PAK Publishing Group
Growing Knowledge for Future

Proceedings Book of 2nd ICEFMO, 2014, Malaysia
Handbook on Economics, Finance and Management Outlooks
ISBN: 978-969-9952-06-7

Analysis of Impact of Financial Integration on Economic Activity, Trade Openness and Macroeconomic Volatility: The Case of African Pre-Emerging and Low Income Countries

Gabriel Mougani[1]

[1]*African Development Bank, Dakar, Senegal*

ABSTRACT

In this paper, we review some of the macroeconomic impacts of the international financial integration of emerging and developing countries. It is acknowledged that financial globalization and international financial integration affect several aspects of economic performance, particularly increase in the investment rate, technology transfers, trade openness, development of the domestic financial system and long-term economic growth. Similarly, financial globalization is recognized as a potential source of macroeconomic instability.

The results of empirical analysis in the case of African pre-emerging and low income countries show that the impact of external capital flows on growth seems to depend mainly on the initial conditions and policies implemented in the country under consideration to stabilize foreign investment, boost domestic investment, productivity, trade, development of the domestic financial system and other actions aimed at stimulating growth and reducing poverty.

The analysis also shows that financial instability was particularly severe as from the 90s, whereas many developing countries (including African economies) had only recently liberalized their capital accounts. The instability was more pronounced in the case of portfolio investments than in foreign direct investments because of the longer-term relationship established by the latter. Similarly, trends in official capital flows were less unstable than in private capital flows. Finally, the most severe instability of capital flows observed in financially more "open" countries was accompanied by greater macroeconomic instability.

Keywords: International financial integration, Trade openness, Economic activity, Volatility, Africa.

Contribution of Study

"Africa: The Next World Destination for Foreign Investments?" Author: Gabriel Mougani, Publisher: Phoenix Design Aid, Denmark, October 2012, ISBN: 978-9973-071-95-8 (2012 Mamoun Beheiry Award of Excellence awarded by the African Development Bank)

[1] I would like to thank Nadège Désirée Yameogo and Ines Mahjoub from the African Development Bank for providing helpful comments and for their valuable assistance for econometric analysis. The views expressed herein are those of the author and not those of the African Development Bank.

1. Introduction

The purpose of this study is to provide an empirical analysis of some of the impacts of international financial integration on economic activity and macro-economic volatility in the case of African pre-emerging and low-income countries. While dominant economic theory suggests that capital account liberalization has a more or less significant impact on economic growth, there are also a number of works that call into question the existence of capital mobility-related benefits.

Dominant economic theory suggests that financial globalization and international financial integration may foster more efficient resource allocation, facilitate risk diversification, increase specialization in production, create technological spin-offs, contribute to the development of the financial system, improve investment rates and boost growth (refer, in particular, to IMF (2001); Edison, Klein, Ricci and Sløk (2002a and 2000b); Henry (2000); King and Levine 1993); Mougani (2001 and 2006); Obstfeld (1994) ; Prasad et al. (2003); and Stulz (1999). In acknowledging the existence of these potential impacts, the industrialized countries have been committed to capital account liberalization policies for over a quarter of a century. According to these authors, many of the positive impacts observed in these countries are largely due to increased investment opportunities and financial development induced by greater openness of capital markets.

Many studies and international financial institutions[2] publications have naturally proposed that less developed countries should adopt economic policies aimed at fostering greater international financial integration. However, others who, in particular, note that fluctuations in capital flows related to capital account liberalization are likely to cause and spread financial crises have criticized this approach[3]. These new stances were mainly developed after the crises of the 1990s. Institutions such as the International Monetary Fund and some authors thus emphasized that while financial openness is desirable, it is essential for such liberalization to be gradual and prudent (IMF 2001).

The concepts of financial globalization and international financial integration are closely linked. Financial globalization is a broad concept that refers to the strong expansion of transnational financial flows (Prasad *et al*. 2003). According to the World Bank, 'financial globalization' or 'globalization of financial markets' can be defined as "as the integration of a country's local financial system with international financial markets and institutions" (World Bank, *Global Development Finance*, 2010). The concept of international financial integration (or financial integration) refers to the specific links of a country with international capital markets (Prasad *et al.* 2003). In other words, international financial integration can be likened to the opening of domestic financial systems, such as financial markets and institutions and banking systems, to the rest of the world and the internationalization of financial assets and liabilities managed by resident entities. It is also comparable to the concepts of financial liberalization and financial openness. In the remainder of this paper, the terms financial liberalization, financial openness, and international financial integration are used interchangeably.

The first section provides a literature review on the relationship between financial integration and economic growth in developing countries by distinguishing between works implying the existence of a positive relationship between financial integration and economic growth, and those that question or reject such a relationship. The second section presents an overview of economic literature on the relationship between financial integration and macroeconomic volatility. The third section is devoted to an empirical analysis of the relationship between financial integration and growth. Lastly, the fourth section considers the impact of financial integration on macroeconomic volatility from an empirical standpoint.

2. Review of Literature on Relationship between International Financial Integration and Economic Growth

Many academic studies have attempted to consider the relationship between capital account liberalization[4] and growth by incorporating an indicator of such liberalization into the classic growth model. The results of these studies are mixed, since some of them found a significant positive impact of capital account liberalization on growth while others were unable to establish such a relationship (refer to

[2] Refer, in particular to IMF (2001); Summers (1999); Klein and Olivei (2000); Baillu (2000); Borensztein, De Gregorio, and Lee [1998).

[3] Analyses of the financial crises of the 90s are to be found, in particular, in the October 2001, May 1999 and May 1998 issues of the International Monetary Fund's *World Economic Outlook* (2001), 1999 and 1998), the *Techniques financières et Développement* (issues 53-54, December 1998 - March,1999), Philippe D'Arvisenet and Jean-Pierre Petit's book [1999), studies by Prasad et al (2003), Rogoff (1999), Cartapanis (2003], Calvo and Reinhart (1996) and Jeanne O. (2004).

[4] Financial account based on the 5th edition of the Balance of Payments Manual BOPM5.

Table 1). We will present some of those works that imply a positive relationship between financial integration and economic growth and some of those that refute such a relationship.

2.1. Works Implying a Positive Relationship between International Financial Integration and Economic Growth

One of the foremost studies to highlight a positive relationship between capital account liberalization and growth was by Quinn (1997). Klein and Olivei (2000) also showed that capital account liberalization had a positive impact on growth in the case of developed countries. However, these two authors did not identify any positive link between capital account liberalization and economic growth in the case of non-industrialized countries. Baillu (2000) also finds that capital account liberalization boosts economic growth. The argument that the growth impacts of capital account liberalization depend on the level of economic development is defended by Edwards (1990 and 2001). He shows that the level of financial liberalization is positively linked to strong GDP per capita growth.

Arteta, Eichengreen, and Wyplosz (2001) suggested that the results obtained by Edwards (2001) could be sensitive to a number of factors, and concluded that there was evidence that the impacts of opening the capital account on growth are more favorable in rich and middle-income countries than in developing countries. Bekaert, Harvey and Lundblad (2001) examined the impact of stock market liberalization on economic growth. Overall, they show that financial liberalization leads to a one point increase in per capita GDP growth after a five–year period and that the impact is statistically significant. By analyzing the link between foreign direct investment (FDI) flows and per capita income in some Sub-Saharan African pre-emerging and low income countries, Fotso (2003) concludes that FDI-related technology transfers impact positively on growth. Delechat, Ramirez, Wagh and Wakeman-Linn (2009) also find, using a sample of 44 Sub-Saharan Africa countries, that net capital flows are positively correlated to the growth rate.

Some authors have analyzed this relationship through the impact of financial integration on trade openness as one of the more important channels towards economic growth (see Box 1).

Box-1. Analysis of the Impact of Financial Integration on Trade Openness

With the progress of globalization, the relationship between trade integration (measured by the ratio of exports and imports of goods to GDP) and financial integration raises important questions: is there complementarity between trade openness and financial openness? If so, is this relationship bilaterally positive? What are the measures for strengthening this relationship? (Shin and Yong Yang, 2006). Though not directly linked, it has been proved that countries, which are more open to trade, are also more open financially (Lane (2000); Heathcote and Perri (2004)). Feeney (1994) also concludes that the relationship between international capital markets and international trade in goods is complementary. Shin and Yong Yang have shown that the directional impact of trade in goods towards financial transactions is much more significant. Lane and Milesi-Ferretti (2004), by analyzing bilateral trade flows and the flow of goods, conclude that merchandise trade flows are strongly biased in favor of trade in financial assets. In the case of Asia, ASEAN Free Trade Area (AFTA) member countries have focused their regional integration not only through trade integration but also through FDI. However, other financial flows have remained fairly low.

