68
Ghana	11.8	147	.2	3.3	2.2	-16.1**	.04	-.43***
Kenya	162	527	2.4	7.5	-2.2	30.1*	-.10	.17
Lesotho	1.5	4.4	.2	.7	-.1	-.3*	-.03	-.05**
Liberia	.6	179	.01	17.5	-.3*	36.2**	-.03*	3.60***
Madagascar	18.7	149	.6	5.2	-5.8***	-2.8	-.17***	.12
Malawi	7.0	71.0	.6	6.0	-2.3**	-2.9	-.21**	-.39*
Mali	1.3	53.4	.1	3.7	-.4***	2.6	-.03***	.01
Mauritania	.4	131	.004	16.3	.1	13.8***	.01	1.06***
Mauritius	31.5	39.8	2.2	3.1	1.3	-.9	-.15	-.29***
Morocco	191	845	1.2	5.7	-46.3**	-51.7*	-.03**	-.48*
Niger	64.3	109	3.2	5.5	-8.9**	-.1	-.40***	.03
Nigeria	602	3275	.8	5.4	-161***	-311**	-.14***	.18
Rwanda	0.0	29.8	0.0	1.6	-	3.7***		1.11***
Senegal	12.0	264	.3	8.2	.5	14.6***	-.01	-.27
Sierra Leone	.3	250	3.7	33.3	-.5	45.1***	-6.32*	2.49
Somalia	0.0	103	0.0	12.2	-	17.0***	-	1.65***
Sudan	36.7	1929	.6	18.6	-14.6***	400.2***	-.25***	3.57***
Swaziland	.9	16.2	.2	3.0	-.1	.4	-.01	.03
Tanzania	19.2	444	.3	10.4	-6.1**	5.4	-.10	1.21***
Togo	.3	101	.03	10.1	-.1**	1.7	-.01**	-.41
Tunisia	102	247	1.2	2.7	-6.0	39.6***	-.09	.32***
Uganda	14.5	66.8	.7	2.8	.1	7.9***	-.07	-.02
Zaire	19.7	462	.2	5.7	-7.2	53.5***	-.06**	.81***
Zambia	5.6	937	.2	31.3	-1.9**	118.9***	-.05**	4.26***
Zimbabwe	107	369	1.8	6.6	-6.3	11.1	-.08	.25

Notes: (i) The annual dollar values (in millions) of long- and short-term lendings, averaged over 1980-90 period, are presented in columns (1) and (2) respectively. Their corresponding values, in percentages, when expressed as ratios of GNP are in columns (3) and (4).
(ii) The annual trend or average values (in dollars), obtained by regressing the annual values on time-variable, are in columns (5) and (6) for long- and short-term lendings respectively. The annual trend or average values (in percentages) obtained by regressing the annual long-term lendings/GNP and short-term debt/GNP ratios on a trend variable are those reported in columns (7) and (8) respectively. The single, double and triple asterisks respectively show the trend values (coefficients of trend variable) that are statistically significant at 10%, 5% and 1% levels.

Source: Compiled by author.

Methodology of the Present Study

In the study, we attempt to explain long- and short-term lendings to the countries, normalised by GNP in the manner explained in section 2, in terms of factors that may be postulated to determine them. These factors are now going to be discussed, after a few comments on the extent of rationing being confronted by these countries in the international financial markets.

Supply-constraint Versus Demand-Constraint in Borrowing

Some studies have estimated complete supply functions for loans and advances to developing countries, e.g. Kapur (1977), by including only those factors that . should influence the lendings by the commercial banks. Underlying this is an assumption that developing countries are completely quantity-constrained in the international financial market. This has been challenged by other researchers who contend that only partial constraints are being encountered by these countries. As a result, they typically proceed along the usual disequilibrium estimation techniques that allow separate identification of supply and demand parameters. Studies along this line include those reported by Eaton and Gersovitz (1980, 1981a) and Hajivassiliou (1987). In these studies, the usual factors whose effects are tested for include per capita income; economic growth; appropriately normalised values of external reserve holding; exports; etc. as factors operating on the supply side and similar variables plus few others as those operating on demand side.

In the present study, it is the supply of these international finance that we basically posit to estimate. This is because the situations confronting most African countries in the international financial markets suggest that they are being confronted with substantial borrowing constraints. This view is further buttressed by the findings of Eaton and Gersovitz (1980) who classified a selected number of countries (using econometric technique) according to whether their external borrowings from banks are demand- or supply-determined. According to this classification, almost all African countries included record probabilities of over 0.9 that they are supply-constrained and that their existing levels of borrowing are a reflection of the maximum that the lenders are willing to supply. All the same, we still allow some influence of demand factors in the study. This is because, in the real world, the wish of the countries to borrow would likely determine the intensities of their search for foreign bank loans and also, not all the countries would be rationed in the financial market all the time.

