The Expected Economic Impacts of Sudan's Accession to the WTO:
The Case of the Banking Sector 1970-2008

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Abstract: This study investigated the anticipated economic impacts of Sudan's accession to the World Trade Organization (WTO), focusing on the banking sector's role from 1970 to 2008, prior to South Sudan's secession. The research aims to support Sudan's preparation for WTO membership by analyzing the effects of financial liberalization, which has yielded both positive and negative outcomes in other developing countries. Employing a dual methodology combining empirical and descriptive approaches, the study relies on secondary data sources. It hypothesizes that Sudanese financial indicators positively correlate with growth indicators and that financial reforms contribute to financial development and economic growth. Results, derived in two stages, indicate that financial indicators significantly explain only two of four growth indicators, attributed to inadequate financing of the agricultural sector. The second stage confirms the partial presence of prerequisites, such as sound institutions and macroeconomic stability, necessary for effective financial liberalization. The study anticipates that WTO accession will enhance domestic bank efficiency and supervision. Recommendations include addressing barriers to financing the agricultural sector, strengthening central bank measures to tackle non-performing loans, and raising awareness among monetary authorities of the significant negative relationships between certain growth and financial indicators.

Keywords: Economic impacts, financial indicators, Sudan's WTO accession, banking sector, financial liberalization, economic growth.

الآثار الاقتصادية المتوقعة لانضمام السودان إلى منظمة التجارة العالمية:
دراسة حالة القطاع المصرفي 1970-2008

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المستخلص: استقصى هذا البحث الآثار الاقتصادية المتوقعة لانضمام السودان إلى منظمة التجارة العالمية (WTO)، مع التركيز على دور القطاع المصرفي خلال الفترة من 1970 - 2008، أي قبل انفصال جنوب السودان. يهدف البحث إلى المساهمة في تهيئة السودان للانضمام إلى المنظمة من خلال دراسة تأثيرات التحرير المالي، الذي أظهر نتائج إيجابية وسلبية في دول نامية أخرى. اعتمد البحث منهجية مزدوجة تجمع بين التحليل الاستقصائي والوصفي باستخدام بيانات مكتبية. تضمنت الفرضيات ارتباط المؤشرات المالية السودانية إيجابياً بمؤشرات النمو، ومساهمة الإصلاحات المالية في التنمية المالية والنمو الاقتصادي. أظهرت النتائج في المرحلة الأولى أن المؤشرات المالية تفسر فقط اثنين من أربعة مؤشرات نمو، بسبب فشل تمويل القطاع الزراعي. وفي المرحلة الثانية، تبين توفر شروط المؤسسات الجيدة والاستقرار الاقتصادي بشكل جزئي، مما يدعم التحرير المالي. توقع الباحثون تحسين كفاءة البنوك المحلية ورقابتها بعد الانضمام. تضمنت التوصيات حل معوقات تمويل القطاع الزراعي، تعزيز معايير معالجة القروض غير المسددة من قبل البنك المركزي، وتوعية السلطات النقدية بالعلاقات السلبية بين بعض مؤشرات النمو والمؤشرات المالية.

الكلمات المفتاحية: الآثار الاقتصادية، المؤشرات المالية، انضمام السودان إلى منظمة التجارة العالمية، القطاع المصرفي، التحرير المالي، النمو الاقتصادي

1.   Introduction:

The anxiety of developing countries and countries in transition, with regard to their accession to the WTO have induced researchers to investigate the expected economic impacts that may result from this accession, utilizing data from different sectors of the economy. The banking sector is given a considerable attention due to its crucial role in the economy.

In principle, financial liberalization could help to raise the growth rate in a developing economy, through direct and indirect channels. The direct channels are known to be the augmentation of domestic savings, reduction in the cost of capital, transfer of technology from advanced to a developing economy and the development of domestic financial sector. The indirect channels are represented by, increased production specialization due to the better risk management and improvements in both macroeconomic policies and institutions induced by the competitive pressures of financial liberalization. However, there is as yet no robust empirical evidence that, this causal relationship is statistically significant (Prasad, Rogoff, Wei and Kose, 2004, pp.2-5). Prasad and his associates attributed this situation not to differences in capital – labor ratio, but to differences in total labor productivity, which could be explained by factors like governance and rule of law. While financial liberalization may result in higher capital flow, it is unlikely to cause faster growth by itself. In addition, some countries with financial sector liberalization have experienced output collapses related to costly banking or currency crises. According to those writers, an alternative possibility for the absence of robust empirical evidence for the positive impact for financial liberalization is that, the indirect channels mentioned above cannot be captured in standard regression frameworks. One of the few studies on cross-country financial liberalization and the economic growth using the panel data regression analysis concluded to the fact that financial liberalization has a significant impact on the economic growth (Eghosa &Ikponmwosa, 2023). A study conducted by (Amjad Ali, 2022), show that financial liberalization has a significant impact on the economic growth. Based on a survey of 54 published articles, and meta-analysis of 906 estimates of the effects of financial liberalization on economic growth. The study conducted by (Borsa Istanbul Review Jan. 2024 pages 1- 13) concluded that the literature contains statistically significant evidence of a positive effect of financial liberalization on economic growth, and, in some cases, these effects can be considered as economically meaningful. Thus, some types of financial liberalization are effective policy tools for increasing an economy's rate of growth even if financial liberalization increases the volatility of the financial sector.

Therefore, the purpose of this paper is to investigate the expected economic impacts of Sudan's accession to the WTO, with the banking system as a case study, and for the period 1970-2008, through the following methodology.

2.   The Methodology:

A considerable number of writers have investigated the relationship between financial development and economic development. Significant among them, are King and Levine (1993) who presented a set of findings that support the view of Schumpeter, who argued in 1911 that, the services provided by financial intermediaries (mobilizing savings, evaluating projects, managing risk, monitoring managers and facilitating transactions) stimulate technological innovation and economic development. After examining a cross- section of about 80 countries for the period 1960-1989, King and Levine reported three findings. Firstly, the average level of financial development for the period 1960-89 is very strongly associated with economic growth for the period. Secondly, financial development precedes growth. Thirdly, financial development is positively associated with both the investment rate and the efficiency with which economies use capital. These findings have been reached through studying the empirical relationship between four financial indicators and four growth indicators. All these indicators will be discussed here below.

Other considerable numbers of writers have argued on the benefits that may accrue to developing countries from accession to the WTO through their banking sectors. Among them, are Claessen and Jansen (2000) who stated that: "countries do not appear to benefit more from financial liberalization if their domestic financial systems remain heavily regulated." Mishkin (2007, pp.259-294) observed that, the accession to the WTO - and more particularly to GATS – is known to have a positive impact on the financial sector and consequently on the overall development of the economy if it is done right. The same writer (2007, p.287) stated that: "Bad policies are the reason that financial development does not occur and why financial globalization often leads to harmful financial crises. Instead of rejecting financial globalization, we can greatly improve the environment for economic growth if we develop policies that promote successful financial development and financial globalization."

In response to these important arguments and observations, economists started to enquire into the nature of circumstances or prerequisites under which financial liberalization would be beneficial to developing countries. Among such favorable circumstances they identified good institutions, high quality of governance and macroeconomic stability. Furthermore, the conclusion was also reached

that countries which adopt relatively flexible exchange rate regimes and succeed in maintaining fiscal discipline are more likely to enjoy the potential growth and stabilization benefits of financial liberalization (Prasad, Rogoff, Wei and Kose, 2007).

Based on the above-mentioned views, statements and observations, this study will closely follow the King and Levine's approach and closely relates to the points raised by Mishkin to investigate first: the existence of positive relationship between financial development and economic development in Sudan. Second; the presence of good institutions, high quality of governance and macroeconomic stability in this country. If sufficient evidences emerge that, financial sector development was indeed conducive to economic growth in Sudan, and the above-mentioned prerequisites are present in Sudan, then it will be more likely to expect positive economic impacts to result from this country's accession to the WTO. If the opposite is true, then this study can conclude that, Sudan's accession to the WTO may encounter some negative impacts with reference to its banking sector. Such expectations conform to the main body of thought in the literature on the subject. This analysis will be conducted through a two —stage methodology:

2.1 Stage One:

Stage one is an empirical analysis which aims to investigate the relationship between financial development and economic growth in Sudan closely following King and Levine's (1993) approach in which they investigated whether high levels of financial development are significantly and robustly correlated with faster current and future rates of economic growth, physical capital accumulation, and economic efficiency improvements. On the basis of cross-section data of about 80 countries for the period 1960-89, they were able to conclude that higher levels of financial development are positively associated with faster rates of economic growth, physical capital accumulation, and economic efficiency improvements both before and after controlling for numerous country and policy characteristics. They admitted that "a country's growth experiences seem to be rooted in its specific characteristics".

Arestis and Demetriades (1997, pp.783-799) supported King and Levine views of relevance of time series data rather than cross- sectional data in studying the subject matter. The main reason they cited is that, a country's specific institutional factors are likely to influence the causal nature of the relationship between financial development and economic growth, which is, therefore, expected to vary across countries. Accordingly, a country-by-country study of the problem in hand is by far more promising.

This study follows King and Levine in the selection of both four financial indicators and four growth indicators. The four financial indicators are:

1. The ratio of the size of formal financial intermediary sector's liquid liabilities which equals "M2") to GDP "i.e. financial depth" which is termed "**LLY** ".