2.2. Works Rejecting the Existence of a Positive Relationship between International Financial Integration and Economic Growth

Many of the studies reviewed could not demonstrate any correlation between the degree of financial openness and economic growth or at best they concluded on a mixed impact of financial integration on growth. In the nineties, Alesina, Grilli and Milesi-Ferreti (1994) on the one hand, and Grilli and Milesi-Ferreti (1995) on the other, have revealed the absence of linkages between the degree of financial liberalization and economic growth. Rodrik (1998) also raises doubts as to the existence of any influence of the degree of financial liberalization on economic growth. Nor does Kraay (1998) find any significant relationship between the degree of capital account liberalization and growth. O'Donnell (2001) also shows that capital account liberalization does not seem to accelerate economic growth. Like some studies, he finds that the benefits of financial liberalization vary according to the country. This difference in the significance of the impact of capital account liberalization is also highlighted by Chanda (2000).

Similarly, Edison *et al.* (2002) show that the estimated impact of the opening of the capital account or stock market liberalization on economic growth is mixed. However, these authors find some support for a positive effect of capital account liberalization on growth, especially for developing countries. Edwards (2001) shows that, in the case of developing countries, the degree of capital account liberalization has no impact on economic growth. The approach adopted by Reisen and Soto (2001) consisted in examining different types of capital flows; they showed that only FDI and portfolio investments in stocks were positively correlated with the growth rate. Mougani (2006) found that the empirical analysis do not support the view that international financial integration accelerates economic growth, even under particular economic and financial conditions.

2.3. Synthesis and Critical Analysis of Works on Relationship between International Financial Integration and Economic Growth

This section presents a synthesis and critical analysis of the different studies on the relationship between the degree of financial integration and economic growth (see Table 1 below). Overall, this table shows that the number of studies reaching a negative conclusion or mixed conclusions based on the relationship between the two variables is slightly higher. The wide disparities in results are due to a number of differences among these studies. Firstly, the sampling of countries under consideration varies by author, with some focusing their analysis on developed countries and others on developing countries, and yet others on both categories of countries. Secondly, the observation periods do not always coincide, which also explains the disparities between the results obtained. Thirdly, some works are confined to an analysis of the influence of the degree of financial integration on economic growth without considering other variables, whereas others analyze this influence by factoring it into the interaction of other variables. Finally, the econometric approaches differ.

Many studies have emphasized that these divergent results do not necessarily result from a difference in capital intensity ratios, but that such divergences stem mainly from differences in factor productivity which, in turn, may be explained by factors such as the quality of such social infrastructure as governance, compliance with the principles of law and private ownership[5]. Under these conditions, although financial integration provides the economy with additional capital from abroad, this does not in itself significantly boost growth. As underscored by Prasad *et al.* (2003), if governance is sufficiently weak, financial integration may lead to capital outflows and, consequently, low growth rates despite external capital inflows. This is illustrated by Senhadji (2000) who showed that, over the 1960-1994 periods, average per capita GDP for the Sub-Saharan-African group of countries was the lowest among the different regions of developing countries. Other studies have attempted to explain the difficulty of finding a causality link between financial integration and growth by highlighting the negative effects of financial crises associated with the external financial openness[6]. Such crises are often associated with sharp falls in the growth rate, social consequences and increased poverty. In addition, for developing countries, most of the studies have, in fact, neglected the impact of other factors in the development of poor countries that are highly sensitive to internal and external shocks (such as drought, socio-political unrest, volatility of world commodity prices). However, it should be acknowledged that such factors are not easily factored into an empirical analysis.

Table-1. Classification of Selected Studies on Relationship between Financial Integration and Growth

Studies Implying a Positive Relationship between Financial Integration and Economic Growth		**Studies Rejecting the Existence of a Positive Relationship between Financial Integration and Economic Growth or a Supporting a Mixed Effect**	
Study	**Impact on Growth**	**Study**	**Impact on Growth**
Quinn (1997)	Positive	Alesina, Grilli and Milesi-Ferretti (1994)	No Impact
Klein et Olivei (2000)	Positive (for developed countries)	Grilli and Milesi-Ferretti (1995)	No Impact
			Continue

[5] Refer, in particular, to Hall and Jones (1999); Senhadji (2000); Acemoglu, Johnson and Robinson (2001); King and Levine (1993); and Rogoff (2002).

[6] Refer, in particular, to Kaminsky and Reinhart (1999); Ishi *et al.* (2002).

Baillu (2000)	Positive	Kraay (1998)	No impact or, at best, mixed
Edwards (1990 and 2001)	Positive	Rodrik (1998)	No Impact
Arteta, Eichengreen, and Wyplosz (2001)	Positive (for rich and middle-income countries)	Chanda (2000)	No Impact or at best, mixed
Bekaert, Harvey and Lundblad (2001)	Positive	Klein et Olivei (2000)	No Impact (for developing countries)
Fotso Ndefo (2003)	Positive	Arteta, Eichengreen and Wyplosz (2001)	Mixed
Deléchat, Ramirez, Wagh, and Wakeman-Linn (2009)	Positive	Edwards (2001)	No Impact (for developing countries)
		O'Donnell (2001)	No Impact or at best, mixed
		Reisen and Soto (2001)	Mixed
		Edison, Klein, Ricci and Sløk (2002)	Mixed
		Edison, Levine, Ricci and Sløk (2002)	No Impact
		Mougani (2006)	No impact or, at best, mixed

3. Overview of Economic Literature on Relationship between International Financial Integration and Macroeconomic Volatility

The negative impact of financial instability on economic growth and the other macroeconomic and financial indicators has been the subject of considerable literature, especially in the wake of the Mexican and Asian crises in 1994 and 1997. As emphasized by the IMF, instability was particularly severe in the 1990s, whereas many developing countries (including African pre-emerging and low income countries) had only then liberalized their capital accounts. This instability was more pronounced in the case of portfolio investments than in direct investments because of the longer-term relationship established by the latter. The most severe instability of capital flows recorded in that decade was also accompanied by slightly weaker growth (IMF, 2001). Indeed, the 1990s witnessed many foreign exchange and financial system crises, often accompanied by a strong contraction in activity[7]. Barro (2001) also revealed that financial instability leads to drops in economic growth. This weak growth is the result of excessive capital inflows and outflows and, more generally, the instability of net financial flows (Prasad *et al.*, 2003; World Bank, 2000) and IMF, 2001).

The forecasts made by the IMF in the wake of the 1997 East Asian financial crises, which broke out in East Asia in 1997, anticipated a highly significant short-term slowdown in economic growth rates (IMF, 1998). As pointed out by Calvo and others (1996), in most cases, the financial crises were due to excessive capital inflows, which were especially volatile in the form of portfolio investments that were not efficiently allocated to the most productive investments. According to the IMF, these negative results were largely due to the limited capacities of the financial markets in many developing countries, the fact that lending agencies were less inclined to carry out deeper analysis of projects against a backdrop of abundant financial flows, and imbalances created by attempts to finance long-term projects with short-term capital (IMF, 2001).

The macroeconomic volatility in developing countries is also worsened by the international contagion phenomenon (Jeanne, 2004). The World Bank has shown that financial instability can also impact on the poverty level and have other consequences for the social situation (World Bank, 2000). In conclusion, liberalization can also be associated with more severe macro-economic instability and more frequent crises, which may generate social costs and an increase in poverty.

[7] Reviews of the 1990s financial crises were carried out in particular, in the October 2001, May 1999 and May 1998 issues of the IMF's *World Economic Outlook*, the *Techniques financières et Développement* (issues 53-54, December 1998-March 1999), D'Arvisenet and Petit (1999), Prasad *et al*. (2003), Cartapanis (2003), Jeanne (2004); Lelart (1999); Berthelemy (1999) and Calvo *et al.* (1996).

4. Empirical Analysis of Impact of International Financial Integration on Economic Growth

The overall empirical approach of this paper is as follows. Firstly, we develop a graphical approach (section 4.1). We also follow the literature in carrying out an econometric analysis based on a cross-sectional regression on the periods under investigation and in running a generalized method of moment (GMM) dynamic panel estimation, which is a more developed econometric approach (section 4.2).

4.1. The Graphical Approach

Firstly, the impact of globalization on growth is estimated on the basis of a simple mapping between two variables: the degree of financial integration (Infi) and the real GDP growth rate. Two alternative financial integration measurements are used: the ratio of net capital flows to GDP (Infi1) and the ratio of FDI flows to GDP (Infi2). Indeed, for most African pre-emerging and low-income countries, the difference between net and gross flows is not significant. Annexes 1 and 2 present a classification between financially "open" and "closed" countries according to the openness criteria selected. The analysis of the impact of financial integration on growth is also complemented by the study on the impact of financial integration transmission channels on growth. Four channels have been retained: domestic investment, financial development, trade integration and institutional development.

Annex 3 presents the different charts illustrating these relationships. A comparison of data relating to the degree of financial integration and GDP per capita growth seems to support the idea that there has been a strong correlation between the degree of financial integration and economic growth from the 1990s. Analysis of the empirical data in the case of African pre-emerging and low income countries between 1970 and 2006 shows that, on average, the most financially open countries have higher investment rates than closed economies and recorded the highest trade openness rates and "ease of doing business index". But, the impact of financial integration on financial development is mixed. Empirical data also show that African pre-emerging and low-income countries were not spared by the intensification and instability of international capital flows. The instability of capital flows was more severe in countries more "open" to external capital flows. The instability was more pronounced in the case of portfolio investments than in foreign direct investments because of the longer-term relationship established by the latter. Similarly, trends in official capital flows were less unstable than in private capital flows. Finally, the volatility of capital flows observed in financially "open" and "closed" countries was accompanied by moderate macroeconomic instability.

