

# **Impact of International Financial Integration on Investment and Africa's Economic Performance: Some Empirical Evidence**

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## **Abstract**

This paper examines the issues of international and regional financial integration and its impact taking a sample 25 SSA countries. The research tests both the direct and indirect channels through which the impact of financial integration works and is transmitted to the real economy. Directly, it is argued that financial openness affects economic growth through enabling access to foreign financial markets, increasing financial service efficiency and helping in diversification of risks and consumption smoothing. Thus while inducing additional capital investment, it also fosters macroeconomic discipline. Indirectly, the process of international financial integration facilitates the transfer of technological know-how, promotes trade and enhances specialization.

While financial openness of recent years has laid a strong foundation to consolidate financial integration between regions and with international financial markets, we do not observe a robust link between financial openness and economic growth in SSA region. The empirical analysis considers the possibility of a positive indirect effect, and we report evidence in favour of the indirect transmission root. From our results, we observe a positive and statistically significant association between international financial integration and financial development under all its selected indicators. This finding suggests that financial capital market integration aids growth indirectly through promoting domestic financial markets. The study reports evidence suggesting that good institutions, higher level of human capital, and stable macroeconomic environment play an important role in mitigating the negative impacts of international financial openness.

**Keywords:** SSA countries; financial integration; financial development; economic growth

**JEL classification:** B26; O55; E44; R11; G15

## **1. Introduction**

In most of the economies of African countries, a sharp reduction in the pace of economic growth was observed from the early 1980s after experiencing moderate growth trends from late 1960s to mid 1970s. This poor economic performance was further aggravated by unfavourable terms of trade following declines in real primary commodity prices in the mid 1980s, where average annual GDP growth declined from 4.6% during 1965-1970 to about 2.2% per annum between 1980-1990 for Sub-Saharan African (SSA) countries. Due to various types of institutional and structural weaknesses, African countries were not able to reverse the decline in economic growth. Protectionist trade policies and poor governance, high population growth and inadequate infrastructural linkages have inhibited growth and any prospects of revival. In the growth literature, capital accumulation is regarded as a critical factor affecting countries' prospects for growth. Gross domestic savings in the African region was about 8.5% for the period of 1970-1980 (Ahmed, 2005; Mwega, 1997). In many countries, such as Kenya, Malawi and Cote d'Ivoire, the saving rates dropped from 20.7%, 13.3% and 21.3% between 1981-1986 to about 15.3%, 5.8% and 15.6% in 1987-1997 respectively, indicating patterns of inadequate internal capital formation.

Due to various economic bottlenecks and for the purpose of restoring growth, various social and economic changes were proposed (famously known as the structural adjustment programme) by

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the Bretton Woods institutions to revive the economic growth of the region. Many SSA governments undertook major policy reforms aimed at establishing a market-friendly set of incentives that could encourage the accumulation of capital and more efficient allocation of resources and importantly reduce the involvement and the size of the public sector (Nissanke and Aryeetey, 1998). A major aspect of this adjustment was also financial market liberalization to encourage the flow of capital across international boundaries to fill the resource-gap. Following the adoption of these changes in the past two decades, some of the questions frequently asked include: (i) has the SSA region managed to restore economic growth; (ii) has the flow of international capital improved; and (iii) are the financial markets more integrated to enhance the efficiency and increase the effectiveness of the financial sector to facilitate economic growth?

There has been a moderate recovery in the investment rate in the post-reform period, although savings rate is still lagging considerably behind, resulting in a resource-gap (UN, 2001). Moreover, inward foreign direct investment and portfolio flow have reasonably improved to augment domestic savings and investment. The region's share of foreign direct investment (FDI) has increased from about US\$2.2 billion in the 1980s to around US\$20 billion in 2004 (UNCTAD, 2003), although it is still lagging heavily behind those of Asia and the Pacific, and Latin America and the Caribbean countries. As a result of policy reform implementation, it has been reported that FDI to the SSA region grew by 218% over the period 1980-1989 and 1990-1999 (Asiedu, 2004), which to some extent is an important sign of increasing integration to global finance. International capital inflows are important in a number of ways: (i) private foreign capital inflows act as an important source of capital, filling the annual resource gap in developing countries where domestic saving levels are lower; and (ii) foreign investments are particularly important in promoting transfer of technology. They act as a vehicle for international transfers of more efficient embodied technology and more effective management styles and are bringing in new networking and marketing skills (Griffith-Jones, 2000). Foreign capital investment also has a positive impact on export growth through transfer of superior knowledge, production know-how and capital equipment to indigenous firms to enhance a host country's export ability (Pacheco-Lopez, 2005). This linkage has been found to generate positive externalities on non-export sectors of the economy and domestic savings ((Dupasquier and Osakwe, 2005). For these reasons, it is critical for the developing countries to pursue policies that will encourage regional and international financial integration to enhance their access to international financial markets.

Empirical research on the issue of international financial globalization-growth linkage has so far produced inconclusive results to date and various cross-country analyses have 'found little discernible growth effects of financial opening' (Schularick, 2006).<sup>1</sup> This paper has a number of objectives. Firstly, it aims to examine the extent to which financial integration in the larger SSA region and with the rest of the world has contributed to the growth of the financial sector and therefore impacted capital accumulation process in SSA region. Secondly, the study aims to provide a direct test of the impact of financial integration and economic performance using the latest dynamic panel data techniques, which have a number of estimation advantages compared to the traditional panel data modelling. In particular, we will empirically investigate the extent of financial integration and macroeconomic interdependence in Sub-Saharan African economies. Differently, many of the studies that evaluate the benefits from international and regional financial integration (such as Kose et al. 2007; Lane and Milesi-Ferretti, 2003; Edison and Levine, 2002) have either utilized cross-country analysis or diverse sample countries. It is understood that countries in different region have diverse financial and asset characteristics, varying level of economic development and different institutional set-up. For example, Lane and Milesi-Ferretti (2007) observe significant differences in the countries' external portfolio, depending on whether they are developed, industrialized or emerging markets. Here, the study combines rich panel structure with a focused and relatively more homogenous group of countries from developing world.

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<sup>1</sup> It is important to note at this juncture that external financial liberalization, financial openness, financial globalization and capital account liberalization have all been used in connection with international financial integration in the empirical literature.

## 2. A Brief Literature Review

Numerous studies have attempted to examine the effect of international financial integration especially in emerging markets. Theoretically, integration with international capital market is believed to have a positive influence on capital accumulation and economic performance through tapping the pool of global saving to the less developed countries hampered by capital constraints (Schularick and Steger, 2006; Abiad et al., 2004). Agenor (2003) observes that increase in the degree of integration of the world capital market has in most of the case been followed by private capital flows. This prediction is actually good news for capital poor countries such as those of SSA economies since they face capital scarcity. For example, Asiedu (2003) noted that in order for the SSA region to achieve the UN's millennium development target of reducing poverty rate by half by 2012, there is a need to fill an annual resource gap of US\$64 billion. Other benefits of financial integration are strengthening of the domestic financial system through encouraging the penetration of more efficient foreign banks and improving opportunities for diversification leading to lower risk and consumption smoothing.<sup>2</sup> Prasad et al. (2003) further argues that in addition to augmenting domestic savings, international financial integration also promotes specialization and provides inducement for better policies. These arguments underpinned the wisdom to embrace openness to global capital flows and ease controls over cross-border financial activities.