2. The importance of deposit money banks relative to central bank, measured by the ratio of deposit money banks' domestic assets to the sum of central bank's domestic assets, and it is termed **BANK**.

3. The ratio of credit provided to nonfinancial private sector to total domestic credit extended by banks (excluding credit to money banks) this indicator is called **PRIVATE**.

4. The ratio of claims on the nonfinancial private sector to GDP, this variable is termed **PRIVY**.

    The four growth indicators are:

1. The real per capita GDP growth rate "**GYP**".

2. The real per capita physical capital stock "**GK**".

3. The ratio of domestic investment to GDP "**INV**".

4. A residual measure of improvements in the efficiency of physical capital allocation "**EFF**".

    The empirical methodology will go through the following steps:

A. Study the strength of partial correlations between average levels of the four financial development indicators and contemporaneous growth indicators GYP, GK, INV and EFF.

B. carry out linear regressions to gauge the strength of the partial relation between contemporaneous financial development indicators and contemporaneous growth indicators (dependent variables) as a base regression, then add to it other explanatory variables (two ratios and one rate) to control for other economic phenomena. These are, the ratio of trade openness (Exports plus Imports to GDP (TRD). The second is the ratio of government spending to GDP (GOV). The importance of this ratio stems from the fact that, the government expenditure may be directed towards the production process or elsewhere. In addition to the previous ratios an average rate of inflation (PI) is used, as higher rates of inflation usually result in price distortions and negatively affect the production process.

The general forms of the regression equations are:

GYP = f (LLY, Bank, Private, Privy).

GK = f (LLY, Bank, Private, Privy).

INV = f (LLY, Bank, Private, Privy).

EFF = f (LLY, Bank, Private, Privy).

And;

GYP = f (LLY, Bank, Private, Privy, TRD, GOV, PI).

GK = f (LLY, Bank, Private, Privy, TRD, GOV, PI).

INV = f (LLY, Bank, Private, Privy, TRD, GOV, PI).

EFF = f (LLY, Bank, Private, Privy, TRD, GOV, PI).

In addition to the variables described above, a dummy variable (D) taking zero value during the period 1970-1990 (Traditional banking practices) and the value of one during the period 1991-2008 (Islamic banking practices) is used in all the above-mentioned equations to account for the Islamization program of the banking system launched in Sudan during 1990's. The Ordinary Least Squares (OLS) method is used to estimate the regression equations. The Data shown on the Appendix table 1(Selected Financial and Growth Indicators in Sudan for the period: 1970-2008) were entered to the EViews 5 Program to obtain the correlation and regression results.

Figure (2.1) analyzes the behavior of selected growth indicators 1970-2008. The figure shows that the GYP was positive in most years and only it registered a negative sign in 1972, 1978, 1979, 1984 and 1990. The INV registered positive rates of growth for the whole period under question. The GK obtained negative growth rates in only two years, 1979 and 1999. This indicator registered a great jump in 1996 and maintained a semi constant level until the end of the period. It is obvious from the figure that the EFF indicator was registering negative and/or low growth rates in most of the years of the study. However, it maintained a positive performance during the periods followed the reforms, 1990-1995 and 2000-2008.

Figure 2.1: The Behavior of the Selected Growth Indicators in Sudan :1970-2008.

Ratio) 1=100
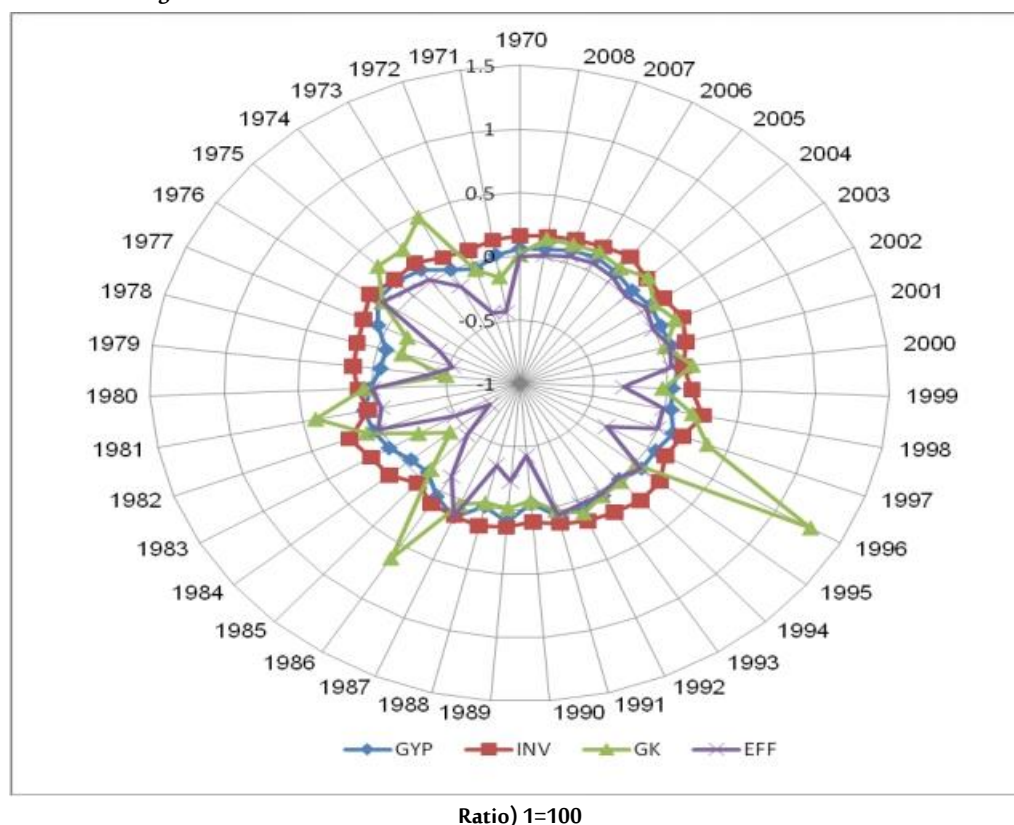
Source: Appendix 4, Table: Selected Financial and Growth Indicators in Sudan: 1970-2008.

In Figure 2. 2 the four financial indicators' ratios were sharply fluctuating and decreasing in the years preceding the reforms. Although, they did not register a negative sign. During the 1990s they declined drastically and then started to increase firmly. Specially those of Bank, Private and LLY.

Taken as a whole, the behavior of both growth and financial indicators may reveal the positive effect of the undertaken financial reforms in Sudan. But that cannot be confirmed unless more analyses are conducted.
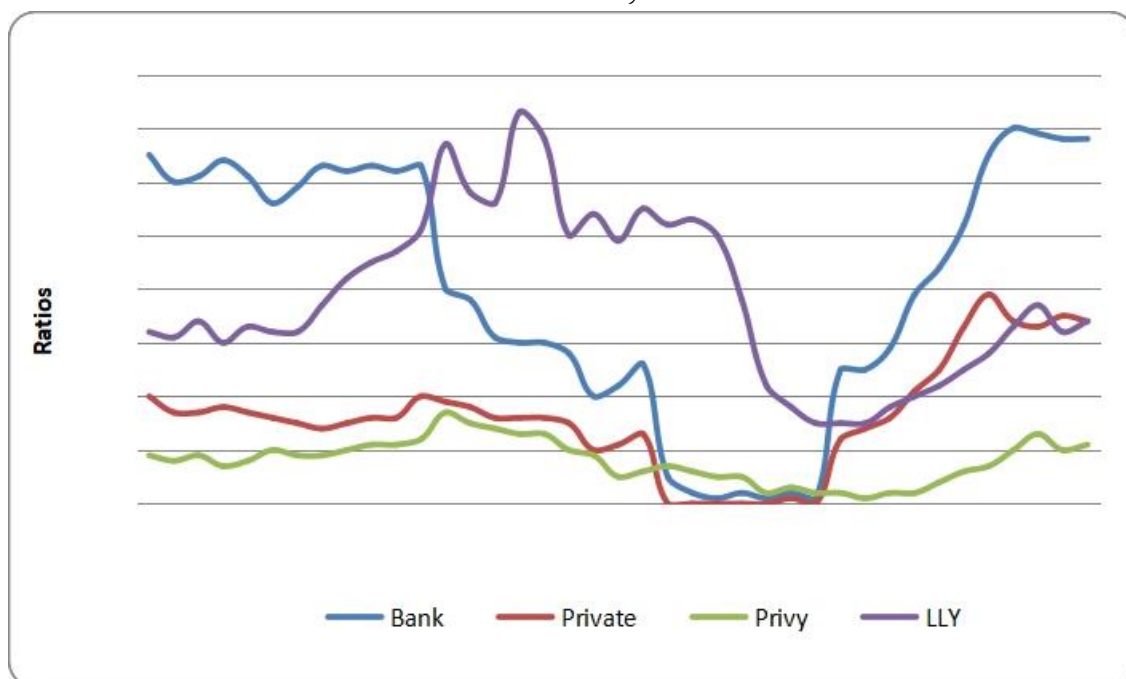

Figure 2.2: The Behavior of the Selected Financial Indicators in Sudan: 1970-2008. Source: Ibid.