The Postulated Determining Factors

Having postulated the existence of credit rationing in the international banking scene, the next issue to address is the factors that the bankers would consider in rationing the credits. Obviously, the most important factor

should be the riskiness and, hence, creditworthiness of the borrowing countries.[6] While the banks sometimes charge risk premium in the form of higher interest rate above the basic 'risk-free' Eurodollar rate, there is a limit to the extent of risk that this practice can accommodate. Thus, what is called for is an examination of those country characteristics that the lenders may perceive to be indicators of creditworthiness and which should therefore influence their lendings.

Many studies on country risk analysis document a number of factors that commercial banks consider in deciding whether to lend to a particular country. They are portrayed as classifying countries into risk categories on the basis of such factors. Several studies have econometrically tested for their relevance in determining the behaviour of these banks with respect to the interest rate charged to developing countries, e.g. Feder and Just (1977a, 1980); Feder and Ross (1982); Edwards (1984, 1986); and Ozler (1990, 1991). The effects of similar factors on the volume of lendings by the banks (as opposed to interest rate charged) to developing countries have been tested for by Kapur (1977); Eaton and Gersovitz (1980, 1981); Hajivassiliou (1987); and Gooptu and Peria (1992). It is these factors and some others that we are going to discuss below.

Existing Size of External Debt

The higher the existing external debt (in relation to the size of the country), the greater the risk that would be perceived to be associated with the country by the banks and hence the greater their unwillingness to lend to that country. However, there is an opposing view which contends that private creditors tend to lend more, especially in the 1980s, to their existing customer-countries. For, according to Savides (1981:320): 'The early part of the 1980s marked a sharp distinction in the lending environment to developing countries. As has been pointed out by, among others, Krugman (1989), the rationale behind most Less Developed Countries (LDC) loans during this period has been for defensive purposes: existing creditors have extended new loans to problem debtors in order to defend the value of their existing claims'. Thus, the net effect of debt *overhang* is only to be empirically determined. The two usual measures of external debt *overhang*,

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6   Price or interest rate rationing may not often work because, as Eaton and Gersoviz (1981b, p. 16) have put it, 'Finally, we emphasize that allowing a country to borrow at a higher interest rate after defaulting cannot be an adequate deterrent to default but merely invites the country to obtain additional principal on which to default. The higher interest rate, not being paid, is irrelevant'. Bankers are not unlikely to realize this and that charging higher interest rates may simply be a way of inviting desperate but highly risky borrowers.

both of which are tested for in this study, are the total external debt in relation to GDP and in relation to total exports.

Existing Debt Service Performance

Countries that are having good records of debt servicing are more likely to be granted more loans. In any case, most countries also borrow for the purpose of servicing their debts, including refinancing of maturing debts. For these two reasons, a positive relationship of debt servicing performance and borrowings is expected.[7] The usual measures of this include debt service payments-export ratio and debt service payments-GDP ratio, both of which are also adopted in the this study — in addition to the third one defined as commercial (as opposed to the total) debt service payments-export ratio.

Level of Foreign Reserves

This indicates the status of external position of a country and it can operate via the supply or demand side. On the supply side, it may give the banks a positive impression about credit worthiness and therefore make them more willing to lend. On the demand side, it would tend to decrease the country's need for external borrowing. Thus, the net effect on the external finance from commercial banks only has to be empirically determined. In this study, we adopt the common measures of external reserves position by deflating the external reserves alternatively with total imports; GDP and total external debts.

Debt Rescheduling, Interest Arrears and Position with IMF

These are additional measures of riskiness of a country as it is likely to be perceived by would-be commercial bank lenders. Debt rescheduling signifies repayment difficulties being encountered by the country in question, just as the interest arrears. The position with the IMF too is often posited in the literature (Hajivassiliou 1987) as a similar indicator, a main reason adduced being that it is usually a country in external payments difficulties that are regular 'customers' of IMF. Thus, in this study, we test for a dummy variable that takes a value of 1 for an observation when there is a reschedule and zero value otherwise. We also test for the arrears of interest (on long-term debts) as a fraction of total long-term debts as well as the ratio of outstanding IMF debt to total imports (in line with the common practice, e.g. Hajivassiliou, 1987). We expect all the three to have negative effects on the total lendings.

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7   This should not be confused with the existing or scheduled debt service burdens, which is the due or arrears and probably projected principal repayments and interest payments in relation to export earnings or GDP.

Relative Size of Variable Interest Rate Debt

This is an additional indicator or risk involved in lending to a country. For a given size of external debt *overhang*, a higher risk would be involved the higher the proportion that attract variable and hence uncertain interest rate commitments. For Latin American countries, Rahnama-Moghadam *et al* (1991) tested for the effect of this factor on probability of default and reported a positive effect. International bankers too are not unlikely to realize this. Thus, we include the variable interest rate debt in relation to total external debt as a variable in the study and we postulate its negative effect on the bank lendings.

Relative Size of Commercial and Long-term Debt

Based on their interviews 'with officials in the Central Banks of several developing countries and with a group of commercial banks that extend such credits to these countries', Gooptu and Peria (1992:16) reported that two of the factors claimed by those interviewed to influence commercial lending behaviour is the existing size of commercial in relation to total external debt and long-term to total debt ratio. The higher the preponderance of commercial in total debt, the smaller the willingness to lend is claimed to be — just as the relative size of long-term debt. However, the econometric tests reported by Gooptu and Peria do not establish these and neither do they adduce reasons for the negative effects being postulated. All the same, we too test for the two factors in the study.