However, majority of the empirical results so far show that the impact of financial integration on economic growth is mixed and growth benefits to poor countries cannot be significantly identified (Schularick, 2009; Alfaro et al., 2005; Aizenman et al., 2004; Gourinchas and Jeanne, 2004). In one of the earliest papers to undertake a detailed review, Prasad et al. (2003) examine the impact of increased financial openness using 76 industrial and developing countries and time series covering the period 1960–99. The study reports that there is no strong and robust causal relationship between the degree of financial integration and growth. Their paper further argues that there is little evidence to support the view that financial integration better helps stabilize fluctuations in consumption growth in developing countries. In a different study with a broad set of 45 emerging economies and industrialised countries, Fratzscher and Bussière (2004) reveal that there is no robust long-term impact of financial integration on output growth and improved access to international capital which leads to a short-term boom 'overborrowing syndrome', followed by a mid term 'bust' or recession where economic growth slows down. In another study which examined the economic impact of financial integration policies in the Middle East and North Africa (MENA) countries, Esfahani and Squire (2007) conclude that financial integration has contributed to higher macroeconomic volatility in the MENA region.

Despite there being significant research on the subject as to whether financial integration facilitates growth, the empirical literature is still very much divided and the debate continues. Some studies have reported that international financial openness could strengthen the domestic financial system and positively contribute to countries' economic growth. In more recent research, Schularick and Steger (2006), using a sample of 20 developed and developing nations over the time period of 1880-1914, report a positive and robust relationship between international financial integration and economic growth. In a latest paper, Brezigar-Masten et al. (2010) observe that the process of integration into international capital markets has contributed positively to subsequent GDP growth in transition economies. In another newer empirical study covering 44 SSA countries, Deléchat et al. (2010) provide evidence to support the view that financial integration enhances international capital flows and fosters the degree of financial market development positively to influence growth in SSA economies. However, it is important to note a number of other researchers have argued that the positive impact of international financial openness on economic performance may be

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<sup>2</sup> Other benefits international financial integration include creating opportunities for portfolio diversification, risk-sharing and hedging against negative shocks (Edwards and Thames, 2009).

conditional on other factors such as structural and institutional characteristics, economic stability and macroeconomic policy (see, for example Klein, 2005; Edison et al., 2002 among others).<sup>3</sup>

### **3. Impact of Regional Financial Integration in Africa**

International financial integration is generally perceived as a process by which financial systems and markets become more integrated (or are better linked) through financial flows – with those of closer regions and with rest of the world. Edison et al. (2002) defines international financial integration as “the degree to which an economy does not restrict cross-border financial transactions”. It has been observed that such a process provides the required lubricant for dynamic private sector growth through opening access to foreign capital and enabling the introduction of financial innovation in the local market. In Table 1, we examine the trends in financial integration and capital flows between 1980 and 2008, which also coincides with the era of international financial openness. For the sake of comparability, we look at the trends in net flows of investment and that of financial deepening in Sub-Saharan African countries compared to other transition economies such as those of East Asian and Pacific (developing only), and Latin America countries. Financial development and regional financial integration are interlinked, and domestic and international financial integration is also associated with financial deepening, through increasing funds channelled to profitable investment and encouraging the introduction of new financial instruments to foster capital mobilization and smoothen consumption. Growth in the developing economies of East Asia is seen to have improved in recent decades, averaging 9.7% in the period between 2001 and 2005 compared to 2.2% in SSA economies over the same period. Following the adoption of trade and capital account liberalization, private and external capital flows to emerging East Asia and Pacific countries are seen to be strong, as the region attracted a significant proportion of foreign direct investment and portfolio flows during the 1990s and post-2000 period. Following the structural adjustment programme and macroeconomic stabilization in late 1980s, foreign direct investment (net inflows % GDP) in SSA economies stood at about 1% in 1991-1995 and more than doubled by the year 2008. We see evidence of an expansion in domestic private credit and an upward trend in portfolio investment in the post liberalization period in SSA economies, although the figures are well below those observed in developing East Asian countries.<sup>4</sup> It is estimated that private equity and debt inflows have now reached a record high of \$53 billion in 2007, while bond flows to SSA economies have grown markedly, increasing by \$7.03 billion between 2006 and 2007 alone, indicating an increase in international banking activity in the recent years (Macias and Massa, 2009). Similarly, it can be seen from Table 1 that the total foreign claims held by banks have surged as portfolio inflows increased. With an increase in the regional financial market cooperation and alliances, to increase the sharing of financial market infrastructure (see Figure 2), the continent has been progressing in terms of monetary and financial links with the rest of the world.

Our initial inspection reveals that there seems to be an interaction among the indicators of international and regional financial integration and domestic financial deepening, and that financial integration may have fostered cross-border capital movements to spur growth. On the other hand, although there has been some harmonization programme to integrate the financial markets of the SSA region, financial openness has also enhanced the problem of capital flight. It is estimated that cumulative capital flight from SSA economies totalled about US\$285 billion in the year 2000 (Boyce and Ndikumana, 2000) and that capital outflows from Africa have more than doubled in the period between 1991 and 2003, averaging over \$US15 billion per year (Ndikumana, 2005). From Table 1, we observe that although net inflows are generally higher than outflows, capital outflows

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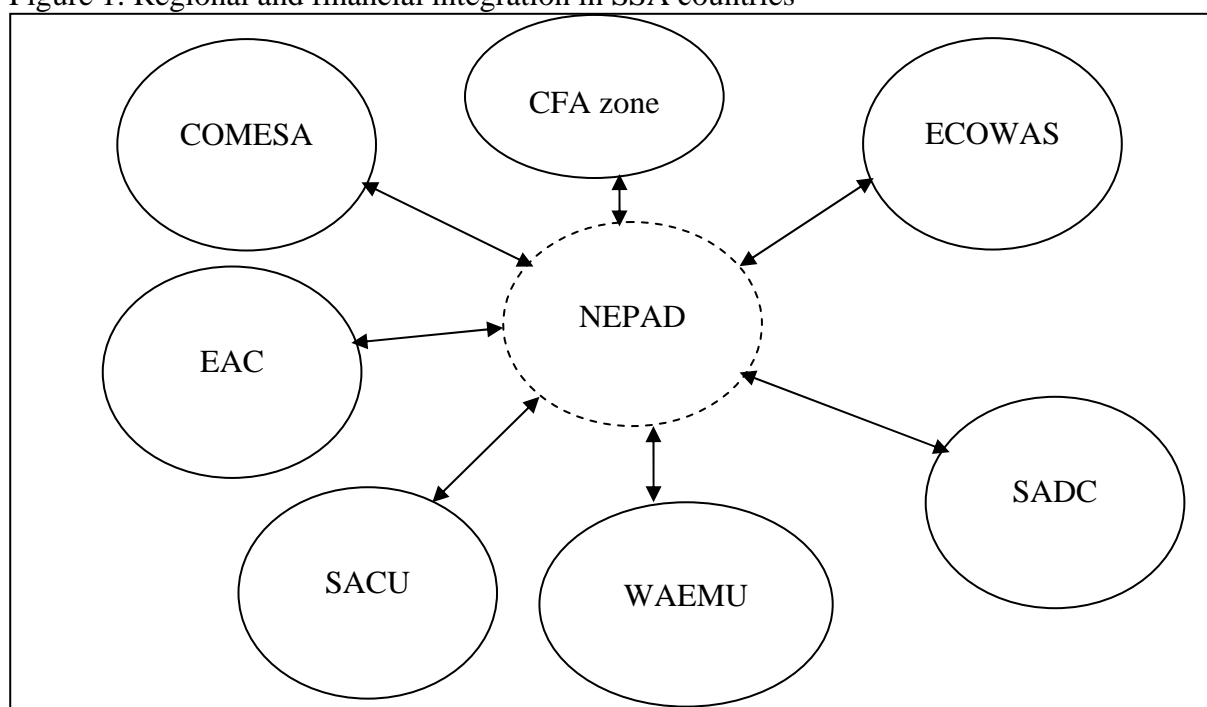
<sup>3</sup> It is not our intention to provide a detail review of the literature here, however, for a comprehensive survey of the link between financial integration and economic growth see Kose et al. (2009).