Here below, are the analyses for both step (**A**) and step (**B**) of the above-mentioned stage:

Step A: King and Levine divided countries into four categories: very fast, fast, slow and very slow growers, with approximately 20 countries in each category. They reached a conclusion that, countries with faster growth rates of real per capita GDP (GYP) experienced an increase in financial depth (LLY), the importance of banks relative to the central bank (Bank), the fraction of credit allocated to the nonfinancial private sector (Private) and the ratio of private sector credit to GDP (Privy). Similarly, countries with faster rates of physical capital accumulations (GK) and countries with more efficient capital allocations (EFF) tend to have more developed financial systems. Summary statistics on the relationships between financial development and growth indicators in Sudan for 1970-2008 are given in Table (2.1). The correlations and P-values results shown on this table relate to partial correlations between each growth indicator and financial development indicators.

Table (2.1): Correlations Between Financial Development and Growth Indicators in Sudan: 1970-2008

Variable	GYP	GK	INV	EFF
LLY	0.361	-0.307	-0.413	-0.344
	(0.033) *	(0.073)	(0.014)	(0.043)
Bank	0.097	-0.129	-0.044	-0.023
	(0.58)	(0.462)	(0.802)	(0.897)
Private	-0.123	-0.09	0.091	0.09
	(0.48)	(0.606)	(0.603)	(0.607)
Privy	-0.125	-0.264	-0.413	-0.311
	(0.474)	(0.126)	(0.181)	(0.069)

*Figures in parenthesis are p-values. Source: Ibid.

The results on Table (2.1) above, indicate a negative correlation of the GYP growth indicator with the LLY, private and Privy financial indicators. Although, the correlation with LLy is significant at 5% level of significance. Roussueau and Wachtel (2005) found that the finance- growth relationship is not as strong with more recent data as it was in the studies with data for the period 1960 to 1989. They offered two possible explanations. First, financial depth (LLY) may have had greater value as a shock absorber in the 1970s and 1980s, decades characterized by nominal shocks. Second, the spread of financial liberalization in the 1980s may have led to increasing financial depth in countries that lacked the legal regulatory infrastructure to successfully exploit financial development. Therefore, this result is considered to be important to Sudan in the light of what had been stated by those two writers. The monetary authorities can use

the financial depth to obtain the targeted growth rate of the economy. In addition, the GYP growth indicator has an insignificant positive correlation with Bank. These results reflect the weak relationship between financial development indicators and the GDP growth rate during the period in question.

The Gk growth indicator correlation results show negative and insignificant correlation with all studied financial indicators. The INV correlation results show an insignificant positive correlation with Private, and negative correlations between INV and the other financial indicators, LLY, Bank and Privy. However, the correlation with LLy is significant at the 1% level of significance. Accordingly, the lower the financial depth ratio the higher will be the domestic investment to GDP ratio. That may be justified on the basis of price distortions when the LLY ratio is kept at higher levels. The EFF growth indicator is positively correlated with Private, but this correlation is insignificant and the same EFF indicator is negatively correlated with the other financial indicators. However, its correlation is significant at 5% level of significance with LLY. This result may imply that, the higher the financial depth ratios the lower will be the efficiency by which the economy is utilizing its resources.

From these analyses, it is evident that the LLY ratio has a significant negative correlation with the GYP, INV, and EFF growth indicators. Therefore, the monetary authorities in Sudan should continue to concentrate on the LLY levels, when formulating policies pertinent to these growth indicators. The correlation results obtained for the other growth indicators may be attributed to inefficient allocation of resources by banks and/or to the quality of credit disbursal of the banking sector in addition to the absence of the conducive investment climate required to foster private investment.

Step B: Multiple linear regressions analysis was conducted; to examine the relationships between each growth indicator (GYP, INV, GK and EFF) and the four financial indicators (LLY, BANK, PRIVATE and PRIVY). The general form of the model is:

$$Indicator = \beta_0 + \beta_1 LLY + \beta_2\, BANK + \beta_3 PRIVATE + \beta_4 PRIVY + \beta_5 D + \varepsilon$$

Where β_0 is the constant, $\beta_1......\beta_5$, stand for the coefficients, D is a Dummy variable and ε is the error term of the regression. The estimated models are as follows:

For the GYP variable:

$$GYP = \frac{0.090 -}{(1.523)}\frac{0.230}{(-1.637)}LLY - \frac{0.056}{(-0.512)}BANK + \frac{0.027}{(0.138)}PRIVATE + \frac{0.711}{(1.286)}PRIVY + \frac{0.177}{(0.537)}D$$

$$
\begin{aligned}
R\ Squared &= & 0.170 \\
Adjusted\ R\ Squared &= & 0.044
\end{aligned}
$$

$$
\begin{aligned}
F &= & 1.353 \\
DW &= & 1.395
\end{aligned}
$$

Where figures in brackets are t-statistics.

As shown above, the four financial indicators have jointly very little explanatory power over the GDP growth rate (GYP), since R squared is 0.170. The adjusted R squared is only 0.044. The F-statistic is only 1.353 and the p-value of the F- statistic is 0.267 which indicates a poor model performance and DW is 1.395 which indicates a problem of autocorrelation. Overall, thus, the relation between the growth indicator GYP and the abovementioned four financial indicators is considered to be weak. But, after three trials of dropping the least significant variables, bank, private, the dummy variable and privy, the R squared is changed to 0.107 and the adjusted R squared registered 0.082, the F- statistic is equal to 4.411, the p- value of the F- statistic is 0.042 which indicates a good model performance and DW is 1.374 which indicates a problem of autocorrelation. From this model equation, LLy seems to be the significant contributor to the GYP at 5 % level of significance but its effect is seen to be negative, while PRIVY proved to be an insignificant positive contributor to this growth indicator. The implications of this result are that, low levels of financial depth ratios may result in higher growth rates of the Sudanese economy.

 As far as INV is considered,

$$INV = \begin{array}{cccccc} 0.178 - & 0.217 LLY - & 0.043\ BANK & -0.037\ PRIVATE + & 0.849\ PRIVY + & 0.046\ D \\ (4.032) & (-2.070) & (-0.528) & (0.891) & (2.060) & (1.884) \end{array}$$

$$\begin{aligned} R\ Squared &= 0.367 \\ Adjusted\ R\ Squared &= 0.271 \end{aligned}$$

$$\begin{aligned} F &= 3.828 \\ DW &= 1.807 \end{aligned}$$

It is obvious that, the four financial indicators jointly have some explanatory power to changes in the growth indicator INV, where R squared is 0.367, the adjusted R squared is 0.271. The t-statistics show values above the statistical levels of significance at 5% and 10% and the F value is 3.828 producing a P- value of.008 while DW is 1.807. Therefore, this relation is significant at 1% level of significance. About 37% of variations in the INV variable can be explained by the joint changes in these financial development indicators. From this estimated model equation, it seems that, the Dummy variable which stands for: the Islamization of the banking sector in Sudan and the Privy variable, which stands for: the ratio of claims on the nonfinancial private sector to GDP are significant positive contributors to the INV growth indicator, while the LLy, which stands for the financial depth, is significant but negative contributor to this growth indicator. The results obtained are not surprising since the three abovementioned contributors are mainly **engaged in the private investment**. It is evident that, the Islamization of the banking sector in Sudan has induced more investors to invest more, as they feel confident that **they are not committing a sin when they finance their investment activities from the banking sector.**

As for the GK variable:

The following equation is estimated,

$$GK = \begin{array}{cccccc} 0.459 - & 1.047\ LLY - & 5.10\ BANK + & 0.212\ PRIVATE + & 2.602\ PRIVY + & 0.014\ D \\ (1.543) & (-1.483) & (-0.932) & (0.212) & (0.937) & (0.085) \end{array}$$

$$\begin{aligned} R\ Squared &= 0.139 \\ Adjusted\ R\ Squared &= 0.009 \end{aligned}$$

$$\begin{aligned} F &= 1.066 \\ DW &= 1.835 \end{aligned}$$

The above estimated model equation shows that, the four financial indicators jointly have explanatory power over the GDP growth rate (GYP), since the R squared is 0.139. The adjusted R squared is only 0.009. The F-statistic is 1.066 and the P- value of the F-statistic is as high as 0.397 and most of the t-statistics values are below the statistical levels of significance. The DW is equal to 1. 835.This relation is considered to be **insignificant**.

As for the EFF variable the estimated equation was:

$$EFF = \begin{array}{cccccc} -0.391 + & 0.158\ LLY + & 0.388\ BANK - & 0.425\ PRIVATE - & 0.289\ PRIVY + & 0.300\ D \\ (-1.813) & (0.309) & (0.980) & (-0.587) & (-0.144) & (2.499) \end{array}$$

$$\begin{aligned} R\ Squared &= 0.276 \\ Adjusted\ R\ Squared &= 0.166 \end{aligned}$$

$$\begin{aligned} F &= 2.514 \\ DW &= 1.507 \end{aligned}$$

The above estimated model equation shows that, the four financial indicators jointly have explanatory power over the GDP growth rate (GYP), since R squared=0.276). The adjusted R squared is only 0.166, the F-statistic is 2.514; the p-value of the F- statistic is

0.049, the t-statistics values of financial indicators are all below the statistical levels of significance. The DW is 1.507. Although, this relation is considered to be significant at 5% level of significance since the P- value of F- statistic is 0.049. But, when the research dropped LLY, Private and Privy the following results are obtained; R squared is 0.268, adjusted R squared is 0.227, F- statistic is 6.573, the p-value of the F- statistic is 0.003 and the DW is 1.492. Therefore, the bank and the dummy variables are significant positive contributors to the EFF growth indicator at 1 % level of significance. This result reveals the importance of the ratio of deposit money banks to the central bank and the Islamization practices adapted by these banks, to the efficiency of physical capital allocation in the Sudan economy.