We are aware that the use of charts is not a robust methodology to analyze the relationship between financial integration and growth. We therefore move to an econometric analysis.

4.2. Econometric Analysis

4.2.1. Econometric Analysis of the Relationship between Financial Integration and Economic Growth

4.2.1.1. Methodology and Data

Following the literature analyzing the relationship between financial integration and economic growth, we use two different econometric approaches. Firstly, we use a simple cross-sectional regression on the period under investigation (1976-2009) for both "open" and "closed" countries. This approach is also used by Quinn (1997), Rodrik (1998), Kraay (1998), Klein and Olivei (2000), Arteta, Eichengreen and Wyplosz (2001), Schularick and Steger (2006). Secondly, we also refer to Schularick and Steger (2006) by running a generalized method of moment (GMM) dynamic panel estimation, which is a more developed econometric approach.

The cross-sectional regression, which is estimated with heteroskedasticity robust standard errors, takes the following form:

$$y_{it} = \alpha_{i0} + \alpha_{i1} npcf_{it} + \mu_{it} \quad (1)$$

$$y_{it} = \alpha_{i0} + \alpha_{i1} nfdi_{it} + \mu_{it} \quad (2)$$

Where y_i, the dependent variable, is the growth of real GDP per capita, npcfi denotes the average ratio of net private capital inflow to GDP (proxy for financial integration) over the period under study, nfd_{ii} denotes the average ratio of net FDI inflow to GDP (proxy for financial integration); μ_i represents a stochastic term, and subscript i indicates the country classification (open or closed), respectively. We also use a variant of the first equations (1) and (2) to include in the analysis of other macroeconomic variables

that may influence growth. More specifically, we also examine the following regression equations where, X_{it} is a vector of control variables.

$$y_{it} = \alpha_{i0} + \alpha_{i1}npcf_{it} + \alpha_{it}\, x_{it} + \mu_{it} \quad (3)$$

$$y_{it} = \alpha_{i0} + \alpha_{i1}nfdi_{it} + \alpha_{it}\, x_{it} + \mu_{it} \quad (4)$$

The vector of control variables includes the logarithm of investment ratio (inv) (indicator of economic policy), the logarithm of credit to private sector ratio (cps) (proxy of financial development) and the logarithm of exports and imports of goods and services ratio (trade) (proxy of trade openness). Unfortunately, we could not analyze the impact of institutional development due to insufficient data.

The GMM dynamic panel estimation improves over the cross-section regression for a number of reasons. It uses both the cross-sectional, time dimension of the data, increases the number of observations, controls for country-fixed effects and allows us to take the potential endogeneity of the regressors into account. We use the following dynamic panel regression models for both financial integration measures (the equations are formulated in first differences):

$$y_{it} - y_{it-1} = \alpha_{i0}(y_{it-1} - y_{it-2}) + \alpha_{i1}\,(npcf_{it} - npcf_{it-1}) + \alpha_{it}(x_{it} - x_{it-1}) + (\mu_{it} - \mu_{it-1}) \quad (5)$$

$$y_{it} - y_{it-1} = \alpha_{i0}(y_{it-1} - y_{it-2}) + \alpha_{i1}\,(nfdi_{it} - nfdi_{it-1}) + \alpha_{it}(x_{it} - x_{it-1}) + (\mu_{it} - \mu_{it-1}) \quad (6)$$

Our data, which have an annual frequency, are drawn from World Bank publications (World Development Indicators and Global Development Finance, 2011). Countries are classified into two categories: open and closed (Appendices 1 and 2). The summary statistics of open countries and closed countries are presented in Table 2 and Table 3.

Table-2. Summary Statistics (open countries)

Variable	Obs	Mean	Std. Dev.	Min	Max
1976-2009					
Growth (y)	34	2.062886	3.237811	-2.928926	13.67303
Financial integration 1 (npcf)	34	5.435394	4.260058	1.599195	17.69514
Financial integration 2 (nfdi)	34	6.824539	4.056335	1.270073	15.37204
Investment (inv)	34	11.4934	2.646051	8.690034	19.8679
Credit to private sector (cps)	34	20.17222	2.70487	13.67443	26.71676
Trade openness (trade)	34	86.95549	15.05937	65.60313	114.263

Table-3. Summary Statistics (closed countries)

Variable	Obs	Mean	Std. Dev.	Min	Max
1976-2009					
Growth (y)	34	.6001488	1.481603	-2.637752	3.044272
Financial integration 1 (npcf)	34	1.284575	1.037456	-.4466755	4.042594
Financial integration 2 (nfdi)	34	.9201531	.638936	.6510897	2.366241
Investment (inv)	34	11.57032	2.794269	8.690034	19.8679
Credit to private sector (cps)	34	20.3226	2.03426	16.55055	25.82795
Trade openness (trade)	34	58.51574	7.173498	43.53829	71.16619

4.2.1.2. Results for Open Countries

For this first stage analysis, we turn to the cross-sectional analysis. Table 4 displays the results for the classified open countries according to both financial integration measure (private financial flows and FDI). In regressions (1) and (3), there appears to be a significantly positive growth impact of international financial integration, measured via private capital inflows to GDP and FDI (FDI) inflows to GDP respectively. These results lend little support to the idea of an effect of financial openness on growth and show that the estimated effect on economic growth of financial integration is larger with the second financial integration measure (FDI flows) than those obtained with the first financial integration measure (private financial flows). These results are consistent with the findings of previous analysis above (Section 2) and consistent with much of the recent literature.

Adding the identified control variables in regressions (2) and (4), it seems impossible to identify a significantly positive influence of financial integration on economic growth during the years 1976-2009. Financial integration no longer enters the equation positively. However, the control variables keep the 'right' signs.

Table-4. Cross-sectional analysis using OLS regressions estimation, (Open countries), 1976-2009

Dependent variable (endogenous) : growth rate of real GDP per capita				
Financial integration measure	**Net Private Capital Flows**		**Net FDI Flows**	
Empirical specification	Model (1)	Model (3)	Model (2)	Model (4)
Financial integration 1 (npcf)	0.267**	0.0457		
	(0.126)	(0.167)		
Investment (inv)		0.210		0.177
		(0.209)		(0.208)
Credit to private sector (cps)		0.0886		0.115
		(0.210)		(0.199)
Trade openness (trade)		0.0821*		0.0611
		(0.0463)		(0.0473)
Financial integration 2 (nfdi)			0.349***	0.160
			(0.127)	(0.177)
Constant	0.612	-9.520*	-0.318	-8.695*
	(0.864)	(5.535)	(1.004)	(5.031)
Observations	34	34	34	34
R-squared	0.123	0.256	0.191	0.275

Note: OLS with heteroskedasticity robust standard errors; t-values in brackets; * denotes statistical significance at the 10%, ** at the 5%, *** at the 1%-level.

However, as noted by Schularick and Steger (2006), a cross-sectional analysis using OLS regressions could be biased if capital inflows were endogenous, i.e. determined by the growth rate of an economy. We therefore consider these results with caution and analyze results obtained via the dynamic panel method for more conclusive evidence. The results are presented in Table 5. They are consistent with the results offered by Alesina, Grilli and Milesi-Ferreti (1994), Grilli and Milesi-Ferreti (1995), Rodrik (1998), Edwards (2001), Edison, Levine, Ricci and Sløk (2002) as they lend to support to the idea of a nonexistence of impact of financial openness on growth. Financial integration no longer enters the equation positively. Regression (5) eventually confirms that it seems impossible to identify a significantly positive influence of financial integration (measured by the net private capital flows ratio to GDP) on economic growth during the years 1976-2009. Moreover, adding control variables in regression (6) the sign of the financial integration variable (measured by the net FDI ratio to GDP) turns 'wrong'.

Table-5. System GMM dynamic panel estimation (Open countries), 1976-2009

Dependent variable:	**growth rate of real GDP per capita**	
Regression		
Empirical specification	Model (5)	Model (6)
Financial integration (npcf)	0.00221	
	(0.0382)	
Investment (inv)	0.155***	0.259***
	(0.0479)	(0.0511)
Credit to private sector (cps)	-0.0449*	-0.0379
	(0.0253)	(0.0359)
Trade openness (trade)	0.00224	0.00641
	(0.0187)	(0.0239)
Financial integration (nfdi)		-0.263
		(0.222)
Constant	0.212	-0.497
	(1.902)	(2.262)
Observations	168	201
Number of id	10	10

Note: Arellano-Bond dynamic panel estimation, robust one-step system GMM results; t-values in brackets; * denotes statistical significance at the 10%, ** at the 5%, *** at the 1%-level.