External Trading Position

Our perusal of the literature shows that the shares of export and import (and sometimes, trade deficits) in the GDP are often posited to be indicators of creditworthiness (or, probably, a lack of it) and, sometimes, as indicators of need for external borrowing. One line of reasoning in the literature is that higher values of these ratios might suggest to the lending banks that the country would be more vulnerable to vagaries of international economy and thus dissuade banks from lending. An opposite view is that it may even suggest to the lenders that the greater dependence on international economy would make the country to be unwilling to risk trade embargos through non-fulfilment of its debt obligations when due. Another view is that high export and/or import ratios indicate that the country would need much financial accommodation from banks to finance these activities. Thus, on the whole, the overall direction of the effects of these have to be left for only empirical determination.

Domestic Economic Indicators

It is a common contention in the literature to posit that the lending banks take cognisance of certain domestic economic indicators into account in their country risk assessment process. Such factors are also being tested for in empirical analyses of reasons why developing countries default on their

external debt obligations. It is also possible that some of the indicators can also affect demand for bank credits. One of them is *economic (or real GDP) growth*. It is often being contended that a growing country would be deemed by lending banks to have a good prospect. Also, economic growth may positively influence demand for external finance, e.g., according to Eaton and Gersovitz (1981b:19), 'A higher growth rate of income raises desire debt, for the usual Fisherian reasons — some of the future higher income is desired now'. For these two reasons (particularly, the one operating through the supply side), it should be positively associated with bank finance. The channels of effects of *per capita income* too are being posited to be similar. Also, the *share of investment expenditure in GDP* are being posited to encourage banks to extend their lendings. This is because, as the argument goes, it suggests to the bankers that the country is diverting its resources— including the one to be financed with the loan being negotiated — into productive uses which would more likely ensure fulfilment of the debt obligations when due because of economic growth arising from the high investment rates. *The share of government expenditure in the GDP* (proxied in this study by the share of government consumption expenditure in GDP) is often thought to have opposite effects on bank's risk perception of the country (Edwards 1984). Also, the share of agriculture in total output is said to make the bankers regard the economy as being vulnerable to vagaries of weather and external demand stocks and hence increases their risk perception of the country (Ozler 1991). In addition, the bankers are posited to take cognisance of domestic policy measures, especially monetary growth or pro-inflation policies. Banks are said to regard such things as not being conducive to repayment of their loans as and when due. These policies are often proxied in empirical analyses of why countries default by the *growth rate of money stock or inflation rate,* both of which are tested for in this study — in addition to other domestic economic indicators.

Other Factors

All the factors so far mentioned are the ones that are commonly referred to in the existing literature on how commercial banks *do* or *should* perceive the risks in lending to developing countries. In addition to these, we also test for a few other factors that are now going to be mentioned. One of these is the *movements in terms of trade* for the countries. An improving terms of trade should enhance the creditworthiness of a country in the international financial markets and thus increase lendings extended to that country. This is more likely to be so in the case of terms of trade improvements arising from rising prices of exports than that due to falling prices of exports. Thus, we test for the effects of *export and import prices* and, alternatively, *terms of trade* in the study.

Another factor considered in the study is the *initial exposure or experience of a country with commercial banks.* Ozler (1990, 1991)

discusses the relevance of this factor to risk assessment by banks. Available information suggests that many African countries that did not have borrowing experience from commercial banks prior to 1980 could not penetrate the market for this type of credit during the 1980-90 period covered by this study. One of the likely reasons for this phenomenon is that needed banker-customer relationship had not been established to justify lending to such new comers during a period of credit constraints. Thus, we include the initial (i.e. as of 1980) *stock* of long-term commercial bank lendings in relation to GDP — and alternatively, in relation to total debt — as a proxy for the before-1980 experience of countries in the international commercial bank credit market.

We also include a dummy variable for CFA member countries.[8] One reason is that these countries collectively pursue domestic policies that differ from those of the remaining African countries in general, especially the low inflationary policies like fiscal deficits, monetary expansion, etc. Another reason is the convertibility of CFA. In this regard, Sirleaf and Nyirjesy (1991:11) rightly express the view that 'The degree of risk in unsecured lending tend to increase in those cases where foreign exchange availability is regulated and/or constrained. Thus, banks have continued to provide short and medium-term unsecured loans to profitable bank and non-bank borrowers in the CFA zone, given their automatic access to French Francs'. Thus, we expect more lendings to CFA countries as a group.

Finally, we also include another dummy variable for post- 1987 period to cater for *mandatory provisioning* by commercial banks with effect from around 1988, and extensive discussion of which is contained in Sirleaf and Nyirjesy (1991). This refers *to selective provisioning requirements or guidelines* issued to OECD-based commercial banks by their home governments in connection with their lendings to developing countries and it is supposed to have the effect of making it difficult for the banks to justify additional lendings to these countries.[9]

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8   CFA is a monetary zone comprising 14 Sub-saharan countries with a common currency that is pegged and freely convertible to French franc.