The next step is to add other explanatory variables (two ratios and one rate) to control for other economic phenomena. These are, the ratio of trade openness (export plus import) to GDP (TRD), the ratio of government spending to GDP (GOV) and the average inflation rate (PI), as introduced by King and Levine. The general form of the models now becomes:

$$Indicator = \beta_0 + \beta_1 LLY + \beta_2 BANK + \beta_3 PRIVATE + \beta_4 PRIVY + \beta_5 TRD + \beta_6 GOV + \beta_7 PI + \beta_8 D + \varepsilon$$

$$\varepsilon$$

Where, β_0 is the constant, $\beta_1...\beta_8$ stands for the slope coefficients and D is the Dummy variable and ε is the error term of the regression. The estimated models are as follows:

As for the GYP variable:

$$GYP = \begin{matrix} 0.121 - & 0.267 LLY - & 0.042\ BANK + & 0.877\ PRIVY + & 0.093\ TRD - & 0.214\ GOV + & (\ 0.010\ D \\ (1.672) & (-1.718) & (-.542) & (1.279) & (0.363) & (-0.718) & (0.337) \end{matrix}$$

$$R\ Squared = 0.183$$
$$Adjusted\ R\ Squared = 0.030$$

$$F = 1.196$$
$$DW = 1.414$$

The initial estimated model that includes the four financial indicators and the three above mentioned control variables is a bad model, as it produced R Squared of -0.028. Therefore, one financial variable (Private) and one control variable (PI) were removed in two trials and the above-mentioned results are obtained. From the estimated model, it is obvious that the three used financial indicators plus the two used control variables jointly have very little explanatory power over the GDP growth rate (GYP). Since R squared is 0.183 and the adjusted R squared is only 0.030, the F-statistic is 1.196 and the p-value of F is 0.334, the t-statistics values are all (except for LLY) below the statistical levels of significance and the DW is 1.414. Therefore, this relation is considered to be insignificant. But, after dropping all the least significant variables, the results obtained are, R squared equals 0.107, adjusted R squared is 0.082, the F-statistic is 4.411, the p-value of the F- statistic is 0.042 and the DW is 1.374 which indicates a problem of autocorrelation. Therefore, the **LLY is a significant contributor to the GYP growth indicator at 5 % level of significance but negative. That may imply, at lower levels of financial depth ratios, the GDP growth rates tend to improve.**

As for the INV variable:

$$\begin{matrix} INV & & & & & & & & \\ = & 0.178 - & 0.166\ LLY - & 0.016\ BANK - & 0.092\ PRIVATE + & 0.640\ PRIVY - & 0.132\ TRD - & 0.061\ GOV - & 0.020\ PI + & 0.048\ D \\ & (3.206) & (-1.300) & (-0.165) & (-0.423) & (1.170) & (-0.607) & (-0.226) & (-0.471) & (1.480) \end{matrix}$$

$$R\ Squared = 0.391$$
$$Adjusted\ R\ Squared = 0.229$$

$$F = 2.407$$
$$DW = 1.693$$

The estimated model equation shows that, the four financial indicators plus the other three control variables jointly have an obvious explanatory power over the growth indicator (INV), where R squared registered a higher value of 0.391. The adjusted R squared is 0.229. The F-Statistic is 2.407, the P-value of the F statistic is 0.039 and the DW is equal to 1.693. Since there is no significant financial indicator, the research dropped the least significant variables to obtain new results. These are PRIVATE, TRD, GOV, BANK and PI. This

step produces, R squared equals to 0.340, adjusted R squared of 0.284, F- statistic is 6.032, the p-value of the F- statistic equals to.002 and the DW is 1.767. Therefore, this relation is considered to be significant at 1% level of significance. Both the Dummy and Privy variables are significant positive contributors to the INV, while the LLY is significant negative contributor to this growth indicator. This result reconfirms the previously obtained regression results and the analysis for the same growth indicator (INV), before introducing the three control variables (TRD, PI and GOV).

As for the growth indicator variable GK:

The estimated results are given by the following equation:

$$
\begin{aligned}
GK \\
= \underset{(0.700)}{0.246} - \underset{(-1.994)}{0.161\,LLY} - \underset{(-1.240)}{0.759\,BANK} + \underset{(1.644)}{2.269\,PRIVATE} + \underset{(0.515)}{1.782\,PRIVY} - \underset{(-0.546)}{0.751\,TRD} + \underset{(0.661)}{1.120\,GOV} + \underset{(2.192)}{0.601\,PI} - \underset{(-1.082)}{0.222\,D}
\end{aligned}
$$

$$
\begin{aligned}
R\ Squared &= 0.270 \\
Adjusted\ R\ Squared &= 0.076
\end{aligned}
$$

$$
\begin{aligned}
F &= 1.390 \\
DW &= 1.623
\end{aligned}
$$

The four financial indicators and the three control variables jointly have some explanatory power over the GK growth indicator (GYP), (R squared=.270). The adjusted R squared is only 0.076. The F- statistic is 1.390, the p-value of F is 0.241 and the DW is 1.623. This relation is considered to be insignificant and only about 27% of changes in the GK variable can be explained by the explanatory and control variables. But after dropping the least significant variables, BANK, PRIVY, TRD, and GOV, the estimated model produces, R squared equals to 0.198, adjusted R squared equals to 0.129 the F-statistic is 2.881, the p-value of the F- statistic is 0.050 and the DW is 1.564. Therefore, this relation is considered to be significant at 5% level of significance to the remaining variables. Private and PI proved to be significant positive contributors to the GK growth indicator, while the LLY proved to be significant negative contributor to the same indicator. This result may imply that, the ratio of credit provided to nonfinancial private sector to total domestic credit extended by banks and the rate of inflation, play a positive role in the determination of the real per capita physical stock. On the contrary, the LLY play a negative role in that determination.

As for the EFF variable:

The results were as follows:

$$
\begin{aligned}
EFF \\
= \underset{(-1.008)}{-0.272} + \underset{(0.388)}{0.241\,LLY} + \underset{(0.983)}{0.463\,BANK} - \underset{(-1.183)}{1.256\,PRIVATE} + \underset{(0.298)}{0.792\,PRIVY} + \underset{(0.725)}{0.767\,TRD} - \underset{(-0.423)}{0.551\,GOV} - \underset{(-0.988)}{0.208\,PI} + \underset{(2.502)}{0.396\,D}
\end{aligned}
$$

$$
\begin{aligned}
R\ Squared &= 0.306 \\
Adjusted\ R\ squared &= 0.121
\end{aligned}
$$

$$
\begin{aligned}
F &= 1.654 \\
DW &= 1.374
\end{aligned}
$$

The four financial indicators and the three control variables jointly have an explanatory power over the EFF growth indicator, as R squared is 0.306 and the adjusted R squared registered 0.121. The F- statistic is 1.654, the p-value of F is 0.151 and the DW is 1.374. Therefore, this relation is considered to be insignificant. However, the Dummy variable proves to be a significant positive contributor to the EFF growth indicator. That may indicate the good utilization of the amounts invested through the Islamic modes of finance.

Tables 2.2 and 2.3 present the summary of the regression results obtained by the two general forms of models mentioned above:

Table 2.2: Summary of Regression Results (1).

| Growth Indicator | Regression result | Contributors, S and I (*) | |
		Positive	Negative
GYP	Significant at 5 % level of significance.	PRIVY (I) PRIVATE (I) DUMMY (I)	LLY (S) BANK (I)
INV	Significant at 1% level of significance.	DUMMY (S) PRIVY (S) PRIVATE (I)	LLY (S) BANK (I)
GK	Insignificant.	-	-
EFF	Significant at 5% level of significance.	Dummy (S) BANK (I) LLY (I)	PRIVATE (I) PRIVY (I)

(*) S stands for significant contributor, I stand for insignificant contributor. Source: Regression Equations (Basic model).

Table 2.3: Summary of Regression Results (2).

| Growth Indicator | Regression result | Contributors, S and I (*) | |
		Positive	Negative
GYP	Significant at 5 % level of significance.	PRIVY (I) TRD (I) DUMMY (I) TRD (I)	LLY (S) GOV (I) BANK (I) GOV (I)
INV	Significant at 1% level of significance.	PRIVY (S) DUMMY (S)	LLY (S) TRD (I) PI (I) PRIVATE (I) BANK (I) GOV (I)
GK	Significant at 5 % level of significance.	Private (I) PI (S) PRIVY (I) GOV (I)	LLY (S) BANK (I) DUMMY (I) TRD (I)
EFF	Insignificant.	DUMMY (S) BANK (I) TRD (I) LLY (I) PRIVY (I)	PRIVATE (I) PI(I) GOV (I)

(*) S stands for the significant contributor; I stand for the insignificant contributor.

Source: Regression Equations (Basic model + control variables).

2.1 Results:

As shown in the above-mentioned results, there are weak and negative correlations between the various financial development indicators and growth indicators. But, when these relations are expressed in regression equations, there are six out of eight model equations in which the relationship between the selected growth and financial indicators proved to be significant as shown on Tables 2.2 and 2.3.

In the light of the results obtained, it is evident that the LLY financial indicator has a significant explanatory power over the changes in the GDP growth rate (GYP). This result is similar to that obtained by Mohamed (2008) who concluded that, "the results indicate

a weak relationship between financial development and economic growth in Sudan. Although the coefficient of M3/GDP (LLY in this study) is significant it is negative".