<sup>4</sup> From the table, there seem to be a moderate correlation between capital inflows and the growth rate of GDP in SSA countries.

are as high as those from the East Asia region which is a bigger economy, and even higher than Latin America.

It has been argued that most of the financial markets in Africa lack depth, provide limited financial services and have inadequate liquidity, and financial products offered have a strong short-term bias (see ADB, 2010). Given the economic potential of the African continent, stronger regional integration could be used to support growth in international trade, poverty reduction, and access to international financial market on better terms. In addition to helping the process of harmonizing existing regulatory standards, regional monetary and financial systems could be important in addressing the problem of market thinness, reducing transaction costs and enabling information sharing. Figure 1 provides a list of the mostly active regional financial institutions in Africa. Although some of these regional financial blocs were founded in the late 1970s, there were numerous problems and structural obstacles that reduced their effectiveness in creating closer linkages among the financial systems of member countries. A key issue that has limited the successful development of regional integration seems to be that not many SSA nations were willing to subordinate national policy goals with common regional strategic goals. As a result, there has been frequent policy reversal, even after reaching consensus on joint policy actions.<sup>5</sup>

Figure 1: Regional and financial integration in SSA countries



Note: COMESA is the Common Market for Eastern and Southern Africa; ECOWAS is the Economic Community of Western African States; WAEMU is the West African Economic and Monetary Union, SADC is the Southern African Development Community; EAC is the East African Community; SACU is the Southern African Customs Union; CFA zone is the Franc Currency bloc; and NEPAD stands for New Partnership for African Development which supports all integration and development agenda in the continent. All these regional monetary and financial cooperation organizations have common plans to jointly strengthen their financial systems and allow high level interaction between their financial and capital market institutions. They also have platforms for sharing information and the formulation and implementation of development programmes. Although not yet achieved, there are also discussions on setting up common automated trading systems. Most of these sub-regional financial markets also have a joint committee for harmonization and rationalization of legal and regulatory framework which is quite important in moving forward the integration of financial markets.

<sup>5</sup> For a detailed reading on the existing regional financial systems and experiences with regional financial arrangements in Africa, see ADB (2010) and Debrun et al. (2002).

#### 4. Data and Methodology

This study uses a sample of 25 SSA countries (see Data Appendix 1). The selection of these countries was mainly determined by the data availability on our variables of financial integration. Our panel data covers the period of 1976 to 2008, allowing us to examine the effects of extensive economic and structural changes over those years.<sup>6</sup> Growth of real GDP per capita (real GDP per capita is in constant prices: Chain series) ( $gy$ ), population growth ( $n$ ) and investment rate ( $INV$ ) are from *Penn World Tables* (PWT 6.2) and *World Development Indicators* (World Bank). Indicators of financial development are either taken or computed using the IMF's *International Financial Statistics* (IFS). Our indicators of macroeconomic stability (inflation ( $INF$ ) and government spending ( $GOV$ ) (as a share of GDP)) are taken from IMF and World Bank sources respectively. The human capital indicator ( $EDU$ ) (years of schooling) is sourced from Barro and Lee (2010) while the institutional structure ( $INST$ ) variable of political and economic freedom is taken from Economic Freedom in the World Database. Appendix 1 provides complete accounts of our variable definitions and full information on data sources.

To capture international financial integration, a number of empirical studies have used *dejure* (rule-based) and/or *defacto* (quantity) based measures of financial integration. Based on the work of Lane and Milesi-Ferretti (2007), who compute stock of external assets and liabilities for a large number of developing countries, we obtain a series for capital flows ( $FLO$  and  $INFLO$ ) and estimated stock positions ( $IFI1$  and  $IFI2$ ) including foreign direct investment and portfolio equity investments.<sup>7</sup> For the purpose of obtaining a more robust and appropriate measure of financial integration, we also use a rule-based measure of financial openness as a proxy for financial integration. The proposed index is based on the widely used IMF's *Report on Exchange Arrangements and Exchange Restrictions*. The final constructed index takes values between zero and four, where a value of zero indicates a country which has a closed current and capital account, has multiple exchange rate regimes, and places restrictions on exports receipts. Since Lane and Milesi-Ferretti (2007) data runs up to 2004, we also utilize a different dataset on inflows and outflows of capital to GDP ( $FLO1$ ) and inflows of foreign direct investment and portfolio equity ( $INFLO1$ ) from United Nations Conference on Trade and Development (UNCTAD). Other variables are also extended to 2008.

To assess the relationship between financial integration, financial development and economic growth in SSA, we utilize the Generalized Method of Moments (GMM) approach for panel data analyses. Thus as proposed by Arellano and Bond (1991), let us consider a model in such a way that:

$$gy_{it} = \gamma y_{it-1} + \alpha IFI_{it} + \beta' X_{it} + u_i + e_{it} \quad (1)$$

where  $gy$  is GDP per capita growth, the subscripts  $i$  and  $t$  denote country and time period (with  $i \in [1, N]$  and  $t \in [1, T]$ ; and also assuming that  $N$  is large and  $T$  small),  $y_{it}$  represents the logarithm of initial income per capita,  $IFI$  is an indicator of financial integration and  $X$  represent a vector of weakly exogenous and predetermined covariates which include time effects (5-year period dummies),  $u_i$  is the unobservable country-specific fixed effect for country  $i$  and  $e_{it}$  is a disturbance term. For the practical purpose of eliminating time-invariant country specific effects, we take first difference of equation (1) to obtain:

<sup>6</sup> As has now become traditional, our data is averaged over 6 five-year periods which is considered standard in growth literature. This gives us a good six time series observations in each country. However, when we also use an alternative dataset for  $FLO$  and  $INFLO$  variables, we get seven time series observation for the respective countries.

<sup>7</sup> Note that we have considered updating Lane and Milesi-Ferretti (2007), which runs up to 2004 using the same methodology. However, for consistency and reliability we preferred using alternative international capital flows data from UNCTAD.

$$\Delta g y_{it} = \gamma \Delta y_{it-1} + \alpha \Delta IFI_{it} + \beta' \Delta X_{it} + \Delta e_{it} \quad (2)$$

where  $\Delta$  indicates first difference operator. To deal with a number of shortcomings in the first differenced GMM including potential endogeneity problem, correlation among key variables and low precision, orthogonality conditions or instrumental-variable approaches are applied [where lags of specified variables in levels are used as instrument for predetermined and endogenous variables and strictly exogenous variables are instrumented by their first order differences in equation (1)].<sup>8</sup> Given equation (2), lagged values would constitute valid instruments only if our explanatory variables are weakly exogenous and error terms  $e_{it}$  cannot be serially correlated. More specifically these assumptions imply:

$$\begin{aligned} E(y_{it-s} \cdot (e_{it} - e_{it-1})) &= 0 \text{ for all } s \geq 2; t = 3, \dots, T \\ E(X_{it-s} (e_{it} - e_{it-1})) &= 0 \text{ for all } s \geq 2; t = 3, \dots, T \end{aligned} \quad (3)$$

Given equation (3), it is then possible to use lagged values of endogenous and predetermined variables dated  $t - 2$  as instruments.