9   The regulations often require the banks to make 100% bad debt provision against lendings to a number of developing countries so that this would have an immediate negative impact on reported or accounting profits of the banks.

Model Specification and Estimation

The regression equation specified for estimation takes the following form:

$$Y_{it} = X_{it}\beta + U_{it} \quad (i = 1, ..., N; \text{ and } t = 1, ..., T) \quad (1)$$

where: Y_{it} = Vector of the dependent variable alternatively

defined as annual disbursements of long-term and short-term loans to country *i* in *year t*, both in relation to GDP; X_{it} = matrix of regressors comprising the postulated determinants of lendings earlier discussed;

β =   Vector of coefficients of the regressors;
U_{it} =   Vector of residuals;
N   =   Total number of countries, which is 39.
T   =   Total number of years for each country, which is 11.

Thus, it can be seen that the above linear regression equation is specified for estimation with panel data, i.e., time-series data pooled across different units or countries. To derive the estimates, we employ *random-effect* technique of estimating with panel data.[10] To correct for serial correlation of residuals when estimating the short-term debt equation (but not the one for long-term loan disbursement equation as serial correlation is not exhibited by this), we adopt *AR1 GLS* method which transforms the data with serial correlation coefficients that are specific to individual countries.

The above equation is estimated with few regressors at a time, rather than all of them simultaneously. One reason for this is to minimize multicolinearity problem as most regressors exhibit intercorrelations with each other. In addition, there are (non-overlapping) missing values for some years in respect of some regressors so that simultaneous inclusion of all regressors would reduce the total number of observations.

In view of the fact that some countries included in the study never borrowed on a long-term basis from commercial banks during the period, we estimated another set of long-term loan disbursements equations for only 20 countries that had most frequent transactions in respect of this credit

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10   This method is able to effect the following decomposition of the error term U_{it} : $U_{it} = t$ + $_i$ + v_{it}, where is the time effect; = individual or country effect; and v = is the purely random effect. This decomposition is entrenched into the Generalized Least Squares (*GLS*) technique used in estimating the equations, with a view to enhancing the precision of the estimated. The method is also preferred to the alternative of *fixed-effect* technique as the latter would not be able to accommodate dummy variables for a group of countries, e.g. for the CFA countries as employed in the study.

category. The findings are, however, practically the same with the ones for all the 39 countries combined. Due to space limitations, we do not report these separate estimates for the 20 countries.

Data Sources, Coverage, etc.

Details about the sources and measurements of data are provided in the appendix. What is done here is to complement and also summarize the contents of this appendix.

The study employs annual data covering 1980-90 period for each of 39 African countries, the list of which is provided in Table 1. The choice of countries and the 1980-90 period is dictated by availability of reasonably consistent data series.

All the data are from the World Bank source (particularly, the *World Debt Tables*) and, in few cases, the IMFs *International Financial Statistics Yearbook*.

Empirical Results

The estimates of equation (1) are as reported in Tables 2 and 3 below. We omit the estimates of intercept of constant terms for brevity. In Table 2, the estimates of equation for disbursements of long-term loans and advances are reported while it is the estimates of short-term debt equation that are reported in Table 3. Further explanatory notes are presented below each Table.

As it can be seen from the Tables, although the explanatory power of the model (as evidenced by the adjusted R^2 values) is generally low in Table 2, it is high in Table 3. In all cases, the Durbin-Watson (DW) statistic values are sufficiently close to 2.0 that an absence of serial correlation of residuals is suggested. We now proceed to a consideration of the performances of the specific regressors, which are going to be discussed in the same order that they are presented in sub-section 3.2.

Debt Overhang

The coefficients of *debt overhang* variables are negative in the equations for long-term lendings and are also statistically significant in the case of debt-export ratio, although not in the case of debt-GDP ratio. However, the coefficients are positive and statistically significant in the equations for short-term debt, even when total debt-GDP ratio (which also includes the dependent variable, short-term debt-GDP ratio) is replaced by long-term debt-GDP ratio as in one of the equations. Thus, it can be inferred that only long-term lendings by the banks are reduced by existing debt overhang. On the other hand, the overhang increases the quantum of short-term finance, this being attributable to the 'defensive lendings' that is posited in our discussions.