From the (Appendix 1, Table: Commercial Banks' Lending by Economic Sector: 1990-2008), it is obvious that the share of the agricultural sector in commercial banks' lending was deteriorating over the period in question. It reached 53.4% in 1993 and sharply declined to 6.7% and 10.1% in 2007 and 2008 respectively. Therefore, it is crucial to solve the problems that hinder production in the agricultural sector, since that will induce the commercial banks to finance investment in this sector and contribute positively to the GDP growth rate. Also, that will ensure gaining the maximum benefit from financial liberalization after Sudan's accession to the WTO is finalized. When competition between banks compel them to seek more investment activities to finance in order to maximize their profits.

The results obtained also show that, the relation of both INV and EFF with the selected financial indicators is significant at 1% and 5% levels of significance respectively, while that for GK is insignificant. The LLY proved to be significant negative contributor to the GYP and the Dummy variable and Privy proved to be significant positive contributors to the INV. Therefore, it is recommended to take that into consideration when formulating policies that aim to foster significant private investment.

These results did not satisfy the first hypothesis that: "the Sudanese selected financial sector's indicators were positively and significantly correlated with each selected growth indicator".

2.2 Stage Two:

Stage two aimed to examine the presence of good financial institutions and high quality of governance for financial issues in Sudan through investigating the impacts of financial reforms undertaken during the period 1970-2008. That will be conducted through a number of monetary ratios proved to be important in the main body of the literature on the subject; for instance, GDP/M2 (Income velocity of money), currency with the public (C) as a ratio of M2 (C/M2) and total bank deposits/GDP ratio. Demand deposits are considered as loans to the bank repayable on demand. The bank can use these deposits to finance its investments in loans and interest-bearing securities, keeping only a fraction of the total as reserves. In addition, to bank non-performing loans to total gross loans, capital adequacy ratio and paid –up capital. Macroeconomic stability can be checked out through studying budget deficit/GDP ratio, and/or rates of inflation and money supply for the period in question. The money supply annual growth rates will be compared to those of inflation and GDP.

The performance of these ratios will be assessed and compared to the growth performance of the economy. If the assessment indicates a positive link between all or most of the above-mentioned ratios and the growth performance of the economy, i.e. the improvements in these ratios were corresponding to improvements in the rates of economic growth, then this may indicate the presence of good financial institutions that have formulated the right monetary policies with an ultimate goal of improving the growth rate of the economy. This presence will be usually followed with a high quality of governance and more likely macroeconomic stability will be maintained. All these conditions are considered to be the prerequisites under which financial liberalization would be beneficial to a developing economy. So, it will be more likely to expect a beneficial accession of Sudan to the WTO. If the statistical assessment indicates no or negative link between the above-mentioned ratios and the growth performance of the economy, then the study can conclude that, the prerequisites for financial liberalization to be beneficial are more likely not present or there is a little indication for their presence in Sudan. This may indicate that, some other forces outside the financial sector may have influenced the growth rate of the real GDP in Sudan during the period in question. Consequently, this country may gain little or no benefit or even detrimental effects from its accession to the WTO as far as the banking sector is concerned. Therefore, some specified measures should be undertaken before the accession to the WTO is completed.

Some of the declared objectives of financial reforms undertaken in Sudan during 1990s were, to create an improved business environment through relaxing some of the banking sector restrictions, introduce modern practices to prepare this sector to cope with the new developments in the banking services and to open more efficient financial markets to promote economic growth through a more efficient allocation of credit (Mohamed, 2008).

After financial reforms have taken place in Sudan, the banking activity has certainly experienced relative improvements. These improvements are expected to have positive impacts on the GDP rates of growth and the overall macroeconomic stability represented by a lower inflation rates and budget deficit/GDP ratios.

In Table (2.2.1) the GDP/M2 ratio decreased from 11.6% in 1997 to 0.58% in 2004 and did not exceed 5.26% up to 2008. The decrease in the income velocity of circulation of money ratio may imply that, more goods and services were produced by a fewer number

of transactions. Therefore, the decrease in this ratio is more likely to be considered as an improvement in the efficiency in the use of money. A lower C/M2 ratio is desirable since it implies that the component of the Currency with the public C is lower than the other components of M2 mentioned above, because the ability of commercial banks to extend short and long terms advances to deficit entities will increase. This ratio decreased from 41.9% in 1999 to 3%, 28.6% and 29.5% in 2006, 2007 and 2008 respectively. The Bank total demand deposits to the GDP ratio registered higher levels of 11%, 10.1 and 10.6 in 1992, 1994 and 2001 respectively. It dropped to 4.0% in 2002 and then began to improve until it reached 15.4% and 13.7% in 2007 and 2008 respectively.

Table (2.2.1): Selected Monetary Ratios in Sudan: 1990-2008.

Year	GDP/M2 ratio% (Income velocity of money)	Currency with the Public C /M2 ratio%	Total Demand Deposits/GDP ratio%
1990	3.41	40.6	8.9
1991	3.56	40.0	7.4
1992	2.53	33.8	11.0
1993	3.44	35.8	9.5
1994	4.70	36.4	10.1
1995	6.13	35.2	6.1
1996	9.86	38.1	6.1
1997	11.66	36.6	6.0
1998	11.01	39.6	5.9
1999	10.65	41.9	6.6
2000	9.17	40.9	8.6
2001	0.80	35.5	10.6
2002	7.00	34.3	4.0
2003	6.32	32.7	4.7
2004	0.58	31.7	5.4
2005	4.93	26.6	6.5
2006	4.55	3.0	6.4
2007	4.58	28.6	15.4
2008	5.26	29.5	13.7

Source: CBoS Annual Reports (1990-2008), Mohamed (2008) and the International Financial Statistics (IFS) CD for the year (2009).

Table (2.2.2) below indicates the considerable increment witnessed in the paid-up capital from SD billion 11.1 in 2000 to SD billion 76.3 in 2004. This remarkable increment represents a good indication of an improvement in the ability of banks to extend loans to the private sector. That was reflected in the accrued total profits of SD billion 5.4 and SD billion 21.5 in the two years respectively. Capital adequacy ratio is also an important measure that shows the ability of commercial banks to extend loans to the deficit entities (Investors). This ratio was within, and sometimes above, the Basel Accord ratio of 8%. In the years succeeding the financial reforms in Sudan, it registered its lowest ratio of 7.0% in 2000 and its highest ratio of 12.0% in 2004. A lowest non-performing loans ratio is highly desirable by the bank, as it strengthen its ability to extend more loans and making more profits. This ratio dropped from 15.4 % in 2000 to 8.6 % in 2004. However, in the light of the discussion held above, this ratio became a serious problem to the banking sector in Sudan.

The analysis is limited to this period due to the inadequacy of data. This problem is also encountered by the Bank Audi Report (2008, p. 7) as it stated that: "At the level of profitability, and in the absence of official figures, we resorted to statistics compiled by the Union of Arab Banks. Available banks' Return on Assets (ROAs) averaged 1.8 % in 2007, very close to the regional benchmark, and their Returns On Equities (ROEs) stood at a healthy 13.3 %, yet still far from the strong 19.0 % regional average, and lower than emerging and global benchmarks, which stresses on the need to bolster the efficiency and profitability of the banking industry at large.".

Table (2.2.2): Some Monetary Ratios in Sudan: 2000-2004.

2004	2003	2002	2001	2000	Monetary Indicator/Year
76.3	50.1	30.1	33.9	11.1	Paid- up Capital (SD*. billion)
21.5	17.9	7.9	5.7	5.4	Total Profits (SD*. billion)
12.0	9.9	8.3	11.0	7.0	Capital Adequacy (Ratio)
8.6	11.4	12.2	15.7	15.4	Non- Performing Loans (Ratio)

* Stands for Sudanese Dinar. Source: Mohamed (2008, p. 11).

Figure (2.2.1) illustrates the changes in the GDP growth and inflation rates for the period 1990- 2008. It is obvious from (appendix 3, Table: GDP Growth and Inflation Rates in Sudan: 1990-2008), and this figure that, the rate of inflation fell drastically from 132.8% in 1996 to a single digit in 2000 and that has continued until the year 2007. This decline confirms the effect of the undertaken financial reforms on the money supply side, while the GDP growth rates increased steadily. Money supply registered a moderate and reasonable increase over the period succeeding the reforms (Figure 2.2.2), and that has contributed to the achieved dramatic decrease of the annual rate of inflation. However, the annual rate of inflation jumped to 14.9% in 2008, which can be linked to the ongoing crisis in Darfur and the fluctuations in oil prices, as well as the emerged international financial crisis. In general, it is important for the economy to keep the rates of inflation as low as possible, since higher rates of inflation result in price distortions and that may lead to unnecessary economic, social and political complications.
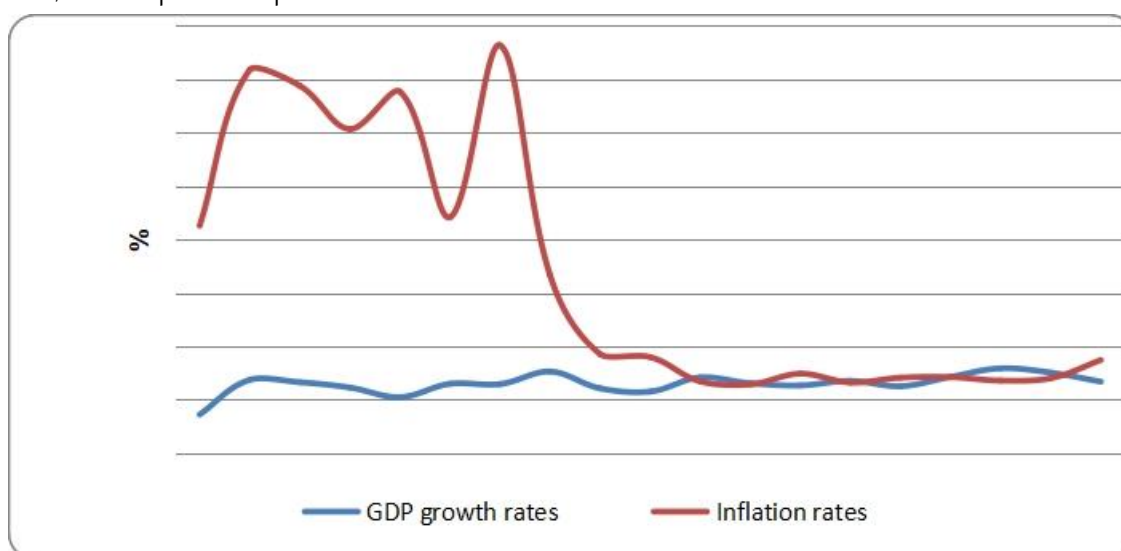
Figure (2.2.1): GDP Growth and Inflation Rates in Sudan: 1990- 2008