Arellano and Bond (1991) introduced the two-step GMM, where in the first step of the estimation, the disturbance terms are assumed independent and homoskedastic across countries and over time; and then such assumption is relaxed in the second step where a consistent estimate of the variance-covariance matrix is constructed using residuals from the first step (Ahmed and Suardi, 2009). However, it is noted that the efficiency of the instrumental approach (even in the two-step GMM) may be relatively weak, considering the fact that lagged levels are often found to be poor instruments for first differences (Liang, 2006). Arellano and Bover (1995) and Blundell and Bond (1998) propose a system GMM estimator, where the regression in differences is combined with the estimator in levels, ‘within a system’, to form a more efficient estimator that utilizes a large set of different instruments. Thus the system GMM approach improves efficiency and is a highly recommended estimation approach in studies such as ours (Blundell et al., 2000).<sup>9</sup> As elaborated by Boubakri et al. (2009) and earlier by Blundell and Bond (1998), the instruments for the part of the regression in differences are as we have discussed above. However, for the exogenous regressors in levels to constitute appropriate instruments, the following additional moment condition assumption applies:

$$\begin{aligned} E[(X_{it-s} - X_{it-s-1}) \cdot (u_i + e_{it})] &= 0 \text{ for all } s = 1 \\ E[(y_{it-s} - y_{it-s-1}) \cdot (u_i + e_{it})] &= 0 \text{ for all } s = 1 \end{aligned} \quad (4)$$

To examine the validity of the instruments, the Hansen test of overidentifying restriction is applied (where the null hypothesis is that instruments are valid and therefore are not correlated with the error in the first differenced equation). We will also check for the presence of second order serial correlation in the residuals (with the null of first and second order autocorrelated disturbances).<sup>10</sup> These two tests are normally undertaken to check the accuracy of this estimator.<sup>11</sup>

## 5. Empirical Results and Major Findings

<sup>8</sup> Other problems include the possibility of jointly endogenous variables.

<sup>9</sup> The method is effectively unbiased and gives more precise results while also providing better control for some of the econometric problems such as endogeneity.

<sup>10</sup> The paper uses STATA’s Xtabond2 command in its estimations.

<sup>11</sup> The literature on the dynamic GMM estimator is enormous and its application is now standard. For an interested reader, further detail on this methodology can be found in paper such as Windmeijer (2005).

In this analysis we will consider a number of measures of financial integration and of financial development. Before the main empirical investigation, we consider pairwise analysis to examine the role of various variables in the resource allocation process and economic growth. Table 2 provides interconnections between our variables (correlation matrix) using the Spearman's bivariate correlation procedure. The test is the nonparametric statistical analysis 'equivalent of a test of correlation for matched pairs of data' (Ayadi et al., 2008). The results indicate that economic growth (gy) is positively related with indicators of international financial integration (IFI1, Flo, Inflo and IMF) and significantly so at the five percent confidence level in the case of Flo, Inflo and IMF. Thus by decreasing capital account restriction and encouraging flows and inflows of foreign direct investment and portfolio inflows, such policy adoption will stimulate economic growth and performance. The low but positive correlation in liquid liabilities – an indicator of the overall size of formal financial intermediary – (LLY) and the ratio of credit to the private sector (PRVY) and higher correlation in the case of political and economic freedom (INST), is as per our expectation. On the other hand, the negative association between growth and inflation and government expenditure burden is related to the reduction in the amount of credit flowing in the market and particularly to the most productive sectors.

[Insert Table 2 about here]

To empirically investigate the relationship between international financial integration and economic performance, Table 3 presents a benchmark regression using the standard neoclassical growth model. We present results using both pooled OLS and dynamic system GM estimations. The coefficients for investment (INV) and human capital (EDU) variables are both positive and therefore associated with higher growth. The result show that trade openness negatively affects growth in SSA region (although not significant in many instances). This can be explained by the fact that in many least developing countries (LDCs) where exports have increased, GDP has declined (Malhotra, 2004) and liberal trade regimes do not immediately guarantee economic growth and may only be the case after the growth rate has increased substantially (reaching certain threshold).<sup>12</sup> In columns (3) and (4) of Table 3, we introduce an institutional quality variable. INST measures the degree of economic and political freedom on a scale of 1-7, with 1 representing the highest degree of political freedom and 7 the lowest level of political and civil liberties. Our institutional quality indicator is significant at the 5 percent level and has the expected sign. Importantly, the role investment in the improvement of economic growth prospects of SSA countries is confirmed. A 1 percentage point increase in the investment rate was found to lead to a 0.20 and 0.18 (under the two system GMM estimation columns) increase in GDP per capita growth over the period. We find a larger government consumption negatively impacting GDP growth and the SSA governments should therefore have the objective of reducing deficits as a share of GDP. A 1 percentage point increase in the share of government spending in GDP reduces per capita output growth by about 0.18 and 0.08 percentage points (under the two system GMM estimation columns).

[Insert Table 3 about here]

We next examine the impact of financial integration policies of countries in the SSA region. It is expected that international or regional integration lowers the cost of capital, in addition to increasing the pool of investment available, and provides entrepreneurs access to international capital. We introduce five commonly used measures of financial integration: the aggregate stock of

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<sup>12</sup> Malhotra (2004) also observe that in the case of Asia tigers, significant trade reforms and trade liberalization took place only after high growth was established.



external asset and liabilities to GDP (IFI1); the stock of liabilities as a share of GDP (IFI2); the ratio of inflows and outflows of capital (foreign direct investment and portfolio inflows) to GDP (FLO); the ratio of inflows of capital (foreign direct investment and portfolio inflows) to GDP (INFLO); and a *de jure* (rule-based) measure of financial openness (IMF). All these variables are in log form.

[Insert Table 4 about here]

Table 4 presents the results of the system GMM estimation. Columns (1) to (7) report results using different financial integration indicators: IFI1, IFI2, FLO, INFLO, IMF, FLO1 and INFLO1 respectively. We instrument our predetermined and weakly exogenous variables using their levels lagged two and three times in the first differenced equation (2) and using their first-differences lagged once in the level equation (1). From the Hansen and AR tests, we do not observe any serious problem with the specification of the model and the choice of our instruments.

In line with the recent literature (see for example Schularick and Steger, 2010; Edilson et al. 2004), although there appears to be a positive influence on growth by financial integration, our investigation clearly shows that there seems to be no robust relationship between financial openness (integration) and economic growth in SSA economies. Despite some progress, this finding supports the view that integration into the global financial market is perhaps not sufficient enough at this stage to be termed as a ‘mature one’ and still remains a target (ECA, 2008). Overall, this finding indicates that SSA economies that were more open to international capital flows during the period of our study, do not seem to grow faster than the rest. This lack of a robust relationship between international financial integration and economic growth, even under this dynamic panel estimation technique, that addresses potential endogeneity (between capital flow and GDP), leads us to a number of experimental empirical questions. Importantly, the finding could imply that openness promotes growth through indirect channels *via* financial development. The growth effect could also be conditional to other factors such as institutional characteristics, macroeconomic environment or other economic conditions. More generally, the lack of any robust relationship could also just be an indication that ‘the financial market integration that has thus far taken place is still insufficient to show up significantly in the data’ (Guiso et al., 2004, p. 537). The later argument is typically supported by the fact that most of the financial instruments issued in SSA markets continue to concentrate on short-term maturities. Commercial banking structures still remain rigid in Africa and foreign participation and penetration in financial sectors, such as insurance and pension funds, is an ongoing process. It is noted that in some SSA countries, for example Kenya, complementary financial reforms are resisted by some influential politicians to preserve entrenched interests.<sup>13</sup> To fully reap economic benefits of integration in financial markets, further harmonization of underlying legal and regulatory frameworks and tax systems are needed. Further liberalization of financial services at sub-national and national levels is also needed to enhance long-run financial intermediation (ECA, 2008, p. 276).

From the results, it is observable that inflation (INF) is negative and strongly significant at the 1 percent level. Thus the evidence supports the view that uncertainty about macroeconomic and price development negatively influences growth. The results show that institutional deficiencies have a negative impact on economic growth. As such institutional innovation (such as good governance, enforcement of rule of law, protection of property right and investors and stable political environment) is crucial for economic success. Openness to international trade is found to be negatively affecting growth in SSA countries. Balamoune-Lutz (2006) argues that poor countries may not benefit from trade openness by improving their export sector if their human capital or physical capital stocks are too low.

[Insert Table 5 about here]

<sup>13</sup> See article ‘Powerful leaders fighting financial sector changes’ in The Standard, December 2<sup>nd</sup>, 2010.