4.2.1.3. Results for Closed Countries

According to both financial integration measures (private financial flows and foreign direct investment), the results for closed countries are presented in Table 6. In regressions (1) and (3), there

appears to be a significantly positive growth impact of financial integration, measured by the net private capital inflows ratio to GDP and the net foreign direct investment (FDI) inflows ratio to GDP respectively. Adding the identified control variables in regressions (2) and (4), it seems impossible to identify a significantly positive influence of financial integration on economic growth during the years 1976-2009. Moreover, in adding control variables in regression (2), the sign of the financial integration variable (measured by the net private capital inflows ratio to GDP) turns 'wrong'. Financial integration no longer enters the equation positively. With the exception of credit to the private sector, in regressions (2) and (4), the control variables keep the 'right' signs. According to these results, in the period under investigation, countries that are more financially integrated did not, on average, grow faster than closed economies.

Table-6. A cross-sectional analysis using OLS regressions estimation (closed countries), 1976-2009

Dependent variable (endogenous) : growth rate of real GDP per capita				
Financial integration measure	**Net Private Capital Flows**		**Net FDI Flows**	
Empirical specification	Model (1)	Model (3)	Model (2)	Model (4)
Financial integration 1 (npcf)	0.871**	-0.260		
	(0.380)	(0.488)		
Investment (inv)		0.305***		0.258**
		(0.101)		(0.112)
Credit to private sector (cps)		-0.0852		-0.115
		(0.113)		(0.153)
Trade openness (trade)		0.130***		0.0999
		(0.0435)		(0.0648)
Financial integration 2 (nfdi)			0.667***	0.135
			(0.223)	(0.517)
Constant	-0.201	-8.593**	-0.257	-6.068
	(0.424)	(3.453)	(0.366)	(6.231)
Observations	34	34	34	34
R-squared	0.141	0.386	0.218	0.381

Note: OLS with heteroskedasticity robust standard errors; t-values in brackets; * denotes statistical significance at the 10%, ** at the 5%, *** at the 1%-level.

We also analyze results for open countries obtained via the dynamic panel method for more conclusive evidence. The results are presented in Table 7. They are mixed as they lend support to the idea of a positive and significant influence of financial integration (measured by the net private capital flows ratio to GDP) on economic growth during the years 1976-2009 and the idea of a non-existence of impact of financial openness (measured by the net foreign direct investment flows ratio to GDP) on growth during the same period.

Table-7. System GMM dynamic panel estimation (Closed countries), 1976-2009

Dependent variable:	**growth rate of real GDP per capita**	
Regression		
Empirical specification	Model (5)	Model (6)
Financial integration 1 (npcf)	0.175***	
	(0.0638)	
Investment (inv)	0.145***	0.164***
	(0.0365)	(0.0363)
Domestic credit to private sector (cps)	-0.0101	-0.0140
	(0.0105)	(0.0111)
Trade	-0.00304	0.00911
	(0.00784)	(0.00866)
Financial integration 2 (nfdi)		0.00252
		(0.0197)
Constant	-0.327	-1.318**
	(0.623)	(0.668)
Observations	772	830
Number of id	34	36

Note: Arellano-Bond dynamic panel estimation, robust one-step system GMM results; t-values in brackets; * denotes statistical significance at the 10%, ** at the 5%, *** at the 1%-level.

In contrast to the evidence of a positive and significant relationship between financial integration and growth obtained via a cross-sectional analysis, the GMM dynamic panel estimation revealed the absence of linkages between the degree of financial liberalization and economic growth or at best concluded on a mixed impact of financial integration on growth. As a cross-sectional analysis using OLS regressions could be biased if discrete time-series data are used, the results obtained using the GMM dynamic panel estimation are preferred. In addition, the econometric analysis suggests that financial integration does not accelerate economic growth, even taking into consideration the impact of certain transmission channels (such as domestic investment, financial development and trade openness). We will now analyze the impact of financial integration on macroeconomic volatility.

4.2.2. Econometric Analysis of the Volatility of Net Capital Flows and Growth

We follow the World Bank's analysis of risks associated with financial openness (World Bank, 2000). The vulnerability classification is based on our estimates of volatility in private capital flows (FDI and portfolio investment flows) and growth, based on the following equations:

$nfdi_{it} = \alpha_i + \beta_i\, nfdi_{it-1} + \mu_{it}$ (7)

$npif_{it} = \alpha_i + \beta_i\, npif_{it-1} + \mu_{it}$ (8)

$y_{it} = \alpha_i + \beta_i\, y_{it-1} + \mu_{it}$ (9)

where :

$nfdi_{it}$, is the net FDI flows ratio to GDP for country i in year t;

$npif_{it}$ is the net portfolio investment flows ratio to GDP for country i in year t;

y_{it} is the growth rate of real GDP per capita for country i in year t; and

U_{it} denotes the error term.

The index of volatility in country i is defined as

$V_i = S(u_{it}) / GDP_{i,\,2009}$ (10)

Where S (u_{it}) is the ordinary least squares estimate of the standard error of the residuals in equation (7) using time series data from 1970 to 2009.

We follow the classification of countries by degree of volatility established by the World bank (2000) (see table 7). The classification of African pre-emerging and low-income countries by degree of volatility to net FDI flows, net portfolio investment flows and rate of real GDP per capita are presented in tables 8.1 to 8.3 respectively.

The results show that instability was more pronounced in the case of portfolio investments than in direct investments because of the longer-term relationship established by the latter. Moreover, FDI and portfolio investment flows were more volatile in open countries. These results are consistent with the findings of previous analysis (Section 2) and with much of the recent literature. Lastly, the volatility of capital flows observed in financially more 'open' and 'closed' countries was accompanied by moderate instability of economic growth.

5. Conclusion and Policy Recommendations

The study shows considerable divergences on the impact of financial integration on economic growth. In studying this relationship, the paper examines the case of African pre-emerging and low-income countries classified between "open" and "closed" countries for the 1976-2009 periods. The data do not support the view that international financial integration accelerates economic growth, even under particular economic and financial conditions. In addition, the significant private external capital inflows to the continent are a fairly recent phenomenon. In view of the inconclusive nature of the empirical evidence on links between growth and capital inflows, it seems too early to expect sound and strong econometric results in the case of African pre-emerging and low-income countries. These divergences do not necessarily call into question the theoretical underpinnings of a significant and strong relationship between financial integration and economic growth. This relationship could be analyzed on a long-term basis.

An additional explanation of these results can be offered. The significant and strong nature of this relationship is also closely linked to the existence of prerequisites such as the quality of public institutions and governance, the quality of governance of private institutions and enterprises, the level of transparency of government activities, the level of corruption, and the effectiveness of the legal and judicial frameworks (Kose *et al.,* 2009; Bekaert *et al.,* 2001 and Chanda, 2001). In contrast, Quinn and Toyoda (2008) and Kraay (1998), did not discover these effects.

Moreover, we found that instability was more pronounced for open countries than closed countries and in the case of portfolio investments than in direct investments. African pre-emerging and low-income countries have not been spared the volatility of international capital flows observed in recent times. However, the volatility of capital flows observed in "open" and "closed" countries was accompanied by moderate instability of economic growth.

5.1. Policy Recommendations

For *researchers*, financial globalization is captivating not only because of its fascinating policy relevance, but because of the huge variation of methodologies and experiences across countries. Most of the studies on the economic impact of financial globalization in developing economies were mainly devoted to emerging countries and shifted from the low-income countries, especially those in Africa. First, it is imperative to extend the research on measuring financial integration degree, further work on constructing additional measures of financial integration would be extremely useful. Secondly, understanding the specific channels through which different types of inflows affect long-run growth would also be an important step in evaluating their comparative benefits.

For *policymakers* in African pre-emerging and low income countries, the topic is practical and relevant, since most of African pre-emerging and low income countries are still very much in the early stages of financial integration, and face various ongoing decisions about the speed and depth of financial account liberalization, the types of external capital flows (FDI, portfolio investments, etc.). What is clear is that financial openness puts a greater burden on other policies and structural features of the economy. For African pre-emerging and low-income countries, financial integration can play a catalytic role in stimulating an array of collateral benefits that boost long-run growth and prosperity. Furthermore, some of the collateral benefits generated by financial integration, including macroeconomic discipline and financial system development and soundness, could also reduce volatility. But the existence of threshold conditions can generate perverse effects. Capital account liberalization in the absence of fundamental supporting conditions can vitiate the realization of any benefits, while making a country more vulnerable to financial crisis. Thus, it is not surprising that evidence on the impact of financial integration is so mixed.

In conclusion, the impact of external capital flows on growth seems to depend primarily on the initial conditions and policies implemented in the country under consideration to stabilize foreign investment, boost domestic investment, productivity and other actions aimed at boosting growth and reducing poverty.

References

Abiad, A., Oomes, N., and Ueda, K. (2004), The Quality Effect: Does Financial Liberalization Improve the Allocation of Capital? IMF Working Paper No 112, IMF, Washington.

Acemoglu, D., Johnson, S., and Robinson, J. A. (2001), Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution, MIT Working Paper 01/38 (Cambridge, Massachusetts: Massachusetts Institute of Technology, Department of Economics).

Alesina, A., Grilli, V. and Milesi-Ferretti, G. M. (1994), "The Political Economy of Capital Controls," in Capital Mobility: The Impact on Consumption, Investment, and Growth, ed. by Leonardo Leiderman and Assaf Razin (Cambridge: Cambridge University Press for CEPR).