Source: Appendix 3, Table: GDP Growth and Inflation Rates in Sudan: 1990-2008.

There is strong empirical evidence of a direct relation between long-term price inflation and money-supply growth, at least for rapid increases in the amount of money in the economy. This justifies the reliance on the monetary policy to control inflation. However, some economists argue that the money supply is endogenous (determined by the workings of the economy, not by the central bank) and that the sources of inflation must be found in the distributional structure of the economy. Others seeing the central bank's control over the money supply as feeble, many would also say that there are two weak links between the growth of the money supply and the inflation rate: first, an increase in the money supply can cause a sustained increase in real production instead of inflation in the aftermath of a recession, when many resources are underutilized. Second, if the velocity of money changes, an increase in the money supply could have either no effect, or an unpredictable effect on the growth of nominal GDP, (http://en.wikipedia.org/wiki/MainpageW.). Therefore, a reasonable increase in the level of the money supply is preferred for the stability of the economy. Figure (2.2.2) holds a comparison between the GDP values and the M2 levels for 1990-2008. From the figure it is obvious that, the money supply is almost unchanged during the period 1990-2004, then it began to increase slightly between 2004-2005 and witnessed a great jump in 2006 and afterwards.
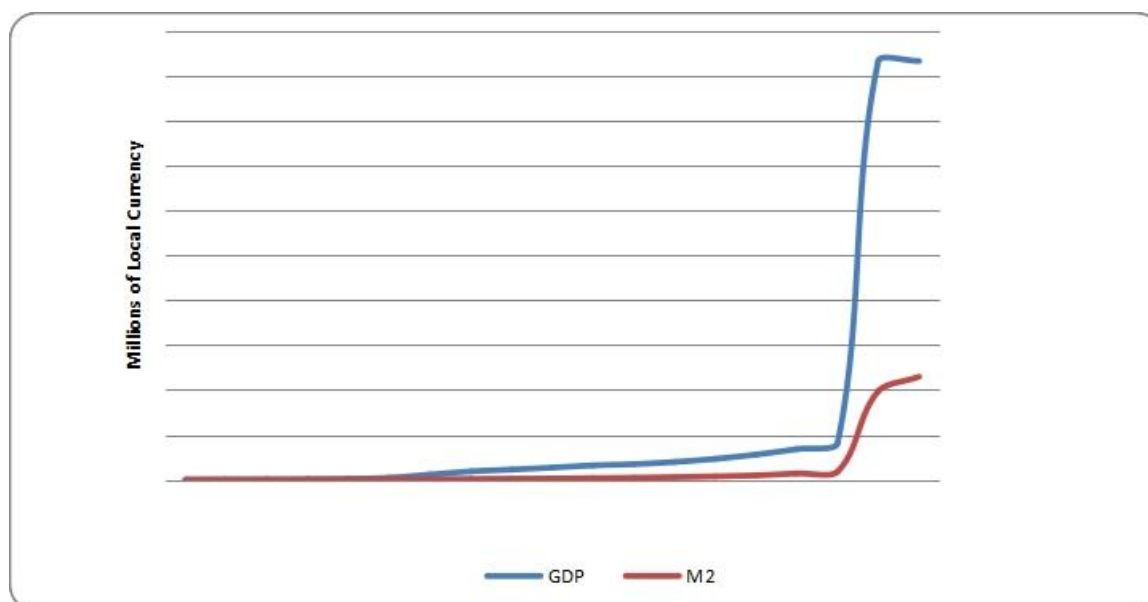
Figure 2.2.2: GDP and M2 in Sudan:1990- 2008.   Source: Appendix 2, Table: GDP and M2 in Sudan: 1990-2008.

The other macroeconomic stability indicator is the budget deficit/GDP ratio. It also witnessed an improvement, as it registered a lower ratio of -1 % in most of the years during the period 1994-2008 and even reached −0.4 % in 2006. However, it recorded -2 %, -2.5 % and -2.6 % in 1996, 2005 and 2007 respectively, Table (5.6), which may imply an increased efficiency in the process of revenue collection and/or a rationalization in the government expenditures.

Table 2.2.3: Budget Deficit to GDP Ratio: 1994-2008. (SDG million)

Year	Government Revenue	Government Expenditure	Surplus or (Deficit)	GDP	Budget Deficit/GDP Ratio
1994	13.11	14.48	-1.37	188.0	-1 %
1995	28.47	31.53	-3.06	423.3	-1 %
1996	69.78	90.79	-21.01	1128.0	-2 %
1997	108.56	130.34	-21.78	1840.7	-1 %
1998	159.2	175.5	-16.3	2259.1	-1 %
1999	205.2	227.0	-21.8	2697.8	-1 %
2000	334.0	352.2	-18.2	3179.6	-1 %
2001	365.2	390.2	-25.0	3456.8	-1 %
2002	472.2	517.8	-45.6	3943.2	-1 %
2003	703.6	736.2	-32.6	4640.2	-1 %
2004	1023.9	1103.9	-80.0	5593.0	-1 %
2005	12184.0	13847.0	-1663.0	679760	-2.5 %
2006	15075.0	18253.0	-3178.0	813000.0	-0.4 %
2007	18462.4	20971.2	-2508.8	93299.7	-2.6 %
2008	24707.9	25985.6	-1277.7	93299.6	-1 %

Source: Computed from: CBoS Annual Report, 2004, Appendix No. 18. CBoS, Economic Indicators 2005-2008. Ministry of Finance and National Economy. The IFS CD for the year 2009 and the CBoS Annual Report, 2008.

Moreover, following these reforms also, an impressive increase in the real GDP growth rate has been achieved and the negative trends in real GDP growth rates were reversed. For instance, the economy improved from minus 5.5% annual growth rate in 1990 (the pre-reform period) to a relatively steady growth rate around 6% during the reform period and increased to 10.6%, 11.8%, 10.2 in 1997, 2006, and 2007 respectively, (Appendix 3, Table: GDP Growth and Inflation Rates in Sudan:1990-2008). The drop to 1% witnessed in

1994, may be attributed to the economic and political situations on both regional and international levels following the war in Iraq and the ongoing chronic civil war then in the South of Sudan.

In an attempt to link the achieved improvements in the abovementioned ratios and rates to the GDP growth rates, Table (2.2.4) holds correlation results. From the table, it is evident that, there was a correlation between the GDP growth rates and the aforesaid ratios and rates. This may imply that; the undertaken financial reforms were contributed to the achieved GDP growth rates. That in turn may imply the presence of good institutions that formulated these reforms.

In addition, the channels through which the reforms would have led to improved growth have risen after the reform period. Those are credit flows to the private sector and the improvements in the efficiency of physical capital allocation (EFF) in Appendix 4, (Table: Selected Financial and Growth Indicators in Sudan: 1970-2008). From the two tables and the preceding analysis it is obvious that, credit to the private sector increased a year after another and the EFF also improved over time.

Table 2.2.4 Assessment of the Performance of some Selected Monetary and Financial Ratios in Sudan: 1990-2008

The ratio	Correlation with the GDP growth rate*	Conclusive performance	Remarks
GDP/M2	0.137	+	
C/M2	(0.527)	+	
Total Demand Deposits/GDP	0.010	+	
Capital Adequacy Ratio	(0.656)	+	For the Period 2000-2004
Non- performing Loans Ratio	0.612	+	For the Period 2000-2004
PI	(0.123)	+	PI is the inflation rate
Budget deficit/GDP	(0.183)	+	For the Period 1994 -2008

*Values in Brackets are negative. Source: Tables, 4,5,6, and appendix 3, Table: GDP and Inflation Rates in Sudan:1990-2008.

3. Results.

From the analyses above, the study can conclude that, the improvements in the selected monetary ratios were in most cases corresponding to, and were correlated with, the improvements in the GDP growth rates over the period in question. This result satisfies the second hypothesis of the study that: "the undertaken financial reforms in Sudan positively contributed to the country's financial development and its economic growth". Therefore, the institutions that undertook these financial reforms can be considered as good institutions, the presence of which is considered by economists as one of the prerequisites under which financial liberalization would be beneficial to a developing economy like Sudan.