We next examine the indirect effect of financial integration on economic growth in SSA. In some of the more recent studies (such as Bonfiglioli, 2008; Osada and Saito, 2010), it is argued that financial integration may have a positive effect on output through enhancing the depth of the financial system. Here we consider the possibility of a positive indirect effect. In the rest of the remaining empirical investigation, we focus on the use of two capital flow integration measures, which exhibit sufficient time variation as opposed to stocks indicators, in addition to the IMF capital restriction index. From our results, we observe a positive and statistically significant association between international financial integration and financial development under all its selected indicators.<sup>14</sup> Importantly, the reported magnitudes of coefficients are highest under FLO and INFLO measures of international financial integration. As observable from Table 5, financial sector integration, by enhancing capital inflows, tends to increase banks domestic assets (BANK) and the ratio of liquid liabilities to GDP (LLY). While the effects are both statistically significant, the magnitude of the BANK coefficient is higher, 2.61 and 2.45 under columns 1 and 2, as opposed to 1.87 and 1.92 for LLY, respectively. In support of our findings, Osada and Saito (2010) argue that since an increase in FDI and equity liabilities stimulates international trade, the effects of international financial integration could be larger when we take into account only the direct impact of these liabilities on economic growth. The evidence shows that international financial openness positively and significantly affects credit to the private sector (PRVY). This implies that resource inflows supplement domestic savings and enhance the level of physical capital per worker to aid growth prospects. These results are also in line with Prasad et al. (2007), who show that for countries who have an above-median level of financial development, financial openness and capital market integration aids respective growth of sectors dependent on finance to spur growth. Similarly, Alforno and Charlton (2007), using rich firm-level data, observe that entrepreneurial activity is enhanced by international capital integration and therefore financial openness could benefit growth indirectly through financial market development. Finally, our results are robust to using the new proxies of financial integration such as FLO1 and INFO1, where these flow-size indicators are significantly associated with financial sector depth (Columns 4 and 5, Table 5) in the SSA region.

In the next section, we investigate the impact of international financial integration under different domestic policies and economic environment. In this particular case, we examine whether adverse effects of financial integration are mitigated by a good policy environment; or alternatively, whether a positive impact of financial integration intensifies with better domestic policies and environment. We seek to investigate if SSA countries with a high score of institutional quality (INST), high level of human capital (EDU), low government spending (GOV), better macroeconomic stability (INF) and more trade openness (TO), benefit more from international financial integration. Brezigar-Masten (2010), for example, finds that that the negative effect of financial crises is smaller in more financially integrated countries, and therefore larger access to international financial market by a developing country reduces the contractionary effect of a financial crisis.

[Insert Table 6 about here]

Table 6 reports the regression results, which include the interaction terms between institutions, human capital, government spending, inflation levels and trade openness, and our three measures of financial integration. In Table 6, column (1), the coefficient of financial integration term is by itself negative, meaning that even though it could contribute to a higher supply of funds, it may at the same time increase macroeconomic volatility in emerging countries to have a negative influence on output. The coefficient of the interaction variable between financial integration and institutional quality takes on a positive sign and is statistically significant at the 5 percent level. The results

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<sup>14</sup> Additional investigation using the two stocks indicators of IFI1 and IFI2 reveals that the results are consistent with our findings here. The estimated results are available upon request.

imply that in the presence of good institutions, the detrimental effect of financial integration in developing countries is mitigated.<sup>15</sup> In column 2 of Table 6, we allow the human capital variable to interact with financial integration. The coefficient of the interaction variable between human capital and integration is positive but not significant (in most of the cases). The result demonstrates that for financial integration to enhance growth, human capital is crucial. Finally, by allowing government spending and inflation to interact with financial openness, our study shows that by themselves government spending and macroeconomic instability individually have a detrimental effect on output growth.<sup>16</sup> However, this adverse impact is smaller in more financially integrated developing countries.

*Sensitivity analysis:* In addition to estimating the dynamic panel data model using the GMM system estimator, we use different estimation techniques (the Feasible Generalised Least Squares (FGLS) estimator) and provide for further alternative specifications of the basic regression as a sensitivity test, to examine whether the more open financial regimes achieve higher output growth, on average. We split our initial sample of countries into two sub-samples, those classified as more financially integrated and a second group noted as less financially integrated SSA countries. Increased financial integration has a number of benefits including trade integration, contribute to poverty reduction and relatively reduce consumption volatility (Prasad et al., 2003). Sub-sample regression results reported in Table 7 shows that more financially integrated SSA countries accommodate high economic performance in terms of per capita output growth. As pointed out by ADB (2010), integrated financial regions in Africa are becoming attractive destinations for European FDI and for multinational corporations (MNCs) considering relocation or to establish regional hub. Our evidence is also in line with the findings in Ahmed and Suardi (2009), that suggested more financially integrated SSA countries experienced a significant decline in income volatility growth in post reforms. This enhances financial risk sharing and results in other income-smoothing benefits.

## 6. Conclusion and policy implication

The issue of the impact of international financial integration in emerging markets and on developing countries is still a subject that is of interest to many economic researchers. Empirical studies are also inconclusive as far as the effect of financial integration on growth is concerned. This paper explores the effects of financial integration on economic performance using a panel dataset of 25 SSA countries from 1976-2008. We use various indicators of financial openness, including stock-size based measures of total foreign assets and liabilities as a share of GDP and more disaggregate flow-size measure such as foreign direct investment and portfolio flows to GDP as documented in Lane and Milesi-Ferretti (2007). We also check the robustness of our findings using a different dataset on inflows and outflows of capital to GDP and inflows of foreign direct investment and portfolio equity from the United Nations Conference on Trade and Development (UNCTAD).

Although market reforms, liberalization of financial sector and deregulation of financial intermediaries have been a common agenda for most of the emerging/developing economies, the method and pace of implementation of changes has been different. In the case of the SSA region, what is certain is that increased financial openness of recent years has laid a strong foundation to consolidate financial integration between regions and with international financial markets. There is a trend of increased foreign capital flows. Initially, our results do not support the claim that increased financial openness leads to increased growth performance in the SSA economies.

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<sup>15</sup> Rajan and Zingales (1998) provide support for our finding, suggesting that in developing countries with well-protected property rights, foreign investments are directed to long-term gestation, and capital-intensive investment and genuinely good long-term projects such as infrastructure building and telecommunication networks.

<sup>16</sup> In assessing the impact of a monetary union in West Africa, Debrun et al. (2002) find that differences in government spending propensities are more critical than asymmetric shocks in determining net gains and losses from potential financial integration.

Although the coefficients of our indicators of financial integration are positive in most cases, we do not observe a robust link between financial openness and economic growth. Probably, we could explain this by the fact that most of the African countries show trends of policy implantation reversals, where from time to time national government interventions and lack of commitment to good governance were observable. Given that fact that most of SSA African countries have pursued unsound policies and have relatively weaker institutions, we argue that they could be vulnerable to macroeconomic volatility associated with financial openness.

The paper has considered both the direct and indirect channels through which the impact of financial integration works. It is believed that when international capital flows stimulate international trade, export promotion and technological diffusion, the analysis of only the direct channels may underestimate the total impact of financial integration on economic growth. The study reports that financial integration (financial openness) has a statistically significant effect on all our indicators of financial development. The magnitude of the coefficients is much higher for the case of improving banks domestic assets (BANK) and the ratio of liquid liabilities (LLY) variables. This evidence implies that, although international financial openness may have had little direct positive effects so far, it does promote economic growth in SSA countries through fostering the depth of domestic financial markets. We also report some evidence that good institutions, lower level of government spending, and a stable macroeconomic environment play an important role in mitigating the negative impact of international financial openness.