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Table 2: Long-term Loan Disbursement Equation Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
DEBT/Y	-	-	-	-	-	-	-	-	-	-
DEBT/X	-.002 (-.8)			-.001 (-2.4)	-.001 (-2.5)					
PRVDSR/X	.025 (1.6)	.039 (2.5)								
DSR/X			.006 (0.7)		.005 (0.5)					
DSR/Y			-.003 (-0.2)							
RSV/M				-.007 (-1.0)						
RSV/Y					-.011 (1.0)					
RSV/DEBT		-.002 (-0.2)								
(CB/DEBT)80		.072 (3.5)								
(CB/Y)80	.229 (5.9)		.188 (4.6)	.247 (6.5)	.245 (6.5)	.222 (5.8)	.247 (5.8)		.252 (6.4)	.250 (6.4)
RESCH	-.007 (-3.2)									
INTARREAR	-.059 (-2.3)									
IMF				.003 (0.2)	.001 (-0.3)					
VARDEBT			.014 (0.8)							
COMDEBT			.040 (4.3)							
LONGDEBT			.003 (0.2)							
ECONOGROWTH						.024 (1.5)	.036 (2.3)	.033 (2.0)		
PCY							-.003 (-0.9)			
INV/Y						.040 (3.1)	.025 (0.9)	.048 (3.5)		
GOVCON/Y							.025 (0.9)			
AGRIC/Y							-.003 (-.02)	-.033 (-2.1)	-.020 (-1.3)	
MONEYGROWTH								.004 (0.7)		
INFLATION							.005 (0.6)	.003 (0.4)		
X/Y									.023 (-1.9)	-.024 (-1.9)
M/Y									.022 (2.6)	.215 (2.5)
TOT									.009 (2.4)	
XPRICE										.012 (2.7)
MPRICE										.002 (0.2)
POST-1987	-.002 (-0.8)	-.004 (-2.3)		-.004 (-2.5)		-.005 (-2.9)	-.005 (-2.9)	-.004 (-2.3)	-.003 (-1.5)	-.003 (-1.8)
CFA ZONE	0.11 (1.8)	.146 (2.4)		.010 (1.8)		.010 (1.7)	.020 (3.4)	.021 (3.5)	.009 (1.5)	.009 (1.6)
Adjusted R²	.148	.082	.138	.103	.103	.139	.117	.070	.133	.134
D.W.	1.75	1.70	1.72	1.72	1.72	1.75	1.75	1.70	1.76	1.78
N	423	425	424	426	426	426	426	425	426	426

Notes: (i) The dependent variable is the ratio of disbursements of long-term loans and advances to GNP
(ii) The figures in parentheses below the parameter estimates are the t-values. At 1%, 5%, and 10% levels of significance (using 2-tailed test), a parameter estimate is statistically significant if its t-value is absolutely up to 2.5; 2.0; and 1.6 respectively.
(iii) The D.W. and N represent the Durbin Watson statistic and total number of observations respectively.
(iv) The following are the meanings of mnemonics used for the regressors: DEBT/Y = debt/GDP ratio; DEBT/X = debt/exports ratio; PRVDSR/X = debt service payments on private debts/exports ratio; DRS/X = total debt service payments ratio;DSR/Y = total debt service payments/GDP ratio; RSV/M = foreign reserves/import ratio; RSV/Y = foreign reserves/GDP ratio; RSV/DEBT = foreign reserves/debt ratio; (CB/DEBT)80 = stock of commercial bank debt/total debt ratio as of 1980; (CB/Y)80 = stock of commercial bank debt/GDP ratio as of 1980; RESCH = rescheduling dummy variable; INTARREAR = arrears of interest on long-term debts/long-term debt ratio; IMF = outstanding credit from IMF/total imports ratio; VARDEBT = debt attracting variable interest rate/total debt ratio; COMDEBT = commercial/total debt ratio; LONGDEBT= long-term/total debt ratio; ECONGROWTH = economic growth; PCY = per capita income level; INV/Y = investment/GDP ratio; GOVTOCON/Y) government consumption expenditure/GDP ratio; AGRIC/Y = share of agriculture in total output; MONEYGROWTH = monetary growth; INFLATION = inflation rate; X/Y = export/GDP ratio; M/Y = import/GDP ratio; TOT = terms of trade; XPRICE = export unit value; MPRICE = import unit value; POST1987 = dummy variable for post-1987 period; and CFA ZONE = dummy variable for being a CFA member country.

Source: Compiled by author.