4. Conclusion:

The issue of the relationship between financial development and economic growth, as well as, the issue of financial liberalization, have drawn the attention and acquired a great deal of interest from a considerable number of economists over long periods of time.

Among those who wrote on the first issue are King and Levine (1993). The two writers presented a set of three findings that support the view of Schumpeter in 1911. First, the average level of financial development is very strongly associated with economic growth. Second, financial development precedes growth. Third, financial development is positively associated with both the investment rate and the efficiency with which economies use capital.

Among those who wrote on the second issue is Mishkin (2007) who observed that, the accession to the WTO - and more particularly to GATS – is known to have a positive impact on the financial sector and consequently on the overall development of the economy if it is done right. The same writer stresses the importance of good policies in promoting successful financial development and financial liberalization. In response to these important arguments and observations, economists started to enquire into the nature of circumstances or prerequisites under which financial liberalization would be beneficial to developing countries. They identified good institutions, high quality of governance and macroeconomic stability.

Following the literature, this research examined the relationship between financial development and economic growth in Sudan, through applying King and Levine approach to Sudan's financial and growth indicators over the period 1970-2008. It also

examined the presence of good institutions, high quality of governance and macroeconomic stability in Sudan, through relating the improvements achieved in some selected financial indicators- as a result of the undertaken financial reforms- to the corresponding GDP growth rates over the same period. That comes as an attempt to investigate the presence of the aforesaid prerequisites, since the ultimate objective of any financial and monetary policies formulated by financial institutions in Sudan, is to improve the GDP growth rate.

It is evident from the correlations and linear regressions analyses conducted that, there are weak and negative correlation results between financial development indicators and growth indicators. But, when these relations are expressed in regressions, there are six out of eight model equations in which the relationship between the selected growth indicators and financial indicators is significant. Nevertheless, the regression results also show that, INV and EFF growth indicators have a positive and statistically significant relationship with the selected financial indicators.

The financial reforms undertaken by Sudan, since the early 1990s led to some improvements in monetary ratios and were, in general, corresponding to reasonable improvements in the growth performance of the economy. This may imply the presence of good governing financial institutions and macroeconomic stability in Sudan, which in turn may imply the presence of the prerequisites under which the accession to the WTO would be beneficial to the Sudan.

In the light of these results, this study would expect the following potential economic impacts to take place in Sudan's after its accession to the WTO. First, foreign banks entry will improve the efficiency of the existing banking sector in Sudan, as domestic banks will be forced to compete with more efficient foreign banks and consequently the skills and technology levels in domestic banks will be improved. Second, the overall soundness of the banking sector will improve, since foreign banks will treat the non-performing loans problem more aggressively, taking into consideration that, this problem has crippled the ability of not less than seven banks to extend loans to the private sector during the previous years. Third, the banking supervision will be enhanced, because the accession to the WTO — and more particularly to the GATS - will allow Sudan to apply stronger prudential regulations and increase the soundness of the local banking sector. According to the literature on the subject, this will have a positive impact on economic growth. Fourth, the accession to the WTO may also contribute to the financial stability in Sudan, because the cross-border flows are generally more volatile than locally generated claims by foreign banks. Fifth, as part of financial sector liberalization, privatization of state-owned banks may be an important option to further enhance the efficiency of the banking sector in Sudan. Sixth, the entry of foreign banks — through the accession to the WTO - may have positive effects on employment and wages in Sudan. Seventh, positive economic impacts are also expected on both INV and EFF growth indicators, as they proved to have strong linkages with financial development indicators.

However, that does not imply total exclusion of the negative impacts that may result from Sudan's accession to the WTO. The first negative potential impact is the lack of fair competition in the presence of strong foreign competitors who enjoy high comparative advantages in terms of financial, human and technological resources. The second is the reduction in the profitability of commercial banks in Sudan as a result of the unfair competition. The third is the possibility of siphoning off national savings by foreign financial institutions to be invested in their countries of origin. The fourth negative impact is represented by the influence of this foreign presence on the strength of monetary policies adopted by the monetary authorities in Sudan. The fifth, taking all these points into consideration, financial liberalization may cause financial fragility rather than financial stability in Sudan.

5. Recommendations:

First, it may be useful for Sudan to solve the problems that crippled the production in the agricultural sector, to encourage commercial banks to extend finance to it. The Salam mode of finance should be enhanced.

Second, the CBoS is recommended to continue its efforts of reinforcing the control measures effectively, and derive lessons from the global financial crisis in treating the Non-Performing Loans problem.

Third, the monetary authorities in Sudan are recommended to be aware of the effects of significant negative relationship between the three growth indicators, the real per capita growth rate of the economy (GYP), the ratio of domestic investment to the GDP (INV) and the real per capita physical capital stock (GK) and the financial indicator, financial depth (LLY).

Fourth, these authorities are recommended to consider the significant positive relationship between the two growth indicators, the INV and the improvements in the efficiency of physical capital allocation (EFF), and the Islamic modes of finance (D).

Fifth, it may be useful for the abovementioned authorities to consider the significant positive relationship between the growth indicator INV and the financial indicator, the ratio of claims on the nonfinancial private sector to GDP (PRIVY).

Sixth, the aforesaid authorities are also recommended to take into consideration the significant positive relationship between the GK and the rate of inflation (PI), as well as the significant negative relationship between this growth indicator and the LLY.

Seventh, the Sudanese commercial banks are recommended to continue increasing the level of their investments in modern banking services technology. Commercial banks are also recommended to follow the CBoS instructions for merging, to improve their abilities to compete on the international level.

Eighth, Commercial banks should diversify their provided banking services, as well as innovate new banking services to meet the increasing demands of their clients.

Ninth, the manpower in these commercial banks should be given more attention through training and skills upgrading, that will enable them to use the modern technology more efficiently.

Tenth, the measurement of the banking performance in Sudan should include standards such as, efficiency, profitability, a suitable mixture of the provided services and reasonable size of assets and inventories, to enable them to face the strong competition after Sudan's accession to the WTO.

Eleventh, the efforts aiming to enhance the awareness of the public with regard to the banking behavior should be intensified all over the country, along with minimizing the required costs and procedures for depositing, borrowing and transfer.

Twelfths, the Islamic modes of finance should be clarified to the public, and the amounts and numbers of loans through these modes should be increased.

Thirteenth, Sudan is recommended to include its detailed Islamic Banking Services in the obligations' schedules to gain the maximum benefits from the facilities offered by the GATS.

Fourteenth, it may be useful for Sudan to communicate with WTO Islamic member countries, to strengthen its position in the negotiations with this Organization.

Fifteenth, caution should be given to the fact that, foreign banks will not be interested to address the problems of poverty alleviation, the access of low-income and rural-based savers and borrowers to financial services.

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Appendixes:

1. **Table: Commercial Banks' Lending by Economic Sector: 1990-2008.**

   Values in millions of local currency**

Year	Agriculture	Industry	Exports	Imports	Local Trade	Others	Total
1990	(15%)	(19%)	(69%)	(1%)	(5%)	(11%)	(100%)
	0.08	0.18	1.22	0.02	0.08	0.19	1.77
1991	(26 %)	(20%)	(19%)	(2 %)	(14%)	(19%)	(100%)
	0.27	0.28	0.26	0.03	0.19	0.27	1.4

Year	Agriculture	Industry	Exports	Imports	Local Trade	Others	Total
1992	(34 %) 1.12	(14 %) 0.46	(17 %) 0.57	(1 %) 0.04	(12%) 0.38	(22 %) 0.74	(100%) 3.31
1993	(53.4 %) 1.865	(15.7%) 728	(1.9%) 1.154	(0.8 %) 43	(6 %) 318	(20.2%) 1.066	(100%) 5.273
1994	(29.3 %) 2.946	(18.3%) 1840	(22.2%) 2.236	(1.1%) 105	(5.6 %) 567	(23.5 %) 2.379	(100%) 10.073
1995	(24.7 %) 2.579	(18.0%) 2.618	(27.1%) 3.947	(8.5 %) 1.227	(2.9 %) 419	(18.8 %) 2.7	(100%) 14.514
1996	(26.5 %) 8.997	(18.8%) 6.643	(9.6%) 6.643	(5 %) 1.705	(3.6 %) 1.216	(26.5 %) 9.002	(100%) 33.948
1997	(30.5 %) 12.522	(17.8 %) 7.284	(20.4%) 8.387	(2.1%) 857	(4.2 %) 1.738	(25.5 %) 10766	(100%) 41.556
1998	(33.3 %) 16.763	(18.8%) 8.908	(17.1%) 8.114	(0.7%) 325	(4.3 %) 325	(25.8 %) 12.235	(100%) 47.383
1999	(30.0 %) 14.833	(15 %) 7.784	(17 %) 8.359	(3 %) 1.519	(5%) 2.816	(30.0 %) 14.833	(100%) 48.732
2000	(22.5 %) 17.807	(10.5 %) 14.035	(21.2%) 16.839	(1.4 %) 16.839	(10.4%) 8.243	(33.9 %) 26.867	(100%) 79.224
2001	(7.6 %) 19.605	(14.8 %) 16.445	(15.7%) 17.726	(3.7 %) 4.106	(18.8 %) 20.900	(29.2 %) 32.558	(100%) 111.340
2002	(14.3 %) 22.857	(13.0 %) 20.850	(13.7%) 21970	(4.4 %) 7.078	(22.6 %) 36.230	(32.0 %) 51.055	(100%) 160.020
2003	(12.5 %) 26.881	(11.4 %) 24.637	(12.7%) 27.512	(0.50%) 1.107	(32.3 %) 69.735	(30.6 %) 66.177	(100%) 216.028
2004	(9.5 %) 27.339	(11.5 %) 32.820	(10.2%) 29.129	(1.2%) 3.328	(36%) 103.832	(31%) 89.470	(100%) 285.964
2005	(6.5 %) 30.339	(14.8%) 69.410	(6.4%) 30.161	(2.6%) 12.158	(31.8%) 149.437	(37.9%) 178.520	(100%) 470.025
2006	(7.6 %) 786.1	(8.2%) 848.5	(3.4%) 351.3	(5.1%) 529.3	(17.5%) 1821.1	(34.6%) 3608.0	(100%) 8376.8
2007	(6.7 %) 837.1	(10.4%) 1314.3	(2.1 %) 264.9	(19.5%) 2451.5	(16.6 %) 2093.4	(32.8%) 4121.4	(100%) 11250.2
2008	(10.1 %) 1485.7	(13.0%) 1904.0	(3.3 %) 481.1	(10.7%) 1565.8	(16.1%) 2370.6	(37.9 %) 5565.1	(100%) 12581.8