Policy-wise, we propose that harmonization of a regulatory framework and the strengthening of legislative and supervisory institutions will consolidate financial market integration. Security of property rights, enforcement of contracts, and more a transparent justice system will promote capital inflows and foreign private investment. Member countries need to strengthen their financial sectors and systems by fully opening up the commercial banking sectors to foreign financial institutions, reforming tax systems and harmonizing financial rules and information, to encourage long-term investment. These changes will improve the links between intermediary financial systems, money and capital markets. A strong commitment by governments and various finance ministry departments are also critical. The latest report by the Economic Commission for Africa (ECA, 2008) suggests that to achieve a successful financial integration programme in Africa and to transform financial services, there is a need for government institutions (policy makers) to work together with the private sector for a smooth transformation. Better coordination between private sector initiatives and government policy harmonization is required and fostering regional integration through commitment and consistency is important. This is because regional financial integration can be a vital stepping stone to introduce financial collaboration, common market development and infrastructure sharing, that can ultimately be used as a tool to promote trade and later support integration into the global financial market.

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Table 1: Trends in financial development, financial integration and net flows of investment

	GDP per capita growth (%)	Domestic credit to private sector (% of GDP)	Market capitalization (% of GDP)	Foreign direct investment, net inflows (% of GDP)	Foreign direct investment, net outflows (% of GDP)	Investment (% of GDP)	Gross domestic savings (% of GDP)	Portfolio investment (% GDP)
Latin America & Caribbean (developing only)								
1980-1990	-0.45	24.00	2.36	1.00	0.00	20.18	23.00	0.17
1991-1995	1.80	43.20	24.80	1.40	0.00	18.80	19.20	3.00
1996-2000	1.60	31.00	28.00	2.60	0.00	18.80	19.00	0.27
2001-2005	1.40	25.00	32.60	2.00	0.40	17.80	21.00	-0.20
2006-2008	4.00	35.00	50.00	2.67	0.85	20.00	23.00	0.41
Low income								
1980-1990	0.00	12.45	-	0.27	0.00	15.45	8.45	0.00
1991-1995	-0.80	13.60	65.20	0.60	0.00	16.80	9.00	0.01
1996-2000	1.60	16.80	60.83	1.60	0.00	18.00	10.20	0.01
2001-2005	2.60	19.40	68.31	2.20	0.00	20.00	10.20	0.01
2006-2008	4.00	22.00	73.50	3.67	0.00	23.00	10.33	0.01
Sub-Saharan Africa (all income levels)								
1980-1990	-1.00	36.91	0.00	0.45	0.00	20.00	19.82	0.03
1991-1995	-1.60	52.00	59.40	1.00	0.60	16.60	15.00	0.63
1996-2000	0.80	59.40	29.20	2.00	0.60	17.00	15.40	0.52
2001-2005	2.20	56.20	37.80	2.20	0.67	17.40	16.00	0.79
2006-2008	3.67	63.33	44.13	2.30	1.00	20.33	16.67	0.91
East Asia and Pacific (developing only)								
1980-1990	5.82	55.82	0.00	0.91	0.00	28.18	33.18	0.05
1991-1995	9.20	81.20	37.00	3.40	0.40	33.00	38.40	0.20
1996-2000	5.40	98.80	39.00	3.60	0.00	31.40	37.60	0.67
2001-2005	7.60	103.00	41.00	2.80	0.20	33.60	39.20	1.28
2006-2008	9.67	96.67	97.67	3.33	1.00	35.67	44.67	1.71

Note: Low income countries are defined as per the classification of World Bank.

Source: The World Bank, World Development Indicators.



Table 2: Spearman's rho correlation coefficients amongst variables

	GY	IFI1	IFI2	FLO	INFLO	IMF	EDU	TO	INST	INF	GOV	BANK	LLY
GY	1.00												
IFI1	0.036	1.000											
	0.662												
IFI2	-0.078	0.922*	1.000										
	0.342	0.000											
FLO	0.215*	0.463*	0.442*	1.000									
	0.011	0.000	0.000										
INFLO	0.255*	0.484*	0.385*	0.939*	1.000								
	0.002	0.000	0.000	0.000									
IMF	-0.162*	-0.083	-0.008	-0.038	-0.152	1.000							
	0.048	0.310	0.926	0.652	0.074								
EDU	-0.067	0.366*	0.279*	0.153	0.184*	0.112	1.000						
	0.418	0.000	0.001	0.071	0.030	0.173							
TO	0.058	0.490*	0.411*	0.424*	0.442*	-0.094	0.484*	1.000					
	0.484	0.000	0.000	0.000	0.000	0.251	0.000						
INST	-0.171*	-0.298*	-0.136	-0.178*	-0.240*	0.023	-0.478*	-0.329*	1.000				
	0.036	0.000	0.097	0.036	0.004	0.780	0.000	0.000					
INF	-0.095	-0.067	-0.017	-0.061	-0.120	0.377*	0.160	-0.014	-0.063	1.000			
	0.247	0.417	0.838	0.478	0.158	0.000	0.050	0.862	0.445				
GOV	-0.003	0.067	-0.026	-0.016	0.032	-0.038	0.121	0.303*	-0.101	-0.015	1.000		
	0.969	0.415	0.748	0.848	0.712	0.647	0.141	0.000	0.220	0.859			
BANK	-0.079	-0.114	-0.090	-0.163	-0.120	0.036	0.225*	0.215*	0.074	-0.035	0.259*	1.000	
	0.338	0.165	0.273	0.054	0.158	0.659	0.006	0.008	0.366	0.669	0.001	150.000	
LLY	0.086	0.029	-0.057	-0.072	-0.012	0.132	0.239*	0.227*	-0.258*	0.088	0.285*	0.706*	1.000
	0.293	0.724	0.485	0.401	0.891	0.108	0.003	0.005	0.001	0.287	0.000	0.000	
PRVY	0.024	-0.126	-0.159	-0.087	-0.026	-0.141	0.092	0.327*	0.037	-0.133	0.254*	0.769*	0.560*
	0.773	0.125	0.052	0.309	0.764	0.086	0.264	0.000	0.650	0.104	0.002	0.000	0.000

Notes: \* indicates correlation is significant at the 0.05 level (2-tailed).

Table 3: Benchmark regression (standard neoclassical growth model)

	OLS	Sym GMM	OLS	Sym GMM
y0	-0.008* (0.002)	-0.013* (0.012)	-0.009* (0.002)	-0.016** (0.010)
INV	0.115* (0.027)	0.202* (0.093)	0.130* (0.021)	0.184* (0.092)
EDU	0.001 (0.004)	0.012 (0.009)	-0.002 (0.005)	0.019** (0.009)
INF	-0.031* (0.013)	-0.039* (0.014)	-0.030* (0.010)	-0.036* (0.006)
GOV	-0.030 (0.036)	-0.182* (0.078)	-0.052 (0.039)	-0.083* (0.031)
TO	0.001 (0.019)	0.002 (0.033)	-0.008 (0.017)	-0.027** (0.012)
n	-0.289 (0.254)	-0.216 (0.639)	-0.244 (0.273)	-0.543 (0.867)
INST			-0.006* (0.002)	-0.008* (0.004)
Constant	0.059* (0.022)		0.063* (0.020)	
Obs	150	125	150	125
R square	0.25		0.28	
AB AR(1) (p-value)	NA	0.134	NA	0.313
AB AR(2) (p-value)	NA	0.603	NA	0.653
Hansen test (p-value)	NA	0.896	NA	0.906

Note: The dependent variable is average annual per capita growth; numbers in parenthesis are robust standard errors. \* and \*\* denote statistical significance at the 5, and 10 percent levels respectively. All regressions include fixed country and time-period effects (half a decade dummies). Hansen is the Hansen test of overidentifying restriction. The p-value is the test statistic's probability value for the null hypothesis that the instruments are valid. AB AR(1) and AB AR(2) are the test statistics for the null of first and second order autocorrelated disturbances respectively.