Alfaro, L. and Charlton, A. (2007), Intra-Industry Foreign Direct Investment, Harvard Business School Working Papers, September.

Arnello, M and O. Bover (1995). "Another Look at the Instrumental Variable Estimation of Error-Components Models." Journal of Econometrics 68 (1): 29-51.

Arezki, R. and Brückner, M. (2009), Oil Rents, Corruption, and State Stability: Evidence from Panel Data Regression, Working Papers WP/09/267, IMF, Washington.

Arteta, C., Eichengreen B., and Wyplosz, C. (2001), "On the Growth Effects of Capital Account Liberalization" (unpublished; Berkeley: University of California).

Bacchetta, P. and Wincoop, E. V. (1998), "Capital Flows to Emerging Markets: Liberalization, Overshooting and Volatility," NBER Working Paper No. 6530 (Cambridge, Massachusetts: National Bureau of Economic Research).

Bailliu, J. (2000), "Private Capital Flows, Financial Development, and Economic Growth in Developing Countries," Bank of Canada Working Paper No. 2000-15, (Ottawa: Bank of Canada).

Barro, R. (2001), Economic Growth in Fast Asia before and After the Financial Crisis, NBER Working Paper No 8330 (Cambridge, Massachusetts: National Bureau of Economic Research).

Bayoumi, T. (1990), Saving-Investment Correlations: Immobile Capital, Government Policy, or Endogenous Behaviour? IMF Staff Papers, Vol. 37 (June), pp. 360-87.

Bekaert, G. (1993), Market integration and investment barriers in emerging equity markets. In Portfolio Investment in Developing Countries, World Bank Discussion Paper n° 228, eds. LAESSENS, S. and GOOPTU, S., pp. 221-251, World Bank, Washington, DC.

Bekaert, G., Harvey, C. R. and Lundblad, C. (2001), "Does Financial Liberalization Spur Growth?" NBER Working Paper No. 8245 (Cambridge, Massachusetts: National Bureau of Economic Research).

Berthélemy, J.-C. (1999), Tirer les leçons des crises financières, Techniques Financières et Développement, 53-54, Décembre 1998 - Mars 1999, Epargne Sans Frontière, Paris.

Blundell, R. and S. Bond (1997). "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models." University College London Discussion Papers in Economics 97/7.

Borensztein, E., Gregorio, J. De and Lee, J.-W. (1998), How Does Foreign Direct Investment Affect Economic Growth, Journal of International Economics, Vol. 45 (June), pp. 115-35.

Bosworth B., and Collins, S. (1999), "Capital flows to developing Economics: Implications for saving and investment", Brookings Papers on Economic Activity: 0 (1), pp. 279-293.

Cailleteau, P. et Vidon, E. (1999), La dynamique des crises financières internationales : quelques enseignements, Bulletin de la Banque de France, mars, Paris.

Calvo, G., Leiderman, L. and Reinhart, M. (1996), Inflows of Capital to Developing Countries in the 1990s, Journal of Economic Perspectives, Vol. 10, Number 2, pp. 123-39.

Cartapanis, A. (2003), Vers une prévention macro prudentielle des crises, Problèmes économiques, Numéro 2835 du 10 décembre.

Chanda, A. (2000), "The Influence of Capital Controls on Long Run Growth: Where and How Much?" Working Paper, North Carolina State University.

D'Arvisenet, Ph. et Petit, J.-P. (1999), Economie internationale, Dunod, Paris.

Delechat, Ramirez, Wagh and Wakeman-Linn (2010), How Global Financial Markets Affect Sub-Saharan Africa, IMF Staff Papers, Vol. 57, No 1, pp. 172-208.

Demirgüç-Kunt, A. and Detragiache, E. (1998), Financial liberalization and financial fragility, IMF Working Paper n° 83, IMF, Washington.

Easterley, W., and Levine, R. (2001), It's Not Factor Accumulation: Stylized Facts and Growth Models, World Bank Economic Review, Vol. 15, No 2, pp. 177-219.

Edison, H., Klein, M., Ricci, L., and Sløk, T. (2002), "Capital Account Liberalization and Economic Performance: A Review of the Literature", IMF Working Paper 02/120 (International Monetary Fund, Washington).

Edison, H., Levine, R., Ricci L., and Sløk, T. (2002), "International Financial Integration and Economic Growth", Journal of International Money and Finance, Vol. 21 (November).

Edwards, S. (2001), "Capital Mobility and Economic Performance: Are Emerging Economies Different?" NBER Working Paper No. 8076 (Cambridge, Massachusetts: National Bureau of Economic Research).

Edwards, S., 1990, Capital Flows, Foreign Direct Investment, and Debt-Equity Swaps in Developing Countries, NBER Working Paper, n0 3497, October.

Eichengreen, B. and Mussa, M., with Dell'Ariccia, G., Detragiache, E., Milesi-Ferreti, G. M. and Tweedie, A. (1998), Capital account liberalization, theoretical and practical aspects, Occasional Paper, n° 172, IMF, Washington, DC.

Feeney, J. (1994), International market interdependence and learning-by-doing in a risky world, Review of World Economic, Vol. 130, No. 1, 101-117.

Feldstein, M. and Horioka, C. (1980), Domestic Saving and International Capital Flows, Economic Journal, vol. 90, June, 314-29.

Fotso Ndefo, N. (2003), Impact des investissements directs étrangers sur la croissance : quelques résultats sur les pays africains au sud du Sahara, Série Notes d'Etudes et Recherche n0 3, BEAC, Yaoundé.

Gourinchas, P.-O., and Jeanne, O. (2002), On the Benefits of Capital Account Liberalization for Emerging Economies, Working Paper, Washington.

Grilli, V., and Milesi-Ferretti, G. M. (1995), "Economic Effects and Structural Determinants of Capital Controls," Staff Papers, International Monetary Fund, Vol. 42 (September), p. 517-51.

Hall, R. E., and Jones, C. I. (1999), Why Do Some Countries Produce So Much More Output Per Worker Than Others? Quarterly Journal of Economics, Vol. 114 (February), pp. 83-116.

Hanson, J. (1995), Opening the capital account: costs, benefits and sequencing, (International Monetary Fund, Washington).

Heathcote, J. & Perri, F. (2004), "The international diversification puzzle is not as bad as you think," Meeting Papers 152, Society for Economic Dynamics.

Henry, P., 2000, Do stock market liberalization cause investment booms, Journal of Financial Economics, Vol. 58, p. 301-334.

International Monetary Fund (2001), World Economic Outlook, October, World Economic and Financial Surveys (International Monetary Fund, Washington).

International Monetary Fund (1999), World Economic Outlook, May, World Economic and Financial Surveys (IMF, Washington).

International Monetary Fund (1998), World Economic Outlook, May, World Economic and Financial Surveys (IMF, Washington).

International Monetary Fund, International financial statistics, various issues (IMF, Washington).

Ishi, S., Habermeir, K., Laurens, B., Leimone, J., Vadasz, J. and Canales-Kriljenko, J. I. (2002), Capital Account Liberalization and Financial sector Stability, IMF Occasional Paper No 211, IMF, Washington.

Jeanne, O. (2003), Why Do Emerging Market Economies Borrow in Foreign Currency? IMF Working Paper 03/177, Washington, DC.

Kaminsky, G., and Reinhart, C. M. (1999), The Twin Crises: The Causes of Banking and Balance of Payments Problems, American Economic Review, Vol. 89 (June), pp. 473-500.

King, R., and Levine, R. (1993), Finance, Entrepreneurship and Growth: Theory and Evidence, Journal of Monetary Economics, Vol. 32 (December), pp. 513-42.

Klein, M., and Olivei, G. (2000), Capital Account Liberalization, Financial Depth, and Economic Growth (unpublished; Medford, Massachusetts: Tufts University).