* Numbers in brackets show percentage of sector finance to total finance.

**SD (Sudanese Dinar for the period: 1990-2006)

SDG (Sudanese Pound for: 2007-2008)

1 SDG= 100 SD

*Note: (B.SD) Stands for billion Sudanese Dinars.

Source: Bank of Sudan Annual Reports (1990-2008) and Mohamed (2008, p.6).

2. Table: GDP and M2 in Sudan: 1990-2008

Year	GDP	M2
1990	11.0	3.2
1991	19.3	5.4
1992	32.9	13.0

Year	GDP	M2
1993	91	26.5
1994	188.0	40.0
1995	423.3	69.1
1996	1128.0	114.4
1997	1840.7	158.0
1998	2259.1	205.2
1999	2697.8	253.3
2000	3179.6	346.7
2001	3456.8	432.2
2002	3943.2	563.3
2003	4640.2	734.1
2004	5593.0	960.4
2005	6797.6	1378.2
2006	8130.6	1787.2
2007	93299.7	19714.6
2008	93299.6	22933.2

Source: IFS CD for the Year 2009 and CBoS Annual Reports (1990-2008).

Note: All values in billions of local currency, SD for the period 1990-2006 and the SDG for 2007 and 2008.

3. Table: GDP Growth and Inflation Rates in Sudan: 1990-2008

Year	GDP growth rates %	Inflation rates %
1990	-5.5	65.2
1991	7.5	123.6
1992	6.6	117.6
1993	4.6	101.4
1994	1.0	115.4
1995	6.0	68.4
1996	5.9	132.8
1997	10.6	46.6
1998	4.3	17.1
1999	3.1	16
2000	8.4	6.9
2001	6.2	5.8
2002	5.4	9.8
2003	7.1	6.5
2004	5.1	8.3
2005	8.6	8.5
2006	11.8	7.2
2007	10.2	8.1
2008	6.8	14.9

Source: IFS CD for the Year (2009).

4. Table: Selected Financial and Growth Indicators in Sudan: 1970-2008.(Sources: CBoS Annual Reports (1990-2008) and the IFS CD for 2009.

Year	GYP	INV	PI	GOVT	TRD	GK	EFF	Bank	Private	Privy	LLY
1970	0.059	0.159	0.04	0.245	0.018	0.012	0.0029	0.65	0.2	0.09	0.32

Year	GYP	INV	PI	GOVT	TRD	GK	EFF	Bank	Private	Privy	LLY
1971	0.022	0.141	0.013	0.249	-0.018	-0.154	-0.432	0.6	0.17	0.08	0.31
1972	-0.051	0.101	0.136	0.188	-0.011	-0.059	-0.41	0.61	0.17	0.09	0.34
1973	0.006	0.117	0.153	0.185	0.017	0.473	-0.136	0.64	0.18	0.07	0.3
1974	0.114	0.184	0.262	0.145	-0.008	0.314	0.0198	0.61	0.17	0.08	0.33
1975	0.157	0.175	0.24	0.138	-0.088	0.327	0.0589	0.56	0.16	0.1	0.32
1976	0.167	0.231	0.017	0.128	-0.084	0.127	0.1289	0.59	0.15	0.09	0.32
1977	0.062	0.171	0.171	0.119	-0.071	-0.161	-0.399	0.63	0.14	0.09	0.37
1978	-0.059	0.144	0.192	0.115	-0.084	-0.172	-0.531	0.62	0.15	0.1	0.42
1979	-0.05	0.133	0.311	0.125	-0.058	-0.5	-0.4	0.63	0.16	0.11	0.45
1980	0.015	0.095	0.254	0.126	-0.098	0.054	-0.001	0.62	0.16	0.11	0.47
1981	0.074	0.049	0.246	0.131	-0.09	0.407	-0.048	0.63	0.2	0.12	0.51
1982	0.059	0.228	0.257	0.108	-0.146	0.103	0.0281	0.4	0.19	0.17	0.67
1983	0.021	0.16	0.306	0.092	-0.144	-0.212	-0.491	0.38	0.18	0.15	0.58
1984	-0.05	0.138	0.341	0.097	-0.076	-0.393	-0.743	0.31	0.16	0.14	0.56
1985	-0.063	0.045	0.454	0.096	-0.084	-0.098	-0.461	0.3	0.16	0.13	0.73
1986	0.054	0.119	0.245	0.089	-0.077	0.626	-0.134	0.3	0.16	0.13	0.68
1987	0.142	0.13	0.206	0.056	-0.022	0.037	0.1309	0.28	0.15	0.1	0.5
1988	-0.003	0.153	0.647	0.076	-0.04	-0.033	-0.336	0.2	0.1	0.09	0.54
1989	0.089	0.133	0.667	0.066	-0.032	-0.016	-0.227	0.22	0.11	0.05	0.49
1990	0.055-	0.093	0.652	0.071	-0.013	-0.073	-0.428	0.26	0.13	0.06	0.55
1991	0.075	0.134	1.236	0.049	-0.038	0.027	0.0669	0.05	0	0.07	0.52
1992	0.066	0.173	1.176	0.104	-0.033	0.106	0.0342	0.02	0	0.06	0.53
1993	0.046	0.198	1.014	0.059	-0.08	0.047	0.0319	0.01	0	0.05	0.5
1994	0.01	0.227	1.154	0.055	-0.109	0.031	-7E-04	0.02	0	0.05	0.38
1995	0.06	0.221	0.684	0.03	-0.067	0.011	0.0567	0.01	0	0.02	0.22
1996	0.059	0.134	1.328	0.074	-0.078	1.271	-0.322	0.02	0.01	0.03	0.18
1997	0.106	0.176	0.466	0.057	-0.125	0.358	-0.001	0.01	0	0.02	0.15
1998	0.043	0.262	0.171	0.047	-0.16	0.193	-0.015	0.25	0.12	0.02	0.15
1999	0.031	0.164	0.16	0.042	-0.084	-0.033	-0.299	0.25	0.14	0.01	0.15
2000	0.084	0.115	0.069	0.055	-0.03	0.176	0.0312	0.29	0.16	0.02	0.18
2001	0.062	0.167	0.058	0.064	-0.011	0.023	0.0551	0.39	0.21	0.02	0.2
2002	0.054	0.218	0.098	0.061	-0.01	0.167	-0.004	0.44	0.25	0.04	0.22
2003	0.071	0.177	0.065	0.06	-0.014	0.103	0.0401	0.52	0.33	0.06	0.25
2004	0.051	0.19	0.083	0.083	-0.013	0.204	-0.01	0.65	0.39	0.07	0.28
2005	0.086	0.247	0.085	0.092	-0.07	0.134	0.0458	0.7	0.34	0.1	0.33
2006	0.118	0.211	0.072	0.1	-0.073	0.167	0.0679	0.69	0.33	0.13	0.37
2007	0.102	0.194	0.081	0.085	-0.177	0.15	0.057	0.68	0.35	0.1	0.32
2008	0.068	0.172	0.149	0.085	-0.081	0.15	0.023	0.68	0.34	0.11	0.34

5.   Sudan; Some Information and Data:

Sudan is the largest country in Africa and the Arab world (2.5 million square Kilometers) and the Ninth largest country in the World. It is one of the most diverse countries in Africa, home to deserts, mountain ranges and rain forests. It borders the Red Sea and located between Egypt in the North and Eritrea, Ethiopia, Kenya in the East and South East, Uganda, Congo, Central Africa in the South and South West, Chad in the West, Libya in the North West and the North.

Sudan has plenty of natural resources; its main resource is agriculture and living stock, which represents 35.3% of the GDP, Petroleum, 18.6% of the GDP (CBoS Annual Report 2008). Others are Iron ore, Copper, Chromium ore, Zinc, Tungsten, Mica, Silver and Gold (Global Research- Sudan, 2007), with significance human capital (39.2 million persons) providing enormous development potential.

Sudan got independence from the United Kingdom and Egypt in 1956. Since then, the country is dominated by military governments with no financial stability in Sudan.