Table 4: International financial integration and growth

	IFI1	IFI2	FLO	INFLO	IMF	FLO1	INFLO1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
y0	-0.043**	-0.032**	-0.041*	-0.027	-0.042*	-0.024*	-0.034**
	(0.024)	(0.017)	(0.020)	(0.019)	(0.016)	(0.011)	(0.019)
IFI Indicator	-0.037	-0.012	0.227	0.900*	-0.002	0.116	0.012
	(0.031)	(0.030)	(0.427)	(0.389)	(0.006)	(0.243)	(0.014)
EDU	0.032**	0.026**	0.029**	0.018	0.021*	0.025**	0.037*
	(0.017)	(0.015)	(0.016)	(0.013)	(0.008)	(0.013)	(0.018)
INF	-0.052*	-0.052*	-0.099*	-0.044**	-0.047*	-0.034**	-0.103*
	(0.015)	(0.017)	(0.036)	(0.026)	(0.008)	(0.018)	(0.017)
GOV	0.102	0.140	-0.022	-0.052	-0.103	-0.121	-0.215*
	(0.088)	(0.122)	(0.074)	(0.083)	(0.250)	(0.147)	(0.110)
TO	-0.028*	-0.043*	-0.018**	-0.011**	0.031	-0.036*	-0.041
	(0.013)	(0.013)	(0.010)	(0.006)	(0.032)	(0.014)	(0.036)
n	-0.262	0.102	0.192	-0.104	-1.649*	-0.134	-0.835*
	(1.073)	(0.601)	(0.840)	(0.473)	(0.773)	(0.322)	(0.414)
INST	-0.004	-0.002	-0.015*	-0.009*	-0.012*	-0.016*	-0.027**
	(0.014)	(0.025)	(0.006)	(0.004)	(0.005)	(0.007)	(0.015)
Obs	125	125	110	115	115	140	140
AB AR(1) (p-value)	0.572	0.209	0.851	0.778	0.608	0.334	0.319
AB AR(2) (p-value)	0.668	0.651	0.338	0.380	0.976	0.413	0.627
Hansen test (p-value)	0.905	0.805	0.901	0.815	0.95	0.497	0.506

Note: The dependent variable is average annual per capita growth. See also note to Table 3.

Table 5: International financial integration and financial development interactions

IFI indicator used/ Dependent variable	(1) FLO			(2) INFLO			(3) IMF			(4) FLO1			(5) INFLO1		
	Bank	LLY	PRVY	Bank	LLY	PRVY	Bank	LLY	PRVY	Bank	LLY	PRVY	Bank	LLY	PRVY
y0	0.191*	0.082	0.041	0.180*	0.080	0.072	0.195*	0.119*	0.207*	0.143*	0.121	0.170	0.157*	0.131	0.122
	(0.096)	(0.069)	(0.064)	(0.065)	(0.072)	(0.065)	(0.068)	(0.046)	(0.072)	(0.051)	(0.074)	(0.163)	(0.028)	(0.112)	(0.107)
IFI indicator	2.609*	1.875*	1.551**	2.452*	1.928*	1.594*	-0.052*	-0.036*	-0.042**	1.954**	1.643*	1.583*	1.351**	1.401*	1.142*
	(1.267)	(0.858)	(0.920)	(0.614)	(0.945)	(0.506)	(0.022)	(0.016)	(0.022)	(1.020)	(0.325)	(0.531)	(0.731)	(0.623)	(0.314)
INF	-0.239*	-0.153**	-0.159*	-0.189*	-0.112*	-0.136*	-0.048	0.020	0.049	-0.152*	-0.173*	-0.127*	-0.192*	-0.098**	-0.129*
	(0.070)	(0.079)	(0.062)	(0.083)	(0.072)	(0.039)	(0.131)	(0.067)	(0.072)	(0.038)	(0.061)	(0.032)	(0.065)	(0.051)	(0.043)
TO	-0.144**	-0.091	-0.016	-0.140*	-0.004**	-0.008	-0.046	0.005	-0.094	-0.153**	-0.111	-0.126	-0.138*	-0.034**	-0.014
	(0.077)	(0.102)	(0.100)	(0.073)	(0.087)	(0.095)	(0.102)	(0.121)	(0.112)	(0.062)	(0.122)	(0.117)	(0.034)	(0.018)	(0.029)
GOV	0.079	0.298	0.559	0.530	0.673	0.477	0.472	0.164	-0.031	0.168	0.232	0.153	0.418	0.423	0.218
	(0.601)	(0.352)	(0.654)	(0.666)	(0.772)	(0.841)	(1.231)	(0.291)	(0.378)	(0.621)	(0.201)	(0.431)	(0.402)	(0.514)	(0.511)
INST	-0.022	-0.038**	-0.028	-0.022**	-0.035*	-0.011	0.019	-0.020**	0.014	-0.122	-0.106*	-0.087	-0.091**	-0.121*	-0.104*
	(0.015)	(0.017)	(0.024)	(0.013)	(0.020)	(0.016)	(0.018)	(0.012)	(0.017)	(0.115)	(0.037)	(0.055)	(0.029)	(0.054)	(0.041)
Obs	115	115	115	115	115	115	115	125	115	135	135	135	135	135	135
AB AR(1) (p-value)	0.403	0.858	0.278	0.779	0.719	0.857	0.905	0.885	0.495	0.518	0.552	0.475	0.382	0.438	0.245
AB AR(2) (p-value)	0.227	0.273	0.106	0.185	0.583	0.364	0.386	0.911	0.804	0.292	0.314	0.219	0.256	0.293	0.424
Hansen test (p-value)	0.862	0.976	0.905	0.892	0.776	0.995	0.895	0.854	0.992	0.631	0.616	0.702	0.118	0.218	0.211

Note: The dependent variable is indicator of financial development. See also note to Table 3.

Table 6: Impact of international financial integration under different domestic policies and environment