Table 3: Short-term Debt Equations

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DEBT/Y	.090 (15.4)	–	.091 (15.3)	–	–	.089 (15.9)	.087 (16.0)	.090 (16.0)
LONGDEBT/Y	–	.077 (10.6)	–	–	–	–	–	–
DEBT/X	.068 (1.7)	–	–	.005 (4.5)	–	–	–	–
PRVDSR/X	–	.065 (1.3)	–	–	.005 (0.5)	–	–	–
DSR/X	–	–	-.008 (-.032)	–	–	–	–	–
DSR/Y	-.032 (-2.0)	–	–	-.460 (5.9)	.403 (5.0)	–	–	–
RSV/M	–	–	-.050 (-1.9)	–	-.042 (-2.4)	–	–	–
RSV/Y	–	–	–	-.004 (0.4)	–	–	–	–
RSV/DEBT	–	.002 (0.2)	–	–	.151 (1.3)	–	–	–
(CB/Y)80	–	.234 (1.9)	–	–	–	–	–	–
RESCH	-.013 (-2.3)	–	-.015 (-2.6)	–	–	–	–	–
INTARREAR	-.021 (-0.4)	–	-.003 (-0.1)	–	–	–	–	–
IMF	.003 (0.6)	–	-.001 (-0.2)	–	–	–	–	–
VARDEBT	–	–	–	-.095 (-1.9)	-.005 (-2.1)	–	–	–
COMDEBT	–	–	–	.165 (5.1)	.118 (3.6)	–	–	–
ECONOGROWTH	–	–	–	–	–	.059 (-1.5)	-.011 (-0.3)	–
PCY	–	–	–	–	–	.002 (2.0)	–	–
INV/Y	–	–	–	–	–	.093 (1.4)	.108 (-3.0)	–
GOVCON/Y	–	–	–	–	–	-.077 (-1.9)	-.008 (0.5)	–
AGRIC/Y	–	–	–	–	–	–	–	–
MONEYGROWTH	–	–	–	–	–	–	–	–
INFLATION	–	–	–	–	–	.063 (3.6)	–	–
X/Y	–	–	–	–	–	–	–	.441 (-1.6)
M/Y	–	–	–	–	–	–	–	.102 (-0.5)
XPRICE	–	–	–	–	–	–	–	.025 (1.9)
MPRICE	–	–	–	–	–	–	–	.059 (1.6)
POST-1987	-.018 (-4.8)	-.019 (-3.8)	-.019 (-4.3)	.003 (0.5)	.006 (1.4)	-.022 (-5.3)	-.021 (-5.2)	-.038 (-4.9)
CFA ZONE	.029 (2.3)	.014 (0.8)	.026 (2.0)	.015 (1.0)	.004 (0.2)	.033 (2.5)	.025 (1.9)	.024 (1.9)
Adjusted R²	.556	.425	.554	.387	.373	.561	.554	.557
D.W.	2.01	2.03	2.01	1.91	1.88	2.04	2.04	2.01
N	345	345	346	346	346	346	345	346

Notes: (i) The dependent variable is the ratio of short-term debt to GNP.
(ii) The figures in parentheses below the parameter estimates are the t-values. At 1%; 5% and 10% levels of significance (using 2-tailed test), a parameter estimate is statistically significant if its t-value is absolutely up to 2.5; 2.0; and 1.6 respectively.
(iii) The D.W. and N represent the Durbin Watson statistic and total number of observations respectively.
(iv) The following are the meanings of mnemonics used for the regressors: DEBT/Y = debt/GDP ratio; lONGDEBT/Y = long-term debt/GDP ratio; DEBT/X = debt/exports ratio; PRVDSR/X = private debts/exports ratio; DRS/X = total debt service payments/exports ratio; DSR/Y = debt service payments on private debts/exports ratio; RSV/M = foreignreserves/import ratio; RSV/Y = foreign reserves/GDP ratio; RSV/DEBT = foreign reserves/debt ratio; (CB/Y)80 = stock of commercial bank debt/GDP ratio as of 1980; RESCH = rescheduling dummy variable;
INTARREAR = arrears of interest on long-term 'debts/long-term debt ratio; IMF = outstanding credit from IMF/total imports ratio; VARDEBT = debt attracting variable interest rate/total debt ratio; COMDEBT = commercial/total debt ratio; ECONGROWTH = economic growth; PCY = per capita income level; INV/Y = investment/GDP ratio; GOVTOCON/Y = government consumption expenditure/GDP ratio; AGRIC/Y = share of agriculture in total output; MONEYGROWTH = monetary growth; INFLATION = inflation rate; X/Y = export/GDP ratio; M/Y = import/GDP ratio; XPRICE = export unit value; MPRICE = import unit value; POST-1987 = dummy variable for post-1987 period; and CFA ZONE = dummy variable for being a CFA member country.

Source: Compiled by author.

Existing Debt Service Performance

The ratio of debt service payments on commercial debts to total stock of commercial debts have coefficients that are positive and statistically significant in all equations, just as the coefficients of total debt service payments-GDP ratio in the short-term debt equations. The coefficients of other proxies for debt service performance (*viz.*: coefficients of total debt service payments-export ratio in all equations and those of total debt service payments in the long-term loan disbursement equations) are statistically insignificant. All the same, the statistically significant positive coefficients of some proxies provide enough evidence to suggest that lendings to the countries are positively influenced by debt service performance — especially, in connection with commercial debts. Given this evidence, the practically mandatory repayments of loans and payments of interests to the preferred creditors (*viz.*: the two Bretton Wood sisters, IMF and World Bank) that resulted into *net transfer* of resources to these institutions since mid-1980s would also have the effect of reducing the ability of African countries to attract finance from international banking community. This is because their resources were not adequate to service obligations to the multilateral creditors and the commercial banks at the same time. By reducing the ability of the countries to service commercial debts, the net transfer of resources to official multilateral creditors contributed in way to reduced new commercial lendings to the countries.