Kraay, A. (1998), "In Search of the Macroeconomic Effects of Capital Account Liberalization," (unpublished; Washington: World Bank).
Knack, S. and Keefer, Ph. (1997), Does Social Capital Have an Economic Payoff? A Cross-Country Investigation, Quarterly Journal of Economics 112.
Kolstad, I., and Søreide, T., (2007), Corruption in natural resource management: a primer for policy makers, mimeo, Bergen: Chr. Michelsen Institute.
Kose, A., Prasad, E. S., and Taylor, A. D., 2009, Thresholds in the Process of International Financial Integration, World Bank Policy Research Working Paper No. 5149
Lane Phillip, R (2000), "International Investment Position: A Cross Sectional Analysis," Journal of International Money and Finance, 19, 513–534.
Lane, Phillip R, and Gian Maria Milesi-Ferretti, (2004), "International Investment Patterns," IMF Working Paper WP/04/134, Washington, DC.
Lardic, S. et Mignon, V. (2002), Econométrie des séries temporelles macroéconomiques et financières, Economica, Paris.
Legros, F. et Sasenou, M. N. (1998), Croissance et mode de financement. Analyse économétrique sur données de panel, Revue Economique, Volume 49, n°1, Janvier 1998, Paris.
Lelart, M. (1999), Le Fonds Monétaire International et la crise asiatique, Techniques Financières et Développement, 53-54, Décembre 1998 - Mars 1999, Epargne Sans Frontière, Paris.
Levine, R. (1997), "Financial Development and Economic Growth: Views and Agenda," Journal of Economic Literature, Vol. 35 (June), pp. 688-726.
Lopez-Mejia, A. (2001), Afflux de capitaux : Causes, conséquences et réactions des pouvoirs publics, Institut du FMI (Conférences sur la macroéconomie), FMI, Washington.
Marais, E. (2003), La contagion financière: une étude empirique sur les causalités lors de la crise asiatique, CEFI, UMR 6126, CNRS, Décembre.
Melhum, H., Moene, K. and Torvik, R. (2006), "Institutions and the resource curse", The Economic Journal, 116, 1-20.
Minda, A. (1999), Urgence et gestion des crises financières : les leçons des crises mexicaine et asiatique, Techniques Financières et Développement, 53-54, Décembre 1998 - Mars 1999, Epargne Sans Frontière, Paris.
Mishkin, F. S. (1996), "Understanding Financial Crises: A Developing Country Perspective," NBER Working Paper No. 5600 (Cambridge, Massachusetts: National Bureau of Economic Research).
Mody, A., and Antu Panini, M. (2002), "Growing Up With Capital Flows" IMF Working Paper 02/75, IMF, Washington.
Montiel, P. (1995), «Financial Policies and Economic Growth: Theory, Evidence and Country Specific Experience from Sub-Saharan Africa», Special Paper nº 8, African Economic Research Consortium.
Mougani, G. (2006), Intégration financière internationale, incidences macro-économiques et volatilité des flux de capitaux extérieurs : une analyse empirique dans le cas des pays de la CEMAC, Document de recherche no 2006-7, Université d'Orléans, France.
Obstfeld, M. (1994a), "Risk-Taking, Global Diversification and Growth," American Economic Review, Vol. 84, No. 5 (November), pp. 1310-29.
O'Donnell, B. (2001), "Financial Openness and Economic Performance" (unpublished; Dublin: Trinity College).
Prasad, A., Rogoff, K., Wei S.-J., and Kose, A. (2003), Effects of Financial Globalization on Developing Countries Some Empirical Evidence, IMF Occasional paper 220, IMF, Washington.
Quinn, D. (1997), The Correlates of Change in International Financial Regulation, American Political Science Review, Vol. 91 (September), p. 531-51.
Quinn, D. P., and Toyoda, A. M. (2008), Does Capital Account Liberalization Lead to Growth? Review of Financial Studies 21: 1403-1449.
Rajan, Raghuram G. & Zingales, Luigi (1998), "Power in a Theory of the Firm," The Quarterly Journal of Economics, MIT Press, vol. 113(2), pages 387-432, May.
Reisen, H., and Soto, M. (2001), Which Types of Capital Inflows Foster Developing country Growth? International Finance 4:1, pp. 1-14.
Rodrik, D. (1998), "Who Needs Capital-Account Convertibility?" Essays in International Finance, No. 207 (Princeton: Princeton University).
Rogoff, K. (2002), "Rethinking Capital Controls: When Should We Keep an Open Mind?" Finance and Development, December, Vol. 39, No. 4, pp. 55–56.
Rogoff, K. (1999), International Institutions for Reducing Global Financial Instability, Journal of Economic Perspectives, 13 (4), autumn.
Schularick, M. and Steger, T. M. (2006), Does Financial Integration Spur Economic Growth? New Evidence from the First Era of Financial Globalization, CESifo Working Paper No. 1691, March.
Senhadji, A. (2000), Sources of Economic Growth: An Extensive Growth Accounting Exercise, Staff Papers, IMF, Washington, Vol.47, No. 1, pp. 129-57.
Shin, Kwanho & Yang, Doo Yong (2006), "Complementarity between Bilateral Trade and Financial Integration," MPRA Paper 694, University Library of Munich.
Stulz, R. (1999), "Globalization of Equity Markets and the Cost of capital", NBER Working Paper 7021 (March).
Summers, L. H. (1999), The Right Kind of IMF for a Stable Global Financial System, Mimeo, London Business School, London, December 14.
UNCTAD (2000-2010), World Investment Report, Geneva.
Villa, P. (1998), Croissance et contraintes financières dans les pays en développement, Revue Economique, Volume 49, n°1, Janvier 1998, Paris.
Wei, Shang-Jin (2001), "Domestic Crony Capitalism and International Fickle Capital: Is There a Connection?" International Finance, 4 (Spring) 15–46.
Williamson, J. and Mahar, M. (1998), A survey of Financial Liberalization, Essays in International Finance, N0211, November, Princeton University.

World Bank (2010), Doing Business, Washington DC.
World Bank (2011a), Global Development Finance, Washington DC.
World Bank (2011b), World Development Indicators, Washington DC.
World Bank (2001), Global Development Finance, Chapter IV, October, Washington DC.
World Bank (2000), The Quality of Growth, (World Bank: Washington DC).
Wyplosz, C. (1998), Globalized financial markets and financial crisis, Forum and Debt Development, Amsterdam, 16-17 mars.

Annex-1. Africa: Classification of Countries According to the Degree of Financial Integration (measured by private capital flows) 1/

	1970-79		1980-89		1990-99		2000-09		1970-2009	
Open countries	Algeria	Morocco	Angola	Libya	Angola	Mauritania	Angola	Lesotho	Angola	Lesotho
	Congo, Rep.	Nigeria	Botswana	Morocco	Congo, Rep.	Nigeria	Cape Verde	Liberia	Botswana	Liberia
	Egypt, Arab Rep.	Sierra Leone	Egypt, Arab Rep.	Nigeria	Equatorial Guinea	Seychelles	Chad	Mauritania	Cape Verde	Nigeria
	Liberia	South Africa	Equatorial Guinea	South Africa	Eritrea	Swaziland	Congo, Rep.	Seychelles	Congo, Rep.	Sao Tome and Principe
	Libya	Tunisia	Liberia	Tunisia	Gambia, The	Tunisia	Equatorial Guinea	Sudan	Djibouti	Seychelles
					Lesotho	Zambia	Gambia, The	Tunisia	Equatorial Guinea	Tunisia
					Liberia				Eritrea	Zambia
									Gambia, The	
Closed countries	Angola	Kenya	Algeria	Lesotho	Algeria	Libya	Algeria	Madagascar	Algeria	Mauritania
	Benin	Lesotho	Benin	Madagascar	Benin	Madagascar	Benin	Malawi	Benin	Mauritius
	Botswana	Madagascar	Burkina Faso	Malawi	Botswana	Malawi	Botswana	Mali	Burkina Faso	Morocco
	Burkina Faso	Malawi	Burundi	Mali	Burkina Faso	Mali	Burkina Faso	Mauritius	Burundi	Mozambique
	Burundi	Mali	Cameroon	Mauritania	Burundi	Mauritius	Burundi	Morocco	Cameroon	Namibia
	Cameroon	Mauritania	Cape Verde	Mauritius	Cameroon	Morocco	Cameroon	Mozambique	Central African Republic	Namibia
	Cape Verde	Mauritius	Central African Republic	Mozambique	Cape Verde	Mozambique	Central African Republic	Niger	Chad	Niger
	Central African Republic	Mozambique	Chad	Niger	Central African Republic	Niger	Comoros	Nigeria	Comoros	Rwanda
	Chad	Niger	Comoros	Rwanda	Chad	Rwanda	Congo, Dem. Rep.	Rwanda	Cote d'Ivoire	Senegal
	Comoros	Rwanda	Congo, Dem. Rep.	Sao Tome and Principe	Comoros	Sao Tome and Principe	Cote d'Ivoire	Sao Tome and Principe	Egypt, Arab Rep.	Sierra Leone
	Congo, Dem. Rep.	Sao Tome and Principe	Congo, Rep.	Senegal	Congo, Dem. Rep.	Senegal	Djibouti	Senegal	Ethiopia	Somalia
	Cote d'Ivoire	Senegal	Cote d'Ivoire	Seychelles	Cote d'Ivoire	Sierra Leone	Egypt, Arab Rep.	Sierra Leone	Ghana	South Africa
	Djibouti	Seychelles	Djibouti	Sierra Leone	Djibouti	Somalia	Eritrea	Somalia	Guinea	Sudan
	Equatorial Guinea	Somalia	Eritrea	Somalia	Egypt, Arab Rep.	South Africa	Ethiopia	South Africa	Guinea-Bissau	Tanzania
	Eritrea	Sudan	Ethiopia	Sudan	Ethiopia	Sudan	Gabon	Swaziland	Kenya	Togo
	Ethiopia	Swaziland	Gabon	Swaziland	Gabon	Tanzania	Ghana	Tanzania	Libya	Uganda
	Gabon	Tanzania	Gambia, The	Tanzania	Ghana	Togo	Guinea	Togo	Libya	Zimbabwe
	Gambia, The	Togo	Ghana	Togo	Guinea	Uganda	Guinea-Bissau	Uganda	Madagascar	
	Ghana	Uganda	Guinea	Uganda	Guinea-Bissau	Zimbabwe	Kenya	Zambia	Malawi	
	Guinea	Zambia	Guinea-Bissau	Zambia	Kenya		Libya	Zimbabwe	Mali	
	Guinea-Bissau	Zimbabwe	Kenya	Zimbabwe						

Source: Author's calculations.
1/ According to the net private capital flows (in percent of GDP). A country is defined as open when its openness measure exceeds the average value for the specified sample period. The remaining countries are defined as closed.