Dom.pol. & env. / IFI indicator used	Institutional Quality (INST)			Human Capital			Economic Condition (GOV)			Macroeconomic Policies			Trade Openness		
	FLO	INFLO	IMF	FLO	INFLO	IMF	FLO	INFLO	IMF	FLO	INFLO	IMF	FLO	INFLO	IMF
y0	-0.008 (0.019)	-0.001 (0.018)	-0.012 (0.025)	-0.050* (0.023)	-0.042** (0.024)	-0.054* (0.021)	-0.065* (0.031)	-0.061* (0.017)	-0.121* (0.052)	-0.101* (0.044)	0.012 (0.021)	-0.030* (0.010)	-0.094* (0.036)	-0.096* (0.039)	-0.027* (0.016)
IFI indicator	-0.781 (0.666)	-1.552* (0.947)	-0.021* (0.010)	0.018 (0.981)	-0.299 (1.331)	-0.016 (0.018)	-3.738** (1.924)	-5.404** (3.675)	-0.233* (0.113)	-0.333 (0.612)	0.863* (0.396)	-0.001 (0.011)	0.990 (1.832)	0.964 (1.622)	-0.003 (0.021)
Financial Integration															
* Dom. Pol. & env.	0.294* (0.124)	0.429* (0.208)	0.004** (0.002)	0.049 (0.627)	0.398 (0.796)	0.037* (0.015)	0.487* (0.242)	0.736** (0.413)	0.032* (0.016)	2.157* (1.025)	2.302* (1.127)	-0.019** (0.011)	1.379 (2.504)	1.269 (2.161)	-0.006 (0.023)
EDU	0.008 (0.015)	-0.002 (0.012)	0.010 (0.015)	0.032* (0.014)	0.027** (0.016)	-0.003 (0.031)	0.048* (0.023)	0.043* (0.006)	0.025** (0.015)	0.065* (0.027)	-0.001 (0.013)	0.023* (0.011)	0.064* (0.019)	0.065* (0.021)	0.025** (0.015)
INF	-0.092** (0.050)	-0.045** (0.026)	-0.062** (0.037)	-0.058** (0.032)	-0.087* (0.031)	-0.078* (0.027)	-0.130* (0.044)	-0.110* (0.046)	-0.018 (0.017)	-0.114 (0.077)	-0.145* (0.062)	-0.024 (0.161)	-0.103* (0.024)	-0.100* (0.034)	-0.072* (0.034)
TO	-0.024 (0.020)	-0.008 (0.024)	0.017 (0.037)	0.024 (0.035)	0.017 (0.031)	0.037 (0.042)	0.021 (0.029)	0.025 (0.028)	0.045* (0.020)	0.050 (0.057)	-0.060** (0.035)	0.022 (0.024)	0.015 (0.054)	-0.017 (0.053)	-0.031 (0.089)
GOV	0.086 (0.073)	0.155* (0.061)	-0.310 (0.301)	0.081 (0.289)	0.048 (0.070)	-0.044 (0.189)	-0.071 (0.088)	-0.083* (0.033)	-0.069 (0.146)	0.035 (0.166)	-0.014 (0.069)	-0.002 (0.129)	0.094 (0.172)	0.158 (0.210)	-0.077 (0.174)
n	0.403 (0.842)	-0.575 (0.903)	-0.170 (0.630)	-0.546* (0.197)	0.089 (0.464)	0.130 (0.906)	0.248 (0.509)	0.075 (0.411)	-1.208* (0.555)	-0.720* (0.388)	0.968 (0.660)	-0.056 (1.027)	-0.712* (0.136)	-0.734* (0.133)	0.804 (1.203)
INST	-0.012* (0.003)	-0.011* (0.005)	-0.001 (0.005)	-0.007 (0.005)	-0.005 (0.004)	-0.009** (0.005)	-0.009 (0.007)	-0.006 (0.004)	-0.002 (0.006)	-0.012** (0.007)	-0.011* (0.004)	-0.011** (0.005)	-0.008** (0.005)	-0.007** (0.004)	-0.007** (0.004)
Obs	115	115	115	115	115	125	115	115	125	115	115	125	115	115	125
AB AR(1) (p-value)	0.089	0.041	0.565	0.82	0.498	0.298	0.206	0.188	0.595	0.378	0.008	0.46	0.265	0.342	0.486
AB AR(2) (p-value)	0.59	0.855	0.322	0.373	0.274	0.819	0.954	0.859	0.602	0.246	0.618	0.953	0.41	0.465	0.455
Hansen test (p-value)	0.78	0.925	0.86	0.702	0.865	0.374	0.72	0.831	0.909	0.861	0.75	0.815	0.618	0.545	0.543

Note: The dependent variable is average annual per capita growth. See also note to Table 1. Dom. Pol. & Env. is a domestic policy and environment proxies of institutional quality (INST), human capital (EDU), economic condition (GOV), macroeconomic policies (INF) and trade openness (TO). See also note to Table 3.

Table 7: Sensitivity analysis: growth impact of IFI

A: More financially integrated countries				
	Coefficient on IFI indicator	Standard error	Observations	Estimation technique
FLO	0.406**	0.216	24	FGLS
FLO	0.274*	0.057	24	OLS
INFLO	0.415*	0.162	24	FGLS
INFLO	0.322*	0.135	24	OLS
IMF	-0.011*	0.004	24	FGLS
IMF	-0.018*	0.006	24	OLS
B: Less financially integrated countries				
FLO	0.262	0.166	115	FGLS
FLO	0.214	0.502	115	OLS
INFLO	0.232	0.157	115	FGLS
INFLO	0.080	0.486	115	OLS
IMF	-0.004	0.003	125	FGLS
IMF	-0.005*	0.002	125	OLS

Note: Growth rate of real GDP per capita is the dependent variable, \* and \*\* denote statistical significance at the 5, and 10 percent levels respectively. All regressions include initial GDP per capita as regressor. Following Ahmed and Suardi (2009), more financially integrated SSA countries are Botswana (2), South Africa (20), Mauritius (15), and Ghana (10); the rest of countries in our sample are considered as less financially integrated.

### Data Appendix 1: Variables, sources and list of countries

Variable	Definition	Source
gy	Real GDP per capita growth. GDP per capita figure is in 2000 prices and purchasing-power-parity adjusted	Penn World Tables (PWT6.2) and World Development Indicators.
IFI1	IFI1 is the aggregate stock of assets and liabilities as a share of GDP.	Lane and Milesi-Ferretti (2006)
IFI2	IFI1 is the stock of liabilities as a share of GDP.	Lane and Milesi-Ferretti (2006)
FLO/FLO1	Ratio of Inflows and outflows of capital (foreign direct investment and portfolio flows) to GDP.	International Financial Statistics (IFS), lines 78bdd+78bed+78bfd+78bgd; and United Nations Conference on Trade and development (UNCTAD).
INFLO/INFLO1	Ratio of Inflows of capital (foreign direct investment and portfolio inflows) to GDP.	International Financial Statistics (IFS), lines 78bed+78bgd; and United Nations Conference on Trade and development (UNCTAD).
IMF	Capital account restriction (0= no restriction, 1=restriction)	IMF annual report of Exchange Arrangements and Exchange Restrictions.
Y0	Logarithm of Initial real per Capita GDP in 2000 PPP adjusted US\$.	Penn World Tables (PWT6.2).
n	Population growth	Penn World Tables (PWT6.2) and International Financial Statistics (IFS).
EDU	Logarithm of Initial years of schooling in the population over 25, computed in the initial year of each five year period (e.g. 1971-1975=70 while 2001-2004=2000).	Barro and Lee (2010) and World Development Indicators.
INV	Gross domestic fixed capital formation as a share of GDP.	World Development Indicators
INF	Annual log difference of CPI	International Financial Statistics (IFS), line 64.
GOV	Gov is government burden as a share of GDP(General government final consumption expenditure (% of GDP))	World Development Indicators
TO	Trade openness which is a ratio of exports and imports to GDP (constant 2000 US\$).	World Development Indicators
BANK	Domestic assets of deposit money banks (F) calculated as $([F(t)/CPI_e(t) + F(t-1)/CPI_e(t-1)] * 0.5) / \{GDP(t)/CPI_a(t)\}$ , where t, a and e denote time period, average for the year and end of period respectively.	International Financial Statistics (IFS), lines 22a-f, CPI is line 64 and GDP is line 99b.
LLY	Liquid liabilities (L) calculated as $([L(t)/CPI_e(t) + L(t-1)/CPI_e(t-1)] * 0.5) / \{GDP(t)/CPI_a(t)\}$ , where t, a and e denote time period, average for the year and end of period respectively.	International Financial Statistics (IFS), line 55l, CPI is 64 and GDP is line 99b.
PRVY	Ratio of credit received by private sector to GDP (C) calculated as $([C(t)/CPI_e(t) + C(t-1)/CPI_e(t-1)] * 0.5) / \{GDP(t)/CPI_a(t)\}$ , where t, a and e denote time period, average for the year and end of period respectively.	International Financial Statistics (IFS), line 32d, CPI is 64 and GDP is line 99b.
INST	Political and economic freedom index (political right and civil liberties measure).	Freedom House (2004) and Fraser Institute (2006), Economic Freedom in the World Database.
Countries: Benin; Botswana; Burkina Faso; Cameroon; Chad; Congo Republic; Cote d'Ivoire; Ethiopia; Gabon; Ghana; Kenya; Madagascar; Malawi; Mali; Mauritius; Niger; Nigeria; Rwanda; Senegal; South Africa; Tanzania; Togo; Uganda; Zambia; Zimbabwe (25 countries).		