External Reserves Position

The coefficients of all proxies for external reserves position (*viz.*: foreign reserves-import; foreign reserves-total debt; and foreign reserves-GDP ratios) are negative in all equations although statistically significant in only the short-term debt equation estimates of Table 3. Thus, one can infer that external reserves position reduces the volume of loans, particularly short-term type. This should be due to dominance of the effect via the demand side, whereby a country with buoyant external reserves position would not likely be hard-pressed or very eager to borrow from international banking community, especially on a short-term basis.

Debt Rescheduling, Interest Arrears and Position with IMF

The coefficients of rescheduling (dummy) variable are negative and statistically significant in the equations while those of interest arrears are significant in only the long-term loans disbursement equation estimates -i.e., only in Table 2 estimates — but insignificant in the short-term debt equations. The coefficients of variable proxying borrowing from IMF are not significant in any equation. What these findings suggest is that international banking community refrains from lending on both short- and long-term bases to countries rescheduling their existing debts and also refrain from extending long-term loans to countries that are in arrears of interest

payments on the existing debts. These findings therefore support the existing debt service performance and the same policy implication regarding the recent net transfer of resources to international official institutions are applicable also.

Relative Size of Variable Interest Rate in Total Debt

The coefficients of this variable are negative and statistically significant in the short-term debt equation estimates reported in Table 3 but insignificant in the long-term loan disbursement equation estimates of Table 2. We might infer that prospective lenders respond to the risk inherent in preponderance of variable interest rate debt in the total external debt position of a country by being more reluctant to lend on a short-term basis.

Relative Sizes of Commercial and Long-term Debts

In the long-term loan disbursement equation where the ratio of long-term to total debt features as a regressor, its coefficient is statistically insignificant.[11] On the other hand, the coefficients of commercial-total debt ratio are positive and statistically significant in both long-term loans and short-term debt equations. Therefore, one can infer that international bankers do not appear to consider the maturity structure of the existing debt portfolio in their lending decisions. On the other hand, preponderance of commercial debt in the existing total debt position is positively related to loans from these banks, in contrast to the position earlier maintained.[12] Probably, the existing size of commercial in relation to total debt is an indication of long-standing relationship with commercial creditors or probably it is a reflection of existing and continued creditworthiness as the bankers perceive it. '

External Trading Position

The coefficients of import-GDP ratio are positive and statistically significant in long-term loan disbursement equations but are not significant in the short-term debt equations. On the other hand, the coefficients of export-GDP ratio are negative and also exhibit, at least, some statistical significance in all. It can thus be inferred that exports reduce the volume of loans while imports does the opposite, especially in respect of long-term loans. A

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11 Given the way the variables are measured, it would be inappropriate to include it as a regressor in the short-term debt (stock) equations since the higher the preponderance of total long-term loan stock, the lower would be that of total short-term loan stock. This does not apply to long-term loan disbursement equations because first, it is in flow form and second, it does not relate to total long-term loans— it applies to only that of commercial banks.

12 It should be recollected from our discussion that, in an earlier study reported by Gooptu and Peria (1992), the authors posit that the relative size of commercial debts of a country should discourage lendings to that country.

possible explanation for this is that export reduces the need to borrow while borrowing is often needed for financing imports.

Domestic Economic Indicators

Real GDP growth rate and the share of investment expenditure in GDP have coefficients that are positive and statistically significant in long-term loan equations and insignificant negative coefficients in the short-term debt equations. The reverse is the case with coefficients of per capita income level — positive and statistically significant in the short-term debt equation but negative and insignificant in the long-term loan equation. By reckoning with only significant coefficients, one can infer that economic growth and the share of investment in GDP tend to attract more long-term loans while the level of *per capita* income appears to do the same with respect to short-term loans. As being postulated in the literature, the share of agriculture in total output has negative effects on both the long- and short-term lendings. This is based on the coefficients of this variable that are negative in all equations and statistically significant in almost all. However, we are unable to observe negative effects of any of inflation rate; monetary growth; and the share of government (consumption) expenditure in GDP. Their coefficients are statistically insignificant in the equations— the only significant coefficient is that of inflation rate in a short-term debt equation and it is even positive instead of being negative. Thus, it appears that international bankers do not take cognisance of these in their risk assessment of African countries.

Other Factors

First, the coefficients of export price movement are positive and statistically significant in the equations (just as that of terms of trade improvement in the equation where it features) while the coefficients of import price movement are insignificant. What this evidence suggests is that the bankers are more willing to lend to those countries having terms of trade improvements — particularly, rising export prices.

Second, the coefficients of the variable standing for commercial bank long-term debt as a ratio of GDP or as a ratio of total debt as of 1980, which is a proxy for the initial experience of the countries in international bank credit markets, are positive and statistically very significant in Table 2 results.[13] Thus, it can be inferred that the initial exposure of countries to

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13 Because it relates to long-term commercial bank lendings, the way it is measured (as long-term commercial bank debt in relation to GDP or total debt as of 1980), it is not very appropriate in the short-term debt equations and therefore features in just only two, where it is also positively signed.

international banking community prior to 1980 facilitated their access to commercial bank credits during 1980s.

Third, the coefficients of dummy variable for CFA member countries are positive and statistically significant in practically all equations. This suggests that the CFA member countries are more favourably treated in the international commercial bank credit market than other African countries, in a general term. This is in line with the position maintained earlier in sub-section 3.2.

Finally, the coefficients of dummy variable for post-1987 period are negative and statistically significant in almost all equations. This supports the position that the *portfolio cleansing or mandatory provisioning* regulations embarked upon by the OECD member countries on the banks reduce their lendings to African countries.[14]

Summary and Concluding Remarks

The study attempts to explain the dwindling flow of commercial bank lendings to African countries especially in the 1980s in terms of those factors that are likely to influence the attitudes of international banking community and, to some extent, the need of the countries themselves for the external bank credit. A wide range of factors considered include the existing debt overhang; existing debt service performance; level of foreign reserves; debt rescheduling and arrears of interest; composition of existing level of external debt; size of foreign trade; domestic economic indicators; terms of trade movements; initial exposure to international banking community; membership of CFA monetary zone; and portfolio cleansing regulations by OECD countries on their banks. Pooled annual data over 1980-90 period for 39 African countries are employed in the analysis.

After the usual preambles, we presented and discussed stylized figures in respect of the magnitudes and trends of lendings to the region during the period. Particularly, the figures portray the smallness of long-term loan disbursements by the banks to the region and the ever-declining trend of the amounts. We also describe the methodology employed in the study, including the rationale behind testing for the effects of various factors considered in the study. It is there that we also discuss the method of estimating the regression equations specified for long-term and short-term lendings by the international bankers with the annual data, pooled across the

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14 While there is a general downward trend in respect of long-term loan disbursements during the entire 1980-90 period as discussed in connection with Table 1, this is not the case with short-term debt. Thus, the decline in post-1987 short-term lendings detected here could not be attributed to being just a continuation of the longer-term trend decline.

countries. The estimates of the equations are presented and evaluated and our findings suggest that most of the factors tested for exhibit significant effects on the inflows of bank credits. Specifically, it is found that:

- Debt overhang reduces long-term lendings but increases short-term debts, presumably as a result of defensive lendings by the banks.

- The banks tend to lend more to countries that service their debts.

- Buoyant foreign reserves position tends to reduce the need to borrow from the banks, especially on a short-term basis.

- The banks tend to refrain from lending to countries that are rescheduling their existing debts and those that are in arrears regarding interest payments on the debts.

- The banks also appear to refrain from lending to those countries whose existing debts are predominantly of variable interest rate type.

- On the other hand, preponderance of commercial debt in the total external debt is positively associated with amount of credit presently being received.

- Increasing import in relation to GDP and decreasing export in relation to GDP are found to be positively associated with amount of credits being received.

- The banks appear more willing to lend more to those countries with high and growing income as well as countries with high ratios of income devoted to investment expenditure. On the other hand, they tend to refrain from lending to predominantly agrarian countries.

- The banks also appear to be motivated to lend to countries experiencing terms of trade improvements, particularly rising prices of exports.

- The initial exposure of the countries prior to 1980 in international commercial bank long-term credit market is found to enhance the subsequent access of such countries to this market during the tight credit period of 1980-90.

- Being a member of CFA monetary zone enhances access of a country to the bank credit market, presumably due to relatively easy convertibility of the currency of this zone.

- Finally, the mandatory provisioning or portfolio cleansing regulations by the OECD countries on their commercial banks tend to reduce lendings of the banks to Africa.

Appendix: The Data and List of Countries Included

The Sub-saharan countries included are Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Côte d'Ivoire, Ethiopia, Gabon, Gambia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia and Zimbabwe. Others (non-Sub-Saharan) are Algeria, Egypt, Morocco and Tunisia.

All the data on total and categories of external debt stock and flows are from the World Bank's *World Debt Tables, 1989 and 1911* issues. They are end-of-year values, in US dollars. This is also the source for Gross National Product (GNP) data (in dollars); average maturity of loans (in years); external debt service payments of all categories (in dollars); arrears of interest (in dollars); amount (in dollars) of debt rescheduled since 1985; and loan disbursements (in dollars).

Data (in domestic currency units) on nominal and real GDP (from which inflation rate is also computed); agricultural output; exports and imports of goods and services; total private investment spending; and government consumption spending are from the World Bank's *World Tables, 1991*. This is also the source for *per capita* income (in dollars) and terms of trade, including export and import unit prices.

Data on exports and imports of goods and services in dollars; wide money stock (in domestic currency); and foreign reserves (in dollars) are from the IMFs *International Financial Statistics Yearbook, 1991*.

Concerning the data on debt rescheduling, the post-1984 information is from the *World Debt Tables*, as pointed out above. But the pre-1985 information is synthesized from what is contained in some previous studies, *viz.*: Savides (1991) and Taffler and Abassi (1984), where there are lists of countries rescheduling debts between 1980 and 1986 and since before 1980 to 1982 respectively. These studies too derive their information from earlier editions of the *World Debt Tables*.

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* Department of Economics, University of Ilorin, Ilorin, Nigeria.