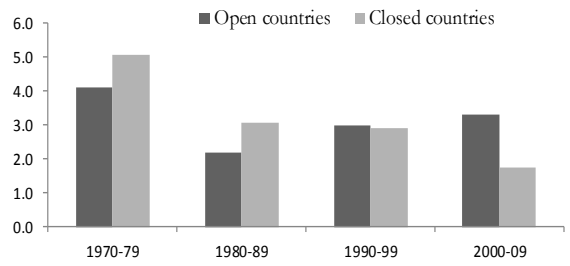
Annex-2. Africa: Classification of Countries According to the Degree of Financial Integration (measured by FDI Flows) 1/

	1970-79		1980-89		1990-99		2000-09		1970-2009	
Open countries	Botswana	Malawi	Angola	Lesotho	Angola	Liberia	Angola	Lesotho	Angola	Gambia, The
	Congo, Rep.	Nigeria	Botswana	Liberia	Congo, Rep.	Nigeria	Cape Verde	Liberia	Botswana	Lesotho
	Gabon	Seychelles	Comoros	Nigeria	Equatorial Guinea	Seychelles	Chad	Mauritania	Cape Verde	Liberia
	Gambia, The	Swaziland	Congo, Rep.	Seychelles	Eritrea	Swaziland	Congo, Dem. Rep.	Mozambique	Chad	Mauritania
	Liberia		Egypt, Arab Rep.	Swaziland	Gambia, The	Zambia	Congo, Rep.	Seychelles	Congo, Rep.	Sao Tome and Principe
			Equatorial Guinea	Tunisia	Lesotho		Equatorial Guinea	Sudan	Djibouti	Seychelles
			Gabon	Zambia			Gambia, The		Equatorial Guinea	Swaziland
									Eritrea	Zambia
Closed countries	Algeria	Libya	Algeria	Malawi	Algeria	Kenya	Algeria	Malawi	Algeria	Mali
	Angola	Madagascar	Benin	Mali	Benin	Libya	Benin	Mali	Benin	Mauritius
	Benin	Mali	Burkina Faso	Mauritania	Botswana	Madagascar	Botswana	Mauritius	Burkina Faso	Morocco
	Burkina Faso	Mauritania	Burundi	Mauritius	Burkina Faso	Malawi	Burkina Faso	Morocco	Burundi	Mozambique
	Burundi	Mauritius	Cameroon	Morocco	Burundi	Mali	Burundi	Niger	Cameroon	Namibia
	Cameroon	Morocco	Cape Verde	Mozambique	Cameroon	Mauritania	Cameroon	Nigeria	Central African Republic	Niger
	Cape Verde	Mozambique	Central African Republic	Niger	Cape Verde	Mauritius	Central African Republic	Rwanda	Comoros	Nigeria
	Central African Republic	Niger	Chad	Rwanda	Central African Republic	Morocco	Comoros	Sao Tome and Principe	Congo, Dem. Rep.	Rwanda
	Chad	Rwanda	Congo, Dem. Rep.	Sao Tome and Principe	Chad	Mozambique	Cote d'Ivoire	Senegal	Cote d'Ivoire	Senegal
	Comoros	Sao Tome and Principe	Cote d'Ivoire	Senegal	Comoros	Niger	Djibouti	Sierra Leone	Egypt, Arab Rep.	Sierra Leone
	Congo, Dem. Rep.	Senegal	Djibouti	Sierra Leone	Congo, Dem. Rep.	Rwanda	Egypt, Arab Rep.	Somalia	Ethiopia	Somalia
	Cote d'Ivoire	Sierra Leone	Eritrea	Somalia	Congo, Rep.	Sao Tome and Principe	Eritrea	South Africa	Gabon	South Africa
	Djibouti	Somalia	Ethiopia	South Africa	Cote d'Ivoire	Senegal	Ethiopia	Swaziland	Ghana	Sudan
	Egypt, Arab Rep.	South Africa	Gambia, The	Sudan	Djibouti	Sierra Leone	Gabon	Tanzania	Guinea	Tanzania
	Equatorial Guinea	Sudan	Ghana	Tanzania	Egypt, Arab Rep.	Somalia	Ghana	Togo	Guinea-Bissau	Togo
	Eritrea	Tanzania	Guinea	Tanzania	Ethiopia	South Africa	Guinea	Tunisia	Kenya	Tunisia
	Ethiopia	Togo	Guinea-Bissau	Togo	Gabon	Sudan	Guinea-Bissau	Uganda	Libya	Uganda
	Ghana	Tunisia	Kenya	Uganda	Ghana	Togo	Kenya	Zambia	Madagascar	Zimbabwe
	Guinea	Uganda	Libya	Zimbabwe	Guinea	Tunisia	Libya	Zimbabwe	Malawi	
	Guinea-Bissau	Zambia	Madagascar		Guinea-Bissau	Zimbabwe	Madagascar			
	Kenya	Zimbabwe								
	Lesotho									

Source: Author's calculations.

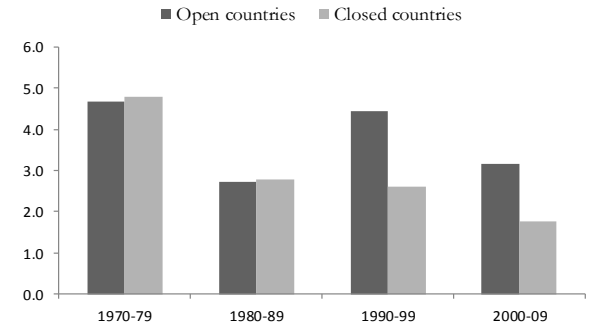
Annex-3.

Figure 2a. Africa: Growth by Financial Integration (according to the private flows), 1970-2009



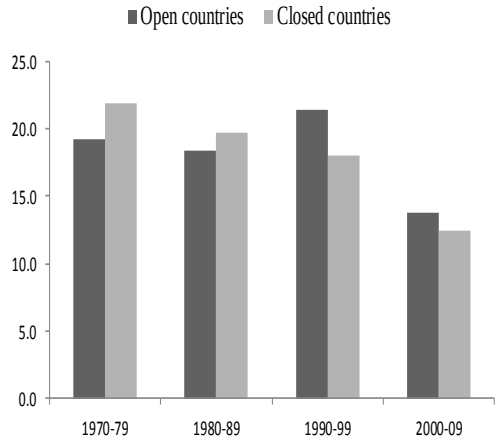
Source: World Bank (2011a)

Figure 6.2b. Africa: Growth by Financial Integration (according to the FDI flows), 1970-2009



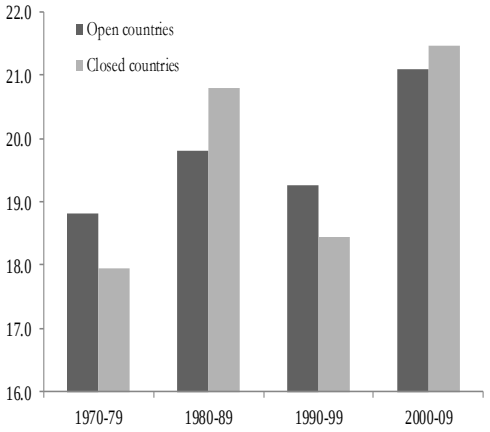
Sources: World Bank (2011a) and UNCTAD (2000-2010)

Figure 3. Africa: Gross fixed capital formation by Financial Integration (according to the net Private flows) (In percent of GDP), 1970-2009



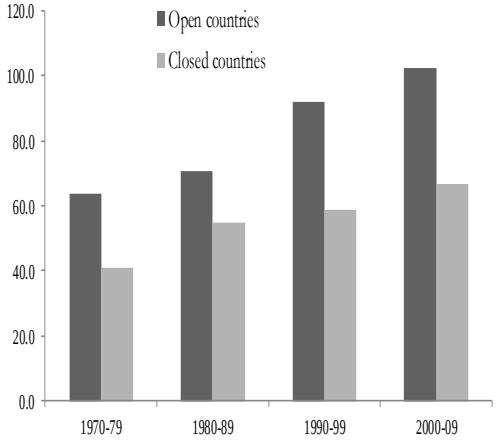
Sources: World Bank (2011a and 2011b)

Figure 4. Africa: Domestic Credit to Private Sector (as % of GDP) by Financial Integration (according to the net private flows), 1970-2009



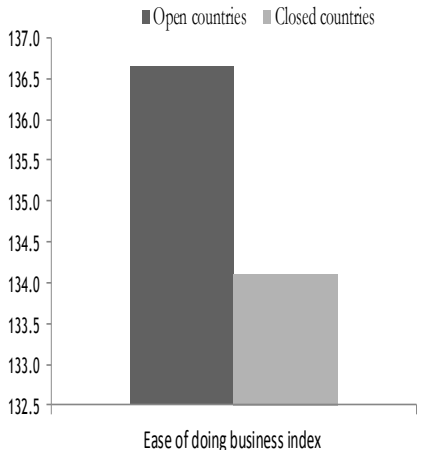
Sources: World Bank (2011a and 2011b)

Figure 5. Africa: Trade openess degree by Financial Integration degree (as % of GDP), 1970-200



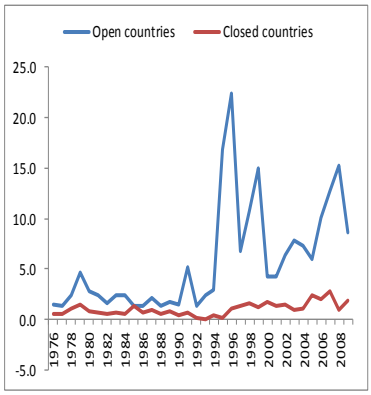
Sources: World Bank (2011a and 2011b)

Figure 6. Africa: Institutional development, Financial integration and Growth, 2000-09 (Average

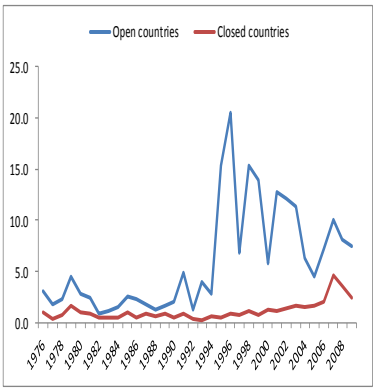


Sources: World Bank (2010)

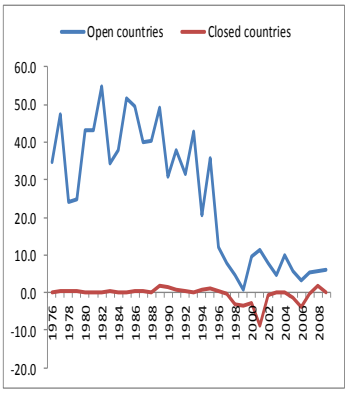
Net Private Capital Flows



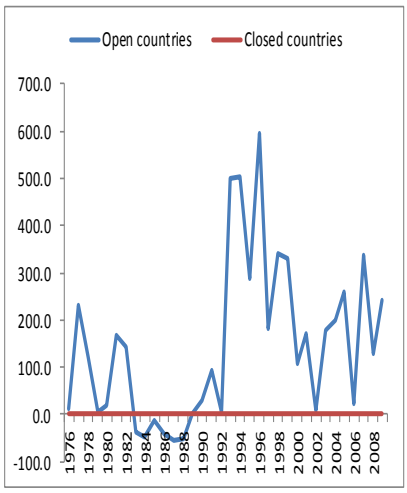
Net FDI Flows



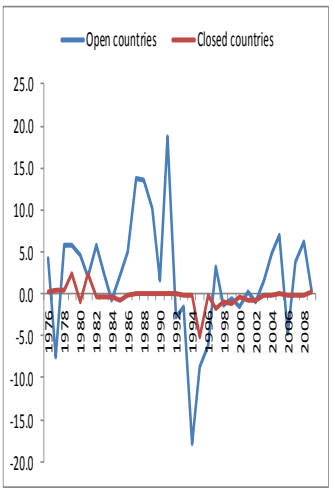
Net Official Capital Flows



Net Portfolio Investment Flows



Net Banking Flows



GDP Growth

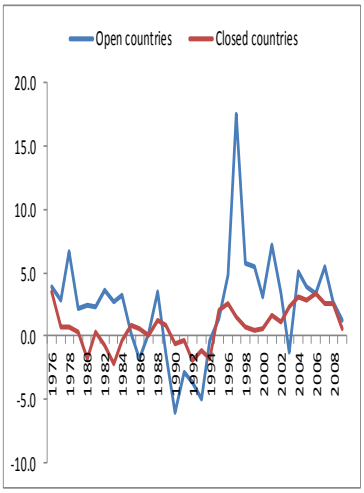


Figure-7. Africa Financial Openness, Volatility of Net Capital Flows and Growth, 1970-2006
Sources: World Bank, Global Development Finance and IMF, International Financial Statistics.

Table-8.1. African Countries Classified by Degree of Volatility to Net Foreign District Investment Flows

Highly volatile (*Index* > 1,54)			*Volatile* (1,00 < *Index* < 1,54)			*Moderately volatile* (0,64 < *Index* < 0,99)			*Least volatile* (*Index* < 0,64)		
Country	*Index*	*Category*	*Country*	*Index*	Category	*Country*	*Index*	*Category*	*Country*	*Index*	*Category*
Seychelles	21.59	Open	Guinea Bissa	1.53	Closed	Congo. Rep.	0.99	Open	Egypt	0.56	Closed
Eritrea	10.78	Open	Tunisia	1.44	Open	Côte d'Ivoire	0.98	Closed	Mauritius	0.55	Closed
Equatorial Guinea	9.70	Open	Djibouti	1.41	Open	Ghana	0.92	Closed	Morocco	0.50	Closed
São Tomé & Princip	4.06	Open	Rwanda	1.39	Closed	Tanzania	0.89	Closed	Malawi	0.31	Closed
Lesotho	3.05	Open	Burundi	1.37	Closed	Nigeria	0.80	Open	Ethiopia	0.16	Closed
Burkina Faso	2.55	Closed	Libya	1.31	Closed	Mozambique	0.67	Closed	Zimbabwe	0.13	Closed
Togo	2.48	Closed	Mali	1.26	Closed	Uganda	0.62	Closed	Namibia	-0.06	Closed
Sierra Leone	2.30	Closed	Gambia	1.22	Open				Madagascar	-0.14	Closed
Benin	2.04	Closed	Zambia	1.17	Open				Mauritania	-0.28	Closed
Sudan	1.82	Closed							Niger	-0.29	Closed
Algeria	1.82	Closed							Chad	-0.35	Closed
Cape Verde	1.60	Open							Gabon	-0.41	Closed
									Botswana	-0.46	Open
									South Africa	-0.54	Closed
									Guinea	-0.91	Closed
									Comoros	-1.34	Closed
									Senegal	-2.92	Closed
									Swaziland	-4.23	Closed
									Cameroon	-6.82	Closed
									Central African R	-7.03	Closed
									Angola	-13.78	Open
									Liberia	-33.27	Open
									Kenya	-44.02	Closed

Source: author's computations from World Bank (2011a and b).

Table-8.2. African Countries Classified by growth rate of real GDP per capita

Highly volatile (Index > 1,54)			*Volatile (1,00 < Index < 1,54)*			*Moderately volatile (0,64 < Index < 0,99)*			*Less volatile (Index < 0,64)*		
Country	*Index*	*Category*	*Country*	*Index*	*Category*	*Country*	*Index*	*Category*	*Country*	*Index*	*Category*
Congo. Dem. Rep.	12.98	Closed	Eritrea	1.34	Open	Togo	0.99	Closed	Tunisia	0.64	Open
Libya	4.68	Closed	Benin	1.31	Closed	Sudan	0.86	Closed	Lesotho	0.63	Open
Seychelles	4.22	Open	Guinea Bissau	1.20	Closed	Mali	0.85	Closed	São Tomé & Principe	0.60	Open
Burkina Faso	2.59	Closed	Rwanda	1.18	Closed	Equatorial Guinea	0.84	Open	Côte d'Ivoire	0.56	Closed
Algeria	2.00	Closed	Sierra Leone	1.16	Closed				Cape Verde	0.52	Open
Burundi	1.72	Closed							Mauritius	0.51	Closed
									Ghana	0.50	Closed
									Tanzania	0.40	Closed
									Gambia	0.35	Open
									Uganda	0.33	Closed
									Mozambique	0.32	Closed
									Morocco	0.32	Closed
									Djibouti	0.31	Open
									Zambia	0.28	Open
									Nigeria	0.27	Open
									Malawi	0.26	Closed
									Congo. Rep.	0.25	Open
									Egypt	0.25	Closed
									Ethiopia	0.19	Closed
									Zimbabwe	0.17	Closed
									Madagascar	-0.13	Closed
									Niger	-0.21	Closed
									Botswana	-0.24	Open
									Chad	-0.27	Closed
									Mauritania	-0.29	Closed
									Gabon	-0.33	Closed
									South Africa	-0.41	Closed
									Namibia	-0.41	Closed
									Guinea	-0.47	Closed
									Swaziland	-1.11	Closed
									Comoros	-1.19	Closed
									Senegal	-2.24	Closed
									Angola	-2.76	Open
									Liberia	-3.65	Open
									Cameroon	-5.18	Closed
									Central African Republic	-5.33	Closed
									Kenya	-43.67	Closed

Source: author's computations from World Bank (2011a and